2011 NSS-MIC Valencia

IEEE Nuclear Science Symposium and Medical Imaging Conference

CONFERENCE PROGRAM

23-29 October 2011 - Valencia, Spain

Valencia Convention Center

18th International Workshop on
Room-Temperature Semiconductor X-Ray
and Gamma-Ray Detectors

Industrial Exhibition / Short Courses /
Special Focus Workshops

David W. Townsend, General Chair
Conference e-mail: nssmic2011@ciemat.es
Conference web-site: www.nss-mic.org/2011

NUCLEAR & PLASMA SCIENCES SOCIETY

IEEE


IEEE


NUCLEAR &
PLASMA SCIENCES
SOCIETY


CERN


Ciemat


CPAN
Ingenio 2010


DTRA
Defense Threat
Reduction Agency


FLIR


JÜLICH
FORSCHUNGSZENTRUM


GE


GENERALITAT
VALENCIANA


HAMAMATSU
PHOTON IS OUR BUSINESS


i3M
Instituto de Instrumentación
para Imagen Molecular


kromek


NNSA
National Nuclear Security Administration


ORTEC
a division of AMETEK


QATAR ENVIRONMENT
& ENERGY RESEARCH INSTITUTE


SEDECAL


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TOSHIBA
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ASP
ASSOCIAZIONE PER LA PROMOZIONE DELLO SVILUPPO
SCIENTIFICO E TECNOLOGICO DEL PIEMONTE

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Color Code

We have implemented a simple color coding scheme in an effort to provide a guide in the use of this program booklet and to consistently indicate the content of any given section.

The program section is divided by weekday to provide a complete package of sessions for each conference day. Each daily section includes oral, poster, joint, and special sessions and workshops.

The page color for oral and poster session content is reversed for clarity: oral presentation listings are contained in colored pages with the day indicated with a lighter watermark. Poster presentation pages are light color with a darker watermark.

At the beginning of each day, a Daily Schedule is presented to give an overview of the events for the respective day. The Daily Schedule uses lighter shades of the same colors used for each respective program. The colors shown below are used as indicated.

Session Titles

- NSS Sessions
- MIC Sessions
- RTSD Sessions
- Joint Sessions

Daily Program

- Monday
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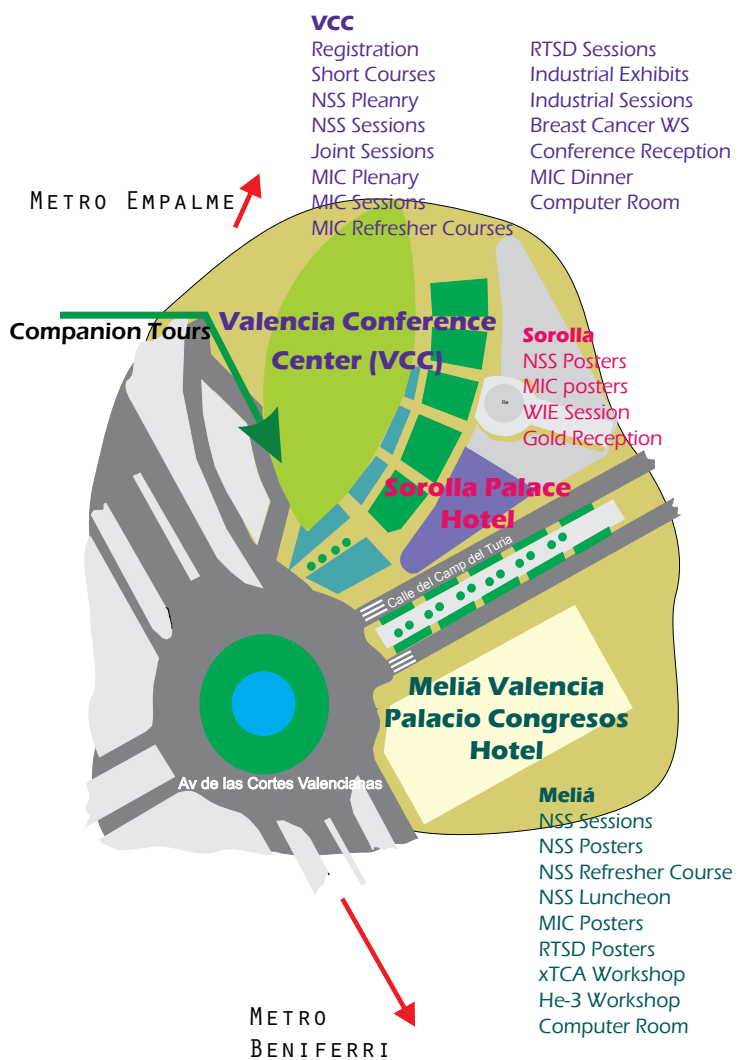
Additional Daily Schedule Colors

- Industrial Exhibit
- Special Sessions and Workshops
- Short Courses
- Social Activities

Conference Site Map



Day	VCC	Meliá	Sorolla	Off-Site
Sat AM	SC1, SC2	xTCA Workshop		
Sat PM	SC1, SC2	xTCA Workshop		
Sun AM	SC3, SC4, SC5	xTCA Workshop		
Sun PM	SC3, SC4, SC5	xTCA Workshop		
Mon AM	NP1(NSS Plenary), NP2 (NSS Plenary), R01, R02, SC6, SC7	NSS Refresher Course NSS Luncheon		
Mon PM	N1, N2, N4, N5, R03, R04, SC6, SC7	N3, N6, N7, N8, N9 NP1.M (Posters)		
Tue AM	N10, N11, N16, N17 R05, R06, Industrial Exhibits	NSS Refresher Course N12, N13, N14, N15, N18, N19, N20, N21, NP3.M	NP2.S (Posters)	
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Wed AM	MIC Refresher Course MIC1, MIC2, N26, N29,R09, R10 Exhibitor Sessions Industrial Exhibits	NSS Refresher Course N27, N28, N30, N31	NP5.S	
Wed PM	MIC3, MIC4, MIC5, MIC6, R12 Exhibitor Sessions Industrial Exhibits Conference Reception	N32, N33, N34, N35, N36, N37, N38, N39	R11	
Thu AM	MIC Refresher Course, MIC7, MIC8, R13, R14 Exhibitor Sessions Industrial Exhibits	N40, N41, N42, N43, N44, N45	MIC9.S	
Thu PM	MIC10, MIC11, R15, R16 Industrial Exhibits	N46, N47, N48, N49, N50, N51, N52, N53, MIC12.M	WIE Session GOLD Reception	
Fri AM	MIC Refresher Course MIC13, MIC14, R17, R18	3He Workshop	MIC15.S	
Fri PM	MIC16, MIC17, R19, R20 MIC Dinner	MIC18.M 3He Workshop		
Sat AM	MIC Refresher Course MIC19, MIC20		MIC21.S	
Sat PM	MIC22, MIC23			
Sun AM	Breast Cancer Workshop			
Sun PM	Breast Cancer Workshop			

Welcome from the General Chair

David Townsend

Welcome to the 2011 IEEE Nuclear Science Symposium and Medical Imaging Conference, and the Workshop on Room-Temperature Semiconductor X-Ray and Gamma-Ray Detectors that will be held in the beautiful Spanish city of Valencia from October 23rd – 29th. As with previous meetings, this will be a wonderful opportunity to get together with old friends and to make new ones, to exchange ideas and share knowledge and experience in the nuclear science and medical imaging fields.

The meeting will be held at the Valencia Convention Center (designed by Sir Norman Foster) and two adjacent hotels: the Meliá Valencia Palacio Congresos and the Sorolla Palace Hotel. The conference center is located in the northern part of city, with easy access to the airport, and within walking distance of a variety of other hotels in all categories. It is conveniently linked to the city center and the beaches by public transport and I would encourage you to explore the city during your stay in Valencia.

The first IEEE NSS/MIC to be held in Europe took place in Lyon, France to celebrate the millennium in 2000, and since then successful European meetings have been held with a four-year cycle, in Rome (2004) and Dresden (2008). However, such has been the outstanding success of the European meetings that it was decided to hold the fourth meeting again in Europe in 2011, only three years after Dresden. Consequently, an international Organizing Committee has planned a meeting of high scientific level that includes oral and poster presentations, short courses and refresher courses on interesting scientific topics. A commercial exhibition that will showcase state-of-the-art products and services from a wide range of companies will be held in parallel to the scientific sessions.

The city of Valencia is a traditional, average-sized Mediterranean-style Spanish city located on the east coast of Spain. As an attendee you will experience the atmosphere of an historic city that is a fascinating mixture of different cultures and religions, combining history with a unique vision of the future exemplified by the modern architectural area that has become a reference model for urban expansion. Valencia offers a stimulating scientific environment together with a rich cultural heritage of music, art, gastronomy, architecture and folklore. You can enjoy relaxing walks through the parks and streets of this unique city, as well as visiting the museums, aquarium, biopark (zoo) and beaches. Temperatures will be mild and pleasant at this time of

year. A variety of interesting tours are offered so attendees and their companions can experience Valencia and the surrounding region to the full extent.

On behalf of the Organizing Committee, I am delighted to invite you to join us for the first ever IEEE NSS/MIC/RTSD to be held in Spain. The meeting is dedicated to the memory of our dear friend and colleague Professor Juan Antonio Rubio, and I very much look forward to welcoming you to Valencia in October 2011.

David Townsend
General Chair

Juan Antonio Rubio
1944-2010

Juan Antonio Rubio began his career as an intern of the former JEN (Spanish Nuclear Energy Council) in 1965. He continued his training at CERN in 1968. In the early days of democracy in Spain, he was appointed Head of the Nuclear Physics and Elementary Particle Division of the JEN. His experience enabled him to join one of the most exciting experiments at the time – the MARKJ in DESY under the direction of Nobel Prize winner Samuel C. C. Ting. In 1983 he was appointed Director of Basic Research and later Scientific Director at JEN. From this position, he promoted diversification of the Center, which ultimately became CIEMAT (Center for Reseach on Energy, Environment and Technology), to perform research in technological fields other than nuclear power, such as renewable energies, magnetic confinement fusion, environment, and information technologies. It was at this time that his Group joined the proposal for the L3 experiment at the LEP particle accelerator at CERN. In 1987, he joined CERN as a senior researcher, CERN Group leader for L3 and Scientific Advisor to the then Director General and Nobel Prize winner, Prof. Carlo Rubbia. He contributed to the original program of the LHC (Large Hadron Collider), was appointed coordinator of CERN for Latin America, and continued to take part in the L3 experiment.

As Head of the CERN Education and Technology Transfer Division during the period when Prof. L. Maiani was Director General, he promoted multiple Outreach and Technology Transfer programs, which contributed to producing technological applications from results of CERN research into basic sciences. His personal dedication was decisive in intensifying and consolidating relations with developing countries, particularly those in Latin America. He was Vice President of two national companies, ENUSA and

ENRESA, was an “ad personam” member of the STC (Scientific and Technical Committee) of EURATOM, the AGE (Advisory Group on Energy) of the European Commission, and founding member of EERA (European Energy Research Alliance). In 2001, he was honoured by His Majesty the King of Spain with the distinction of the ”Encomienda de la orden del Mérito Civil” in recognition of his scientific and technical carreer as well as his contribution to the international presence of Spain. In June 2009, he received the Jaime-I Award in the area of New Technologies.

More recently, as the Director General of CIEMAT he promoted the development of Medical Imaging research, reallocating resources from related technologies such as solid-state radiation detectors, integrated electronics, Monte Carlo simulation and accelerators to medical imaging. To emphasize his growing interest in medical imaging, he was a major proponent of holding an IEEE NSS MIC conference in Spain and successfully secured the 2011 meeting for Valencia. Sadly, he passed away in January 2010 before he could enjoy the fruits of his IEEE success. In honor of our dear friend and colleague Juan Antonio, the 2011 IEEE Nuclear Science Symposium and Medical Imaging Conference is dedicated to his memory, in deep appreciation for his personal interest and lasting support for this meeting.

Registration

Registration Information

Christina Sanders

Pre-registration is advisable to save time and money, and to ensure your registration package will be available for collection when you arrive. The only registration method available is through the conference web site, as it places your details directly into our database, and where you can pay by Visa or MasterCard through our secure web server. Checks or money orders must be paid in euros and be drawn on or paid through a bank. Wire transfers will be accepted only under special circumstances, and will be charged a € 50 service fee. For wire transfer information please contact Fundación Universidad Carlos III (see below). NOTE: Registration and payment must be received by October 5, 2011 to qualify for reduced registration, lunches, tours, dinners, and short course fees.

Payment by Mail

Send payment (made out to IEEE 2011 NSS/MIC/RTSD) to:

Attn: Sergio Santiago
Fundación Universidad Carlos III C/ Madrid 126
28903 Getafe – Madrid / Spain
fax: +34 (91) 6249147
e-mail: registration@fund.uc3m.es
Alicia de Frutos phone: +34 (91) 6249145
Sergio Santiago phone: +34 (91) 6249142

Electronic Registration

Only electronic registration is accepted. Click on the Conference Registration link at: http://www.nss-mic.org/2011 and follow the instructions. You may update an existing registration at http://www.conwerk.net/secure/conreg_ieee2011/_cms/.

On-site Registration

All on-site registration will be performed via the online registration page. If you choose to register on-site, you must first register yourself online. You may do this via any computer with internet access. There will be computers near the registration desk that you may use to register. Next, proceed to the "On-site Registration" booth of the Registration desk where you will obtain your nametag, conference bag, and any tickets you have purchased. A nametag is required to attend all conference events, so you must visit the Registration desk after you have electronically registered.

Note: Checks and money orders WILL NOT be accepted on-site. Payment on-site must be made via credit card or cash.

An acknowledgement of your registration will be sent upon its receipt and payment. Please address any questions via e-mail (Attn: IEEE 2011 NSS/MIC/RTSD) or by phone.

Registration Hours at the Conference

Registration and general information will be available during the following times at the IEEE Registration Desk located in the Valencia Convention Center in the Entrance Level.

Friday, October 21	17:00 - 20:00
Saturday, October 22	07:30 - 09:30 15:30 - 18:30
Sunday, October 23	07:30 - 09:30 15:30 - 18:30
Monday, October 24	07:30 - 18:30
Tuesday, October 25	07:30 - 18:30
Wednesday, October 26	07:30 - 18:30
Thursday, October 27	07:30 - 17:00
Friday, October 28	07:30 - 12:00 15:00 - 17:00
Saturday, October 29	07:30 - 09:00

Conference Registration Fees

	By Oct. 5	After Oct. 5
IEEE Member[1]	€ 495	€ 595
Non-IEEE Member	€ 605	€ 705
IEEE Student[1,2]	€ 200	€ 250
Non-IEEE Student[2]	€ 300	€ 350
One Day Only[3]	€ 200	€ 200
IEEE Retired/Unemployed[1]	€ 150	€ 190
IEEE Life Member[1,4]	No Charge	No Charge
Continuing Education Program Only	No Charge	No Charge

[1] IEEE member number required at registration.

[2] Proof of student status required at registration. Students who want to pre-register and take advantage of the reduced IEEE Student or Non-IEEE Student registration fee need to provide proof of student eligibility by emailing a copy of a student status certificate or ID card to registration@fund.uc3m.es by October 21st AND by bringing the original student status certificate or ID card to the registration desk in Valencia. If official proof of student status is not provided, the participant will be required to pay the full non-student registration fee to attend the conference. Additionally, postdoctoral individuals (postdocs) do NOT qualify for the reduced Student registration rates.

[3] Valid for one day only. Must specify day. Multiple day tickets are not allowed. For 2 or more days, the full registration will be charged.

[4] Life Members must contact the Registration Chair to obtain their complimentary registration.

Workshops Fees

	By Oct. 5	After Oct. 5
Workshop on ATCA and MicroTCA for Physics, Sat. & Sun. Oct. 21-22	€ 60	€ 80
5th International Workshop on the Molecular Radiology of Breast Cancer Sun. Oct. 30	€ 110	€ 160

Luncheon/Dinner Fees

	By Oct. 5	After Oct. 5
NSS Luncheon (Mon. Oct. 24)	€ 35	€ 45
RTSD Luncheon (Tue. Oct.25)	€ 35	€ 45
MIC Dinner (Fri. Oct. 28)	€ 45	€ 55

Cancellation and Refund Policy

All cancellations (partial or full) must be received in writing by October 15, 2011 for consideration. Approved refunds (less a € 50 administrative fee) will be issued after November 30, 2011. No refunds will be issued for requests after October 15, 2011.

Short Courses

Short Course*	By Oct. 5	After Oct. 5
SC1: Experimental Techniques in Nuclear and Particle Physics	€ 325	€ 375
SC2: High-Precision Calorimetry for Particle and Nuclear Physics Experiments	€ 275	€ 325
SC3: Integrated Circuits for Time and Amplitude Measurement of Nuclear Radiation Pulses	€ 275	€ 325
SC4: Statistical Approaches to Tomographic Reconstruction	€ 275	€ 325
SC5: Kinetic Modeling	€ 275	€ 325
SC6: Statistical Approaches to Medical Image Analysis	€ 275	€ 325
SC7: Physics and Design of Detectors for SPECT and PET	€ 275	€ 325

* IEEE Members receive a € 25 discount

IEEE Membership

An IEEE membership desk will be located close to the Registration Desk. Staff will be available to answer questions concerning the benefits of membership. By joining during the conference, non-members will receive a $50 deduction from new IEEE membership, plus one year's free membership in the Nuclear and Plasma Sciences Society. Students joining at the conference will receive a year's free membership if they provide a statement from their mentor that they

are full-time students. It is more advantageous for students to join prior to coming to the conference, in order to qualify for the reduced student registration rate.

New memberships obtained on-site will not qualify you for discounted registration at this conference. To qualify for the reduced member-only rates you must become a member prior to registering and prior to the start of the conference (and provide proof of your membership).

Hotel and Convention Center

The meeting will be held at the Valencia Conference Centre (designed by Sir Norman Foster) and two adjacent hotels: the Meliá Valencia Palacio Congresos Hotel and the Sorolla Palace Hotel. The conference center is located in the northern part of city, with easy access to the airport, and within walking distance of a variety of other hotels in all categories.

Jose M. Benlloch
Local Coordinator

Jose M Perez
Conference
Coordinator

Conference Web Site

Information for the up-to-date conference program: NSS, MIC, RTSD, as well as Workshops, Short Courses and Tours can be found at: http://www.nss-mic.org/2011

Transportation to the Convention Center from the Airport

By taxi: The journey takes about 25 minutes and costs around € 16-20. Taxi journeys that start at the airport always include an excess fare of € 3,50. Most taxis do not allow credit card payments, so be sure to have euros for the taxi fare.

By underground: There are two underground lines which link the airport, the city center and the port: Line 3 (Rafelbunyol-Aeroport) and Line 5 (Marítim Serrería/Torrent Av.-Aeroport).

When arriving at Valencia Airport, the shortest way to get to the Valencia Conference Centre is getting the line 5 direction Marítim-Serrería, get off at the station called Angel Guimerá; from there, take line 1 direction Seminari-CEU and get off at Beniferri. Finally, there is approximately a 5 minute walk to reach the Valencia Conference Center.

Parking

Near the Valencia Conference Centre is a large underground car park with closed-circuit television monitored by a security service with space for up to 600 cars. There are also two smaller outdoor car parks with room for 22 coaches or buses and 45 authorised vehicles.

The car park opens at 07:30. The fees are € 1.50 per hour (for the use of the car park for less than 12 hours), with a daily fee of € 12.

Weather

Autumn is a particularly pleasant season in Valencia, with daytime mild temperatures of around 20º C / 68º F.

Computer access

Rooms 8 and 9 in VCC and Rooms 4/5 in Melia Hotel will have computers, printers, and technical support. The facility is intended for use by all attendees to carry out final editing of their presentations and papers and to retrieve e-mail. Microsoft Office 2010 will be loaded on all computers. In addition, wireless Internet access will be available in front of the Auditoriums and in the cafeteria of the VCC, in the lobby and Rooms 4/5 of Melia Hotel and in the lobby of Sorolla Hotel.

Smoking Policy

The conference site has adopted a strict no-smoking policy in all the conference and exhibit areas.

Social Activities

The conference program includes a number of social activities, some of which are complimentary to all attendees. Program-specific events are not exclusive to those focused on the respective program and are open to all attendees. The table below is the list of lunches, dinners, and receptions (including any applicable fee) that are scheduled during the conference.

Please note that the Conference Reception is a buffet dinner event, and the Exhibitor Reception is a drink and finger-food event.

Event	Date/Time	Location	Fees
Welcome Drink	Sun, Oct 21 18:00	VCC	Complimentary
NSS Luncheon	Mon, Oct. 22 13:00	Meliá Valentia A&B&C	€ 35 (by Oct.5) € 45 (after Oct. 5)
Exhibitor Reception	Tue, Oct. 25 19:00	VCC Multipurpose Room 1 & 2	Complimentary
Conference Reception	Wed, Oct. 26 19:00	VCC	Complimentary
RTSD Luncheon	Tue, Oct. 25 12:45	Hotel Ayre Astoria Palace	€ 35 (by Oct.5) € 45 (after Oct. 5)
MIC Dinner	Fri, Oct. 28 20:00	VCC Multipurpose Room 2	€ 45 (by Oct.5) € 55(after Oct. 5)

Companion Program

"¡Una cálida bienvenida a Valencia!"

("A warm welcome to Valencia!")

Kathy Gullberg

Carolyn Hoffman

Antonio Gonzalez

Located on the Mediterranean coast, Valencia offers a unique cultural identity. Valencia is not just another Spanish city. It has always considered itself a state within a state, it has held on to its own unique traditions and they are still very much alive in the 21st century. Valencia has a totally stunning and compact old town center, packed with gorgeous buildings, historic sights, squares, gardens, museums, and charming little streets. It is a total delight to get lost in it while soaking up the atmosphere. The Historic Center (Old Town) bears the marks of 2000 years in a spectacular mix of Roman, Muslim and Christian civilizations. But it doesn't end there - walking through Valencia you will see ultra-modern, breath-taking, futuristic architecture contrasting with the gothic, baroque and classical. Valencia is also a beach city. While you have many sights and culture to fill your leisure time to the limit, you can always just drop down to the beach and relax under the sun.

The Companion Program provides a daily selection of guided excursions to places of interest both within and outside of the city. All tours will depart from and return to the Companion Program Meeting Area in the Valencia Convention Center. This meeting area will be available as a lounge for all registered companions to gather during the conference. Information about the Valencia area will also be available for individuals and families to plan trips and excursions other than those offered in the Companion Program. This is an exciting program, and we look forward to seeing you in Valencia. Please contact any of us for more information.

Kathy Gullberg
Companion Program Co-Chair

Carlolyn Hoffman
Companion Program Co-Chair

Antonio Gonzalez
Companion Program Co-Chair

Tour Schedule

Tour Number and Name	Date	By Oct. 5
T1 -The Caves of San Jose in Vall d'Uixo/ Sagunto-Roman City	Sun. Oct.23	€ 55
T2 - Valencian Port Sports City & Catamaran Boat Cruise	Sun. Oct.23	€ 50
T3 - Valencian Port Panoramic/Lladró Tour	Mon. Oct.24	€ 35
T4 - The City of Arts and Sciences/ Oceanographic Visit	Mon. Oct.24	€ 60
T5 - Old Town Valencia	Tue. Oct.25	€ 40
T6 - Valencian Palaces	Tue. Oct.25	€ 40
T7 - Peñiscola, a Legendary Town	Wed. Oct.26	€ 60
T8 - IVAM and Museum of Fine Arts San Pio V	Wed. Oct.26	€ 40
T5 - Old Town Valencia	Thu. Oct.27	€ 40
T1 -The Caves of San Jose in Vall d'Uixo/ Sagunto-Roman City	Thu. Oct.27	€ 55
T9 - Lladró Museum/Albufera Nature Reserve with Paella Tasting	Fri. Oct.28	€ 75
T6 - Valencian Palaces	Fri. Oct.28	€ 40
T7 - Peñiscola, a Legendary Town	Sat. Oct.29	€ 60

Please note:

- Individual tours are subject to cancellation and refund of tour fees if an insufficient preregistration is achieved prior to October 5, 2011.
- The fees in the table above are set for early registration. There may be limited late or on-site registration for an additional fee.
- Tour programs and hours may be modified due to last minute logistics issues.
- Please notify us of participants with special needs or dietary requirements.
- Each tour will have an experienced tour guide and a hostess from the Companion Program committee.
- A detailed data sheet for each tour may be found on the conference website.
- Please consult the General Terms and Conditions on the website.

T1 -The Caves of San Jose in Vall d'Uixo/Sagunto-Roman City

Sunday, October 23 – 09:00 to 13:30
Thursday, October 27 – 14:30 to 18:30
Cost: € 55

This half day excursion will take us 45 km north of Valencia near the town of Vall d'Uixó where we will visit the caves of San José, a spectacular natural cave that can be visited by boat along one of the longest underground river courses in Europe.

We will then travel a little to the south to the modern fertile district of Camp De Moveredre to the ancient city of Sagunto. Historically known as Saguntum or later Morvedre, Sagunto was an ally of Rome when it was besieged and captured by the Carthaginians under Hannibal and later captured by Rome in 214 BC and made a Municipium. An important prosperous city, Sagunto was later ruled by Visigoths, and in the eighth century became part of the Caliphate of Cordoba where it remained under the Muslim Arab rule for over five hundred years when James I of Aragon conquered it in 1238.

Our guided tour will start in the historic center to understand the influence and heritage of its different cultures. We will then climb to the Roman fortification built on top of the hill to see the existing Roman theater and the castle with its picturesque walled ramparts of Roman and Moorish origin.

This half day tour is rated as a **moderate activity,** and good walking shoes are recommended. The tour includes shuttle service, tourist guide, and boat and museum tickets. Lunch is **not** included.

T2 - Valencian Port Sports City & Catamaran Boat Cruise

Sunday, October 23 – 14:30 to 18:30
Cost: € 50

This half day excursion will take us around the port of Valencia and the Malvarrosa beaches and culminate with a one hour catamaran boat trip sailing the Port waters of the beautiful Mediterranean Sea. The tour will allow us to discover a modern port, which has undergone a massive change in the last few years, primarily due to the fact that since 2007, Valencia has hosted two of the world's biggest sporting events: the America's Cup and the Formula 1 (F1) motorcar race. Valencia hosted the F1 competition in 2009 and 2010 on the Valencia Street Circuit and is framed by the Grao area which passes through the inner docks of the port, the port and the old bed of the Turia River.

Valencia is blessed with special natural characteristics and with the local climatology making the Gulf of Valencia an excellent course for regattas. Thanks to these conditions, the city became the first European city to host the America's Cup in the event's 150+ year history. **The America's Cup** is an international sailing competition, a challenge between two boats in which there is only one winner. We will enjoy the panoramic views from the **Veles e Vents** balcony, a modern building designed for the 2007 America's Cup and conclude the tour with a one hour 'catamaran' boat trip, sailing the Port waters of the Mediterranean Sea.

The tour is rated as an **easy activity**. The tour includes shuttle service, tourist guide, and catamaran tickets. Lunch is **not** included.

T3 - Valencian Port Panoramic/Lladró Tour

Monday, October 24 – 09:00 to 13:30

Cost: € 35

This half day excursion tour will begin with a tour to the "City of Porcelain" where the famous Lladró porcelain pieces are made. Thousands of people worldwide collect Lladró, and it would be difficult to walk along the streets of any Spanish town without seeing a few pieces for sale. This beautiful and hand painted Spanish porcelain with its delicate colors is truly one of Spain's great success stories. Our guided tour will allow us to visit a production line at the factory as well as an opportunity to visit the Museum Boutique, one of the largest Lladró Boutiques in the world. After the Lladrò tour, we will visit the Valencia Port. A panoramic tour will show us the modern port, which has undergone a massive change in the last few years, primarily due to the fact that since 2007, Valencia has hosted two of the world's biggest sporting events: the America's Cup and the Formula 1 motorcar race.

Valencia is blessed with special natural characteristics and with the local climate making the Gulf of Valencia an excellent course for regattas. Thanks to these conditions, the city became the first European city to host the America's Cup in the event's 150+ year history. The America's Cup is an international sailing competition, a challenge between two boats in which there is only one winner. Today, after 159 years of history, the continued success of the event is based on three key factors: teamwork, strategy and technology. We will enjoy the panoramic views from the Veles e Vents balcony, a modern building designed for the 2007 America's Cup. The tour guide will provide general information regarding the sports events. The F1 competition was held in 2009 and 2010 on the Valencia Street Circuit framed by the Grao area which passes through the inner docks of the port, the port and the old bed of the Turia River.

The tour is rated as an **easy activity**. The tour includes shuttle service, tourist guide, and tour at the Lladrò factory. Lunch is **not** included.

T4 - The City of Arts and Sciences/ Oceanographic Visit

Monday, October 24 – 14:30 to 18:30

Cost: € 60

This half day tour will give us insight into the most important modern tourist destination in the city of Valencia. The City of Arts and Sciences is an entertainment-based cultural and architectural complex in the city situated at the end of the old riverbed Turia. A bypass of the Turia river began after the great flood of Valencia in 1957 and the Turia riverbed became a park and garden in 1980.

Designed by Santiago Calatrava and Félix Candela, the City of Arts and Sciences was inaugurated April 16, 1998 with the opening of L'Hemisferic. Today the complex includes the Hemisferic, the Sciences Museum, the Umbracle gardens, the Opera House, and the Oceanographic, the largest aquarium in Europe. We will take a stroll among these amazing structures and learn more about the building of this stunning architecture. We will then visit the Oceanographic with its 45,000 living creatures from 500 different species represented in the planet's main marine ecosystems. Our guide will lead us through

the different buildings housing examples of ecosystems from the Mediterranean, Wetlands, Temperate and Tropical, Antarctic, Arctic, and Delfinarium.

The tour is rated as an **easy activity**. The tour includes shuttle service, tourist guide, and Oceanographic tickets. Lunch is **not** included.

T5 - Old Town Valencia
Tuesday, October 25 – 09:00 to 13:30
Thursday, October 27 – 09:00 to 13:30
Cost: € 40

Valencia has been the home of many cultures. Founded by the Romans, the Visigoths, Moors, and the Aragonese have all made the city an important cultural and historical center. Valencian architecture is very rich and combines gothic, modernism, and baroque styles.

Our half day *walking tour* will begin at the Serrano Towers, main doorway of the medieval walls that once protected the city. We will learn about the origins of Valencia and see some of the most representative monuments in the historical city center including:

- The **Cathedral of Valencia** with its various architectural styles from the romanesque to the baroque. Inside, we will discover the fresco paintings above the main altar, the magnificient dome, and the Holy Grail Chapel that contains an agate cup which is said to be the chalice used by Jesus during the last supper.
- The **Palacio de la Generalitat** constitutes a fabulous example of the gothic architecture in Valencia.
- The **Basilica of the Holy Mary of the Forsaken** dedicated to the patron saint of Valencia was built in the 17th century by Diego Martínez Ponce de Urrana in the Baroque style.
- The **Lonja** (the Silk Exchange), one of the most famous civil gothic monuments in Europe built in 1493 and a UNESCO World Heritage Site.
- The **Central Market**, one of the largest food markets in Europe.

The visit will end at one of the most photographed places in the city: the spectacular baroque style façade of the Marqués de Dos Aguas Palace.

The tour is rated as an **easy activity,** but good walking shoes are recommended. The tour includes shuttle service, tourist guide, and museum tickets. Lunch is **not** included.

T6 - Valencian Palaces

Tuesday, October 25 – 14:30 to 18:30
Friday, October 28 – 14:30 to 18:30
Cost: € 40

This half day *walking tour* will take us across the old city grounds of Valencia discovering some of the former palaces that allow us to imagine the old lifestyle in Valencia. We will pass many Gothic-style buildings and palaces of the Historic Center of Valencia during the tour.

The **Palacio de Benicarló** was built in the late fifteenth century as the residence of the family of the Borgia, Duke of Gandia, on the site of a previous building which was a Grammar and Art School (1408). Since then, there have been many renovations of the palace, though it retains its Gothic portal. Nowadays it is the headquarters of the Valencian Parliament. The construction of the **Palacio de la Generalitat** dates back to 1421 as the seat of the Generalitat Valenciana and Provincial General. The central body of the building is in late Gothic style. Today, its three floors serve as private palaces of the city. The **Palacio de los Boil**, owned by the Marquis of Scala, assimilates and repeats the patterns of the typical gothic mansion, with a few later additions in the renaissance style. The building is made up of two distinct constructions with two main entrances and two courtyards which are joined by a stairway that runs below an oval-shaped dome. We will visit the old Gothic building of the **Palacio del Marques de dos Aguas**, constructed by the family of Perellós Rabassa and now a historical-artistic monument. Today, it is the National Museum of pottery. Finally, we will visit the façade of the Gothic medieval **Palace del Almirante**, the most important private architecture in the Gothic style that remains in Valencia.

This half day walking tour is rated as an **easy activity.** Good walking shoes are recommended. The tour includes shuttle service, tourist guide, and museum tickets. Lunch is **not** included.

T7 - Peñiscola, a Legendary Town

Wednesday, October 26 – 08:30 to 18:30
Saturday, October 29 – 08:30 to 18:30
Cost: € 60

This full day excursion will take us back in time to the Renaissance Middle Ages. We will travel 145 km (approx. 90 miles) north of Valencia to visit the small fishing village of Peñíscola, a jewel in the crown of the beautiful coast of eastern Spain. Peñíscola consists of a mix of old and new with the fortified old quarters rising out of the sea to form almost an island of incredible beauty. On the highest part of the outcrop of rock stands the castle: a watchtower and impregnable fortress surrounded by the city walls that were built over different periods to protect the old city. The medieval fortifications of the south and east faces were built between the 13th and 15th centuries. Just up from Saint Peter's Gate is the Fountain's Wall (Muralla de la Fuente), which comes to an end at Saint Anne's battery (Batería de Santa Ana). The Renaissance fortification was planned by J.B. Antonelli and built in the 16th century. It was an ambitious project that took in the Artillery Store and Saint Peter's Gate, but it could not be finished. An ornamental cordon runs the length of the masonry

walls, and watchtowers at each corner make Peñíscola an impregnable crag of rock, which is unique and has an unusual beauty.

The Renaissance style is widespread throughout the city. We will visit the **Dark Gate** (Portal Fosc), the main entrance to the city until the 18th century and **The Artillery Store**, and the third gate to the city, Saint Mary's Gate, which was built in 1754 by order of Ferdinand VI to improve access to the city. Inside the gate is Les Escaseres Square, next to the Saint Anne's chapel. A visit to this less known chapel (which dates back to 1827 and is of great historical interest) is a must when strolling through the narrow streets of the old city.

This full day tour is rated a **strenuous activity** and good walking shoes are a must. The tour includes shuttle service, tourist guide, museum tickets and a box lunch.

T8 - IVAM and Museum of Fine Arts San Pio V

Wednesday, October 26 – 14:30 to 18:30
Cost: € 40

This half day excursion will include visits to two important art museums in Valancia. The **IVAM (Contemporary Valencian Art Institute)** is a new building with galleries designed for permanent and temporary exhibitions. The exhibitions are mainly focused on the evolutionary process of Art, from the classical vanguard crisis right up to the seventies. The Julio González and Pinazo collections are on permanent display. There is also a display that includes parts of the medieval Valencian city wall that was destroyed over 100 years ago.

We will also visit the **Museum of Fine Arts San Pio V**, the second most important art collection in Spain. This huge museum is filled with works from 14th century to the 20th century. The museum is largely dominated by 13th-15th century iconography and the golden age of 17th century Baroque, but there are also works from the Rennaissance and the 18th-19th century movements. You will find, among others, Ribaltas, El Greco, van Dyck, Bosch, Velazquez and Goya. The museum also shows some Sorollas masterpieces, the most representative Valencian painter of the late 19th Century. There are also many archeological items on display.

The historical building that houses the museum was originally the San Pío Seminary College, founded in 1683 by Brother Juan Tomás de Rocabertí, the Archbishop of Valencia. The building has been used for several different purposes: A Military Cadet Academy, a Charity Center, an army supplies storehouse and a Military Hospital until

1946 when it was chosen to be used for the Museum of Fine Arts.

The tour is rated as an **easy activity**. The tour includes shuttle service, tourist guide, and museum tickets. Lunch is **not** included.

T9 - Lladró Museum/Albufera Nature Reserve with Paella Tasting

Friday, October 28 – 09:00 to 18:00

Cost: € 75

This full day tour will begin with a tour to the "**City of Porcelain**" where the famous Lladró porcelain pieces are made. Thousands of people worldwide collect Lladró, and it would be difficult to walk along the streets of any Spanish town without seeing a few pieces for sale. This beautiful Spanish porcelain with its delicate colors, every single piece hand painted, is truly one of Spain's great success stories. Our guided tour will allow us to visit a production line at the Lladró factory as well as an opportunity to visit the Museum Boutique, one of the largest Lladró Boutiques in the world.

We will then travel to the fishing village of El Palmar where we will enjoy a Valencian paella for lunch. El Palmar is located in the Albufera Nature Reserve, an important stopover point for migratory birds and a nesting area for resident birds. After lunch we will sail the main lake in a typical fishing boat to observe the manner in which the local people follow fishing traditions established some 750 years ago and the unique configuration of rice fields and agricultural plots divided by canals and linked by small, narrow bridges.

This full day tour is rated as an **easy activity.** The tour includes shuttle service, tourist guide, museum/excursion tickets and the paella lunch.

Presentations and Posters Guidelines

Oral Presentations Instruction

Presentation files must be in Windows-compatible PowerPoint or PDF format. Note that the laptops used for the presentations are under Windows7 with PowerPoint 2010 and the latest version of Acrobat Reader. The file for your talk must be loaded onto the central file server no later than 2 hours prior to the start of your session. For a talk in the first morning session, the file must be loaded the previous day. To do this, take the file, preferably on a USB flash drive, to the Computer Room at the entrance of Auditorium 2 in VCC or in Rooms 4/5 in Meliá Valencia Palacio de Congresos Hotel, and one of the computer room staff members will assist you. Note that presenters will not be permitted to use their own laptops. Please check your presentation carefully before you leave the Computer Room.

Poster Presentation Instruction

RTSD Poster presentations will be in Hotel Sorolla Palace, room Gran Recati. NSS and MIC Poster presentations will be in Hotel Sorolla Palace, room Gran Recati, and in Meliá Valencia Palacio de Congresos Hotel, rooms A+B. The poster panels are made to fit poster size DIN-A0 (84 cm wide x 119 cm high). Adhesive tape to attach your poster to the panel will be available in the poster room. Your panel will be labeled with the session and number of your poster, also referred to as your "Paper ID."

Presenting authors are expected to be present at their poster during their session. Papers whose authors are not present at their poster during their assigned session are not eligible for publication in the Conference Record. Session chairs will verify your attendance during the assigned session.

The NSS, RTSD, and MIC posters will share the same space with their respective display times shown in the table below. It is recommended that poster authors display their posters for the entire allotted period. At a minimum, the poster must be in place no later than 2 hours prior to the start of the assigned poster session. After that time the poster board will be labeled as no show and no late installation will be allowed.

	Install	**Remove**
NSS	Sunday 17:00 to Monday, 08:00	Wednesday, 16:00-17:00
MIC	Wed. 18:00 to Thursday 08:00	Saturday, 13:00-14:00
RTSD	Sunday 17:00 to Monday, 08:00	Wednesday, 16:00-17:00

Posters that are not removed on time will be subject to disposal.

Conference Record

Mokhtar Chmeissani

The Conference Record (CR) is the official repository for manuscripts presented at the 2011 Nuclear Science Symposium and Medical Imaging Conference. It will be published on DVD-ROM, complimentary to all registered conference attendees. All Conference Record manuscripts will be made available online at http://www.nss-mic.org/2011/ConferenceRecord before the DVD-ROMs are mailed out.

The approved word processor templates, available in PDF, MS Word, and LaTeX format can be downloaded from http://www.nss-mic.org/2011/publications/templates.htm.

All manuscripts submitted to the IEEE must be in IEEE Xplore-compatible PDF format. To assist authors in meeting this requirement, IEEE has established a web based service called "PDF eXpress." It converts most common word processor files into Xplore compatible PDF files. We strongly suggest that you use this service to create your PDF files. Manuscripts that are not IEEE Xplore-compatible will not be accepted in the Conference Record

In order to ensure a timely release of the DVD-ROM, please follow this procedure for the Conference Record manuscript submission:

1. **Produce IEEE Xplore-compatible PDF file using PDF eXpress**

   The IEEE PDF eXpress service (www.pdf-express.org) will be available for the NSS-MIC authors between Oct. 10 and Nov. 5, 2011. Enter **nssmic11x** as Conference ID. Detailed instructions are available at: http://www.nss-mic.org/2011/publications/PDFeXpress.html

   PDF eXpress is NOT the final destination for your manuscript. After generating your PDF file you must then submit your manuscript to the Guest Editor through the next step.

2. **Submit the Xplore-compatible PDF file and the IEEE Copyright Form**

   Log on to the conference web site and follow the menu "My Submissions" to the abstract submission page. You will see both links for uploading your manuscript and submitting the copyright form electronically. Your PDF file will be checked for Xplore- compatibility. Non-Xplore-compatible files will not be included in the DVD-ROM. If you are not authorized to submit the IEEE Copyright Form, please start the approval process well before the submission deadline.

The deadline for the Conference Record manuscript submission is November 5, 2011.

All manuscripts submitted through the conference web site will be made available immediately at the "Conference Record" web link.

Only those that meet the following requirements will be included in the DVD-ROM:

- The paper (oral or poster) has been presented at the conference;
- The manuscript conforms to the page layout requirements specified in the online templates;
- The PDF file is IEEE Xplore-compatible;
- The PDF file and the electronic copyright form are received no later than the November 5 deadline.

Guest Editor

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The Guest Editor will be available in the Organizers Room #1, VCC, during the coffee breaks on Tuesday to Friday to discuss any issues related to the Conference Record.

Transactions on Nuclear Science (TNS)

Additionally, papers presented at the conference that contain important information of lasting value may be submitted for review and publication in the Transactions on Nuclear Science (TNS). The TNS is a premier peer-reviewed journal with a significant distribution within the nuclear science and medical imaging communities. TNS is not the conference record, and only those papers that pass the review process and are in the fields of interest to TNS will be published. Prospective authors should consult the TNS page at www.ieee.org for a description of the publication. TNS discourages the submission of progress reports and manuscripts that are more suitable for distribution as an institution's internal document. We expect each manuscript to be cast in the context of the state of the art of its field (including appropriate motivation for the work), present a complete description of the work performed, and present a set of conclusions supported by the measured and/or calculated data. The paper should be sufficiently complete that others with comparable equipment could repeat the work.

Authors submitting to TNS should expect to be solicited to serve as reviewers of other papers. Please accept as many solicitations as you are able to handle and remember to return your reviews in a timely fashion. TNS tries to find at least two reviewers for each paper, and the speed of the review process ultimately depends on your cooperation. TNS relies on this most important professional service you, the authors, provide to the community.

TNS is published throughout the year, and you can submit your manuscript to TNS at any time. For instructions on TNS manuscript submissions, please visit the IEEE's on-line peer review system ScholarOne Manuscripts™ (http://mc.manuscriptcentral.com/tns-ieee). TNS suggests that authors limit their papers to 8 pages, but that limit is quite flexible and exceptions can be made.

For further information regarding the Transactions on Nuclear Science, contact:

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Transactions on Medical Imaging (TMI)

Authors of medical imaging papers may alternatively choose to submit their manuscripts to the IEEE Transactions on Medical Imaging through ScholarOne Manuscripts™ (http://mc.manuscriptcentral.com/tmi-ieee).

For further information regarding the IEEE Transactions on Medical Imaging, contact:

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Comparison of Requirements

The value of the Conference Record is increased by the immediate and timely release of the information, which excludes the possibility of peer- review for manuscript content. It is possible that a similar (or even the same) article can be submitted to both the Conference Record and the TNS. However, the authors must keep in mind that the content of the articles designated for TNS publication must meet the level of scrutiny by scientific review and publication is not guaranteed for the TNS sub- mission. The CR and TNS are two separate publications. Submission to one does not imply submission to the other.

	Conference Record (CR)	Transactions on Nuclear Science (TNS)
Page layout	Same as TNS, but without running headers and footers	Standard IEEE Transactions and Journal format
Copyright form	Required, electronic submission	Required, electronic submission
Deadline	Nov. 5, 2011	None
Peer reviewed	No	Yes
Use of color	Free and encouraged	Free for online version; at author's expense for print version
Page Limit	8 (suggested)	8 (suggested)
Availability	Online immediately, CD out before end of 2011 to all attendees	Published throughout the year

Short Course Program

An excellent set of short courses will be given at the start of the NSS/MIC programs, covering a wide range of nuclear and medical imaging technology. All courses are one day in length. The first lecture will begin at 09:30. Lunch, refreshments, lecture notes, and a certification of completion are also provided as part of the short course registration fee.

Joao Varela
NSS Short Course Chair

Joao Varela

Grant Gullberg
MIC Short Course Chair

Grant Gullberg

Short Course Location and Schedule

Short Course	Date	Location
SC1: Experimental Techniques in Nuclear and Particle Physics	Sat, Oct.22	VCC 1&2
SC2: High-Precision Calorimetry for Particle and Nuclear Physics Experiments	Sat, Oct.22	VCC 3&4
SC3: Integrated Circuits for Time and Amplitude Measurement of Nuclear Radiation Pulses	Sun, Oct.23	VCC 1&2
SC4: Statistical Approaches to Tomographic Reconstruction	Sun, Oct.23	VCC 3A
SC5: Kinetic Modeling	Sun, Oct.23	VCC 3&4
SC6: Statistical Approaches to Medical Image Analysis	Mon, Oct.24	VCC 3&4
SC7: Physics and Design of Detectors for SPECT and PET	Mon, Oct.24	VCC 1&2

Short Course Session Times

09:30-11:00 session 1
11:00-11:30 morning break
11:30-13:00 session 2
13:00-14:30 lunch
14:30-16:00 session 3
16:00-16:30 afternoon break
16:30-18:00 session 4

SC1: Experimental Techniques in Nuclear and Particle Physics
Saturday, October 22, 09:30-18:00, VCC, Room 1&2

Organiser: Stefaan Tavernier, *Vrije Universiteit Brussel, Belgium*
Instructors:
Stefaan Tavernier, *Vrije Universiteit Brussel, Belgium*
Danek Kotlinski, *Paul Scherrer Institute, Switzerland*

Course Description:
This one-day course provides an introduction to the design and the use of instruments for the detection of energetic subatomic particles. Emphasis is on the fundamental processes that govern the operation of such detectors, rather than on operational details of specific instruments. The class begins with a brief overview of the interactions of energetic subatomic particles in matter. Nearly all detectors are either based on the use of ionisation in gases, on the use of ionisation in semiconductor materials, or on the use of scintillation light; and this classification is used to structure the course. Examples of applications of these detectors in particle physics, in nuclear physics, in homeland security, and medical imaging will be given.

There are no prerequisites for attending this course other than the standard physics and mathematics that is part of any curriculum in physics or engineering. A copy of the textbook, "Experimental techniques in nuclear and particle physics" by S. Tavernier, as well as a set of copies of the presentations, are provided to the registrants.

Course Outline:
- Interactions of energetic subatomic particles in matter
- Detectors based on ionisation in gases
- Detectors based on ionisation in semiconductors
- Detectors based on scintillation
- Electronics and noise

Instructors:
STEFAAN TAVERNIER is professor of physics at the faculty of sciences of the Vrije Universiteit Brussel, served as head of the physics department for 5 years, and was chairmen of the Research board for Science and Applied science for 5 years. He was spokesperson of the Crystal clear collaboration for 15 years. He has over 160 scientific publications, has 3 patents and is author or co-author of 2 books. He has made essential contributions to the several major high energy physics detectors, and he also made important contributions to the development of instrumentation for medical imaging, especially to PET.

DANEK KOTLINSKI is a Senior Physicist at the Paul Scherrer Institute in Switzerland. He received his Ph.D. from the University of Rochester in 1984. His research interests are primarily in the area of particle detectors and instrumentation for high energy and nuclear physics. Presently these include applications of semiconductor silicon detectors in particle physics, for example, pixel vertex detectors. Other primary research interests are detector readout electronics and data reconstruction algorithms. Since 1994 he has been one of the main developers of the pixel detector build for the CMS/LHC experiment located at CERN.

Organiser: Erika Garutti, *DESY, Germany*
Instructors:
Erika Garutti, *DESY, Germany*
Michele Livan, *University of Pavia, Italy*
Frank Simon, *Max-Planck-Institute Physics, Germany*

Course Description:
This one-day course is intended to provide a general overview of the state of the art of calorimetry for particle and nuclear physics experiments. The course is targeted to physicists and detector specialists. The lectures cover the technology frontier aspects of calorimetry, in terms of available material and modern concepts for photons, electrons, and hadrons measurements.

Emphasis is given to high energy physics applications, but also links to calorimetric techniques in photo-science and medical applications are given. The most modern readout techniques are discussed and compared. All aspects of large scale application of Silicon-Photomultipliers are addressed. A basic knowledge of detector physics is assumed.

Course Outline:
- Basics of interaction of radiation and matter
- Active media used in calorimetry
- Calorimeters for electrons and photons
- Calorimeters for hadrons and neutrons
- Giga-channel calorimeters with SiPM readout

Instructors:
ERIKA GARUTTI is research group leader at the Deutsches Elektron-Syncrotron (DESY) in Hamburg, Germany, and she has been appointed Professor of Physics at the University of Hamburg. In 2003 she received a PhD degree in Physics at the University of Amsterdam for a work that included the commissioning of a silicon strip detector for the HERMES experiment. Her main research topics are development of highly granular calorimeter detectors and large scale application of Silicon Photomultipliers. The fields of application range from calorimetry for future linear collider experiments to positron emission tomography detectors. Her research interests cover development of multi-channel highly integrated readout electronics and radiation hard studies for silicon detectors.

MICHELE LIVAN is research group leader and Full professor of Experimental Physics at the University of Pavia, Italy. He has been working in experiments at SLAC and CERN. He is currently a member of the ATLAS Collaboration at LHC. His research interests cover detector technologies in the field of gas detectors and hadron calorimeters. His group has built part of the drift chambers of the ATLAS Muon Spectrometer. He has been active in the field of calorimetry since 1986 when he started to work on the SPACAL Collaboration at CERN devoted to the study of scintillating fibre calorimetry. He is now leader of the Italian groups involved in the DREAM project for the development of the Dual Readout technique for high resolution hadron calorimetry.

FRANK SIMON is a research group leader at the Max-Planck-

Institute for Physics and at the Excellence Cluster 'Origin and Structure of the Universe' at the Technical University in Munich, Germany. He received his PhD degree at the Technical University Munich in 2005, while working on the STAR experiment at the Relativistic Heavy Ion Collider in Brookhaven. His research interests cover detector technologies in the area of calorimetry and tracking detectors, the development of data reconstruction techniques and physics at hadron and lepton colliders. His current activities focus on highly granular "imaging" hadronic calorimetry, on Silicon Photomultipliers for scintillator readout, the detailed investigation of the properties of hadronic showers and on physics studies for future high-energy linear colliders.

SC3: Integrated Circuits for Time and Amplitude Measurement of Nuclear Radiation Pulses

Sunday, October 23, 09:30-18:00, VCC, Room 1&2

Organiser: Angelo Rivetti, *INFN Torino, Italy*
Instructors:

Angelo Rivetti, *INFN Torino, Italy*
Eric Delagnes, *CEA Saclay, France*
Edoardo Charbon, *TU Delft, Netherlands*
Jean Francois Genat, *CNRS/IN2P3 Paris, France*

Course Description:
This one-day course will discuss integrated circuits for the extraction of energy and time of occurrence information from a radiation pulse. Emphasis will be given to the monolithic implementation of time pick-off methods and to circuit architectures which allow simultaneous measurements of energy and time in a single processing channel. After a review of the basics, each lecture will progressively delve into circuit details, with focus on implementations in CMOS technologies. A basic knowledge of front-end electronics for radiation detectors and CMOS integrated circuits is recommended to take full profit of the course.

Course Outline:
Integrated architectures and circuit optimization for energy and time pick-off.

- High accuracy integrated timing discriminators
- High resolution time pick-off with waveform sampling
- Low-power multi-channel Time to Digital Converters
- Fully integrated, high resolution CMOS systems

Instructors:
ANGELO RIVETTI received the degree in Physics from the University of Torino, Italy, in 1995 and the Ph.D. in Electrical Engineering from the Polytechnic Institute of the same town in 2000. From 1998 to 2000 he conducted his research activity at CERN, working at the implementation of radiation tolerant integrated circuits in commercial deep submicron CMOS technologies. From 2000 to 2001 he was assistant professor with the Faculty of Physics of the University of Torino. In December 2001 he joined the Italian National Institute for Nuclear Physics (INFN), where he developed VLSI front-end circuits now in use in the ALICE and COMPASS experiments at CERN. Since 2009, he has been a senior member of the research and technology staff of INFN in Torino. His current

research interests are in the design of front-end electronics for hybrid and monolithic pixel detectors and in the development of low power, high resolution mixed-mode integrated circuits for charge and time measurements in high energy physics and medical applications.

ERIC DELAGNES received the electrical engineering degree from ENSEEIHT (France) and the M.S. in microelectronics degree from Institut Polytechnique de Toulouse in 1990. Since then, he has been active in the design of mixed mode analog-digital ASICs and associated electronics, used mainly to read particle detectors with a special interest on very frontend electronics and analog memories. He is the designer of more than 15 ASICs, used in high energy physics, nuclear physics, and ground, undersea or spaceborn astrophysics experiments. Since 2003, he has been responsible for the detector R&D and front-end electronics group of CEA/IRFU (Saclay, France). Eric Delagnes has published more than 30 papers in refereed publications and is the holder of 4 patents in the fields of analog memories and analog-to-digital conversion. He received the Yves Rocard award of the French Physics Society (SFP) in 2005.

EDOARDO CHARBON received the Diploma from the Swiss Federal Institute of Technology (ETH) in Zürich in 1988, the M.S. from UCSD in 1991, and the Ph.D. from UC-Berkeley in 1995, all in Electrical Engineering. From 1995 to 2000, he was with Cadence Design Systems, where he was responsible for analog and mixed-signal design automation tools. In 2000, he joined Canesta Inc. as its Chief Architect, leading the development of wireless 3D CMOS image sensors. From 2002 to 2008 he was with the Swiss Federal Institute of Technology (EPFL) of Lausanne, Switzerland, working in the field of CMOS sensors, biophotonics, and ultra low-power wireless embedded systems. Since 2008, Prof. Charbon has been Full Professor and Chair of VLSI design at TU Delft, where he leads research in high performance, low power circuits, and systems. His research interests include high-performance imaging, quantum integrated circuits, and design automation algorithms.

JEAN FRANCOIS GENAT is a research engineer at CNRS/IN2P3 Paris, France. He has been active in the field of electronics and signal processing for High Energy Physics and Astrophysics since 1975. He addressed in particular the problem of high resolution time encoding introducing in 1984 digital delay lines integrated in ASICs for the Large Electron Positron collider experiments at CERN (Geneva, Switzerland), leading to large scale sub-nanosecond timing systems. He is currently involved in the readout of Micro-Channel Plate photo-detectors for which he designs GHz sampling analog memories ASICs aiming to achieve picosecond timing resolution.

SC4: Statistical Approaches to Tomographic Reconstruction
Sunday, October 23, 09:30-18:00, VCC, Auditorium 3A

Organizer: Arkadiusz Sitek, *Harvard Medical School and the Brigham and Women's Hospital, USA*
Instructors:

Bruno DeMan, *GE Global Research, USA*
Johan Nuyts, *Katholieke Universiteit Leuven, Belgium.*
Arkadiusz Sitek, *Harvard Medical School and Brigham and Women's Hospital, USA*

Course Description:
Statistical and iterative approaches are methods of choice used for image reconstruction in emission tomography (ET) and are gaining popularity in X-Ray computed tomography (CT). The course will serve as an introduction to iterative and statistical methods of image estimation in ET and CT from projection data. The program of the course will cover fundamentals of medical tomography and common iterative and Monte Carlo methods. An introduction to general Bayesian methods in ET will also be given.

Course Outline:
The course will consist of three parts:

1. Image reconstruction in ET (Introduction to the statistical description of the data. Algorithms: ML-EM, OS-EM, MAP, etc.)

2. Image reconstruction in X-Ray CT (Iterative algorithms used in image reconstruction)

3. Bayesian statistical analysis of ET data (image creation, estimation/classification tasks using the posterior probability and Monte Carlo methods, Bayesian credible sets)

Prerequisite knowledge includes basics familiarity with the physics of emission and transmission imaging systems, statistics, and elementary algebra.

Instructors:
BRUNO DE MAN earned his B.S., M.S. and Ph.D. degrees in Electrical Engineering from the University of Leuven, where he performed research in the areas of ultrasonic tissue characterization (echocardiography) and CT iterative reconstruction for metal artifact reduction. Bruno joined GE Global Research in June 2001 and performed research in the areas of cone-beam reconstruction, iterative reconstruction, and multi-source inverse-geometry CT, among other projects. He is currently managing the CT Systems and Applications Laboratory at GE Global Research.

JOHAN NUYTS is research professor in the Department of Nuclear Medicine of the Katholieke Universiteit Leuven, Belgium. He received his Ph.D. in applied sciences in 1991 on the subject of image reconstruction and quantification in SPECT. His research interests include iterative reconstruction in PET, SPECT, and CT. Ongoing research projects focus on some multimodal imaging problems in PET/CT and PET/MRI, polychromatic CT reconstruction, multi-pinhole SPECT imaging, and motion correction in small animal PET.

ARKADIUSZ SITEK is an assistant professor of Radiology at the

Harvard Medical School and the Brigham and Women's Hospital in Boston. He received his M.S. degree in physics in 1994 from the University of Warsaw and Ph.D. in physics from the University of British Columbia in Vancouver, B.C. in 1998. Arek's main research interests in medical imaging include applications of statistics, high-performance computing, medical data visualization, and quantitation.

SC5: Kinetic Modeling

Sunday, October 23, 09:30-18:00, VCC, Room 3&4

Organizer: Richard Carson, *Yale University, USA*
Instructors:

Richard Carson, *Yale University, USA*
Roger N. Gunn, *Glaxo Smith Kline, UK*
Adriaan A. Lammertsma, *VU University Medical Center, The Netherlands*
Julie C. Price, *University of Pittsburgh, USA*
Jörg van den Hoff, *Technical University Dresden, Germany*

Course Description:
This 1-day course is designed for anyone who would like to gain a better understanding of the principles involved in PET kinetic modeling and analysis. It is appropriate for physicists, physicians, graduate students, and researchers with a range of backgrounds. This course is an abbreviated version of a 2.5 day course given annually by a group of experts in PET pharmacokinetic modeling.

Course Outline:
- Basic Kinetic Modeling Principles
- Basic Pharmacological Principles
- Single- and Two-Tissue Compartment Models
- Blood Flow and FDG Models
- Neuroreceptor Modeling
- Reference Tissue Approaches and Modeling
- Simplified Approaches Including Linear Methods and Steady-State Principles

Instructors:
RICHARD E. CARSON is Professor of Biomedical Engineering and Diagnostic Radiology at Yale University. He is Director of the Yale PET Center and is Director of Graduate Studies in Biomedical Engineering. He received his Ph.D. from UCLA in 1983 in Biomathematics., and from then until 2005, Dr. Carson was an integral part of the PET program at the National Institutes of Health, rising to the rank of Senior Scientist. His research focus is the development and application of mathematical techniques for the study of human beings and non-human primates with PET. Dr. Carson has published over 160 papers in peer-reviewed journals and given over 80 invited lectures.

ROGER N. GUNN is Director of Molecular Imaging Analysis at GSK where he is leading the application of PET imaging to drug development. He did his undergraduate degree in applied mathematics at the University of Warwick before completing a PhD in the bio-mathematical modelling of PET data at the MRC Cyclotron Unit (London, UK). He left the MRC to take up a faculty position at McGill University where he worked at the Montreal Neurological Institute before joining GSK in 2003. He holds Visiting

Professorships at Oxford University (Dept Engineering Science) and Imperial College (Division of Neuroscience and Mental Health) and has published over 100 peer reviewed journal articles in the field of imaging.

ADRIAAN A. LAMMERTSMA studied experimental physics at the State University Groningen. He has been involved in PET since 1979 when he moved to the MRC Cyclotron Unit, Hammersmith Hospital in London, UK. In 1984, he received his PhD in Medicine from the University of London on the use of PET for measuring blood flow and oxygen metabolism. With the exception of a one-year sabbatical leave at UCLA, he stayed at Hammersmith Hospital until the end of 1996. He then moved to the VU University Medical Center in Amsterdam, where he is now head of the Department of Nuclear Medicine & PET Research and professor of Positron Emission Tomography. He has published over 250 peer reviewed papers.

JULIE C. PRICE received a B.S. in physics and M.S. in medical physics from the University of Wisconsin. Her doctoral (Johns Hopkins University, Radiological Health Sciences) and post-doctoral (NIH PET Dept.) training focused on kinetic modeling and quantitative PET methods. She joined the University of Pittsburgh in 1994 and is currently Professor of Radiology and Biostatistics and Head of PET methodology. Her PET research includes novel tracer evaluation and assessment of brain function in neurodegeneration, aging, and psychiatric disorders. Recent research has focused on the development and application of methods for PET amyloid imaging.

JÖRG VAN DEN HOFF is Professor of Positron Emission Tomography at the medical faculty of the Technical University Dresden and head of the Department of Positron Emission Tomography in the Institute of Radiopharmacy of the Helmholtz-Zentrum Dresden-Rossendorf (HZDR). He obtained his PhD in experimental nuclear physics in 1991 at the University of Bonn, and subsequently joined the PET center in the Department of Nuclear Medicine at the Medical School Hannover. In 2002, he took his current position in Dresden. Besides a continuing interest in tracer kinetic modeling, the group of Prof. van den Hoff is working at algorithms and procedures for improved quantitative imaging such as event-based movement correction and reliable volumetric evaluation of PET investigations, especially for radiation treatment planning.

SC6: Statistical Approaches to Medical Image Analysis

Monday, October 24, 09:30-18:00, VCC, Room 3&4

Organizer: Juan Domingo Gispert, *Fundació Pasqual Maragall, Barcelona, Spain*

Instructors:

Javier Pascau, *Universidad Carlos III, Madrid, Spain.*

Uwe Pietrzyk, *University of Wuppertal and Research Center Juelich, Germany*

Carles Falcon, *IDIBAPS and Hospital Clínic of Barcelona, Spain.*

Juan Domingo Gispert, *Fundació Pasqual Maragall and Pompeu Fabra University, Barcelona, Spain*

Lars Kai Hansen, *Technical University of Denmark, Denmark*

Manuel Desco, *Universidad Carlos III, Madrid, Spain*

Course Description:
The course will present the basic aspects of medical image analysis based on statistical methods. The course will cover the mathematical background of image coregistration and fusion along with clinical applications, image classification, voxelwise statistical image analysis, practical examples of image processing artifacts, and, finally, a critical lecture on neuroimaging analysis. The course is suited for anyone willing to gain a basic knowledge on standard statistical imaging processing, analysis, and quantification techniques. Course prerequisites are basic algebra, and basic knowledge on medical imaging modalities. Basic knowledge on statistics is recommended, but not required.

Course Outline:
- Medical image coregistration. Javier Pascau
- Clinical applications of image fusion. Uwe Pietrzyk
- Medical image preprocessing artifacts. Carles Falcon
- Basic statistical neuroimaging analysis. Juan D. Gispert
- Image classification methods. Lars Kai Hansen
- Critical overview of neuroimaging analysis methods. Manuel Desco

Instructors:
JAVIER PASCAU is professor of Medical Imaging Techniques at the Carlos III University of Madrid and holds an appointment as researcher at the Laboratory of Medical Imaging of the Gregorio Marañón Hospital in Madrid, Spain. He received his education as engineer at the Technical University of Madrid where he received his PhD in 2005 and a Master's degree on Biomedical Techniques and Instrumentation the same year. His main research interests are clinical and preclinical multimodal image coregistration and fusion.

UWE PIETZYK is a Professor of Experimental Physics at the University of Wuppertal, Department of Mathematics and Natural Sciences and holds an appointment as group leader in the Institute of Neurosciences and Medicine (INM-4) at the Research Center Juelich, Germany, since 1999. He received his education in particle physics at CERN, Geneva, Switzerland, since 1977, got his PhD in 1984, but moved to medical imaging physics in 1987, working at the Max-Planck Institute of Neurological Research. The main research topics are multimodal / hybrid imaging, image registration, image fusion, and in the field of simulating medical imaging devices. His group also made essential contributions to the development of Polarized Light Imaging (PLI). He is member of the Crystal Clear and the OpenGATE Collaboration and has co-authored more then 80 peer reviewed papers in the field of medical imaging.

CARLES FALCON is professor at the Barcelona University and holds an appointment as group leader of the Medical Imaging Platform of IDIBAPS and Hospital Clínic of Barcelona, Spain. He received his education at the University of Barcelona where he received his PhD in physics in 1998. His main research interest is functional neuroimaging.

JUAN DOMINGO GISPERT is professor of Biomedical Imaging Techniques at the Pompeu Fabra University and holds an appointment as coordinator of the Neuroimaging Platform of the Pasqual Maragall Foundation in Barcelona, Spain. He received his education as engineer at the Technical University of Barcelona and

a Master's degree on Biomedical Techniques and Instrumentation and a PhD at the Technical University of Madrid in 2004. His main research interests are molecular imaging acquisition and processing.

LARS KAI HANSEN is full professor and Head of the section 'Cognitive Systems' at the Informatics Department of the Technical University of Denmark. He received his PhD in physics in 1986 at the University of Copenhagen, and his main research interests are machine learning, neuroinformatics, neuroimaging, and neural networks.

MANUEL DESCO is full professor and Head of the Bioengineering and Aeronautics Engineering of the Carlos III University of Madrid, Spain. He received his education as nuclear medicine physician at the Universidad Complutense and as engineer at the Technical University of Madrid. His main research interests are molecular imaging instrumentation and processing.

SC7: Physics and Design of Detectors for SPECT and PET

Monday, October 24, 09:30-18:00, VCC, Room 1&2

Organizer: Nicola Belcari, Università di Pisa, Italy
Instructors:

Nicola Belcari, Università di Pisa, Italy
Marlies Goorden, Delft University of Technology, The Netherlands
Pedro Guerra, Universidad Politécnica de Madrid, Spain
Sibylle Ziegler, Technische Universität München, Germany

Course Description:
This one-day course is intended to introduce physicists and engineers to the fundamentals of PET and SPECT technology and detector design with focus on high resolution systems, electronic design, and hybrid systems. A basic knowledge of detectors and electronics is assumed.

Course Outline:
The course will be organized in four sessions with basics and advanced topics.

Basics: This part will cover the basics of detector design for PET and SPECT. Starting with current status of technology, attendees will be introduced to recent advances on high resolution detectors for PET to advanced multi pin-hole systems for ultra-high resolution SPECT. In particular, specific topics covered are:

- Physics of PET
- Spatial resolution and noise issues in PET
- Instrumentation for high resolution PET imaging
- Physics of SPECT
- Advanced pinhole imaging
- Detectors for high resolution SPECT

Advanced topics: This part will cover recent developments in two research topics: the new generation of acquisition systems for PET and SPECT and the latest advances on hybrid imaging. Advanced topics include:

- Acquisition systems for PET and SPECT
- Timing issues for next generation TOF PET systems
- Fully digital acquisition systems for PET/SPECT
- Hybrid imaging

- From (S)PET/CT to (S)PET/MRI
- Advanced detectors for (S)PET/MRI

Instructors:

NICOLA BELCARI is Assistant Professor at the Department of Physics "E. Fermi" of the University of Pisa. He received his Ph.D. degree in applied physics in 2003 on the subject of Positron Emission Mammography. His present research interests are in the field of instrumentation for PET and SPECT with a special focus on small animal imaging and in-beam PET monitoring systems in hadron therapy. He collaborated in the development of a small animal scanner with PET/SPECT capabilities and a variable resolution microCT system. Dr. Belcari holds 2 patents in animal imaging techniques and has authored or co-authored more than 50 papers in medical imaging.

PEDRO GUERRA is Research Scientist at the Electronic Engineering Department of the Universidad Politécnica de Madrid. In 2007, He received his Ph.D. degree in Telecommunication Engineering from the Universidad Politécnica de Madrid, Spain, for his studies on the application of digital signal processing techniques in gamma-ray detectors. His present research interests are in the field of PET instrumentation and intraoperative radiotherapy. He is currently active in the development of a small animal scanner with PET/CT capabilities. Dr. Guerra holds 2 patents with application to small animal molecular imaging and has authored or co-authored more than 30 scientific papers, including journals and conference proceedings.

Prof. Dr. SIBYLLE ZIEGLER received her PhD in physics from the University of Mainz (Germany) in 1989. After a postdoctoral fellowship at the German Cancer Center in Heidelberg and the Hammersmith Hospital in London, she joined the Nuclear Medicine Department at the Technische Universität München in 1993. Her research is focused on nuclear medical instrumentation and data analysis with an emphasis on multimodal imaging.

Dr. MARLIES GOORDEN received her PhD in theoretical nanophysics at Leiden University (The Netherlands) in 2005. After a postdoctoral fellowship at the University of Geneva, she joined the molecular imaging group of Prof. Dr. F. Beekman at Delft University of Technology and University Medical Center Utrecht. Her research focuses on theoretical aspects of Single Photon Emission Tomography (SPECT) imaging, including the improvement of image reconstruction methods and the optimization of SPECT geometries.

Industrial Program

Ron Keyser

Manuel Lozano

The IEEE NSS/MIC Industrial Program provides our conference attendees with ample opportunities to meet the different exhibitors on Tuesday, Wednesday, and Thursday, 25 to 27 October. The opening hours will follow the hours of the conference. More than 40 companies from all around the world will be present to meet conference attendees and to demonstrate their latest products. These represent state-of-the-art in detectors, pulse processing instrumentation, imaging, software, and other associated areas. The exhibition area is located in two rooms in the Valencia Conference Center: Multipurpose 1 & 2, located near the main session room. Coffee with local pastries and fruits will be served during the breaks in the exhibit rooms on Tuesday, Wednesday, and Thursday. The exhibits will remain open until after the afternoon coffee on Thursday to provide extra time for the MIC attendees to visit.

The three-day exhibition is complemented by a series of seminars and technical presentations on Tuesday, Wednesday, and Thursday in VCC, Rooms 1 & 2, which will allow an in-depth exchange of information between attendees and exhibitors on existing products, future developments and needs. Rooms 1 & 2 are located on the second floor. The detailed schedule will be posted at the entrance to the exhibit area.

The morning and afternoon coffee breaks will be held in the exhibit area. On Tuesday evening from 19:00 to 21:00, the exhibiting companies will host the Exhibitor Reception.

Exhibition Opening Hours	
Tuesday, October 25	12:00 – 21:00 Reception starting at 19:00
Wednesday, October 26	09:00 – 18:00
Thursday, October 27	09:00 – 16:00

Ron Keyser
Industrial Program Co-Chair

Manuel Lozano
Industrial Program Co-Chair

ADVANSID SRL- Advanced Silicon Detectors
AMPTEK Inc.
Acrorad Co., Ltd.
Alibava Systems, S.L.
Alpha Spectra, Inc.
Baltic Scientific Instruments, Ltd.
Berkeley Nucleonics Corp.
CAEN SpA
CRC Press-Taylor & Francis Group LLC
Canberra Industries
Creative Electron, Inc.
ET Enterprises Ltd.
Eljen Technology
FLIR Radiation GmbH
Furukawa Co., Ltd.
GE Energy
Hamamatsu Photonics Europe
Hilger Crystals
KROMEK Ltd.
Micron Semiconductor
Nucare Medical Systems, Inc
ORTEC
Philips Digital Photon Counting
SEMIKON Detector GmbH
SINTEF
Saint-Gobain Crystals
Schroff GmbH
Scientifica Internacional, S.L.
Scionix Holland
Shangai SICCAS High Technology Corp.
Shizuoka University/ ANSeeN Inc.
Symetrica Security Ltd.
Tokuyama Corp.
U. S. Naval Research Laboratory
VTT Technical Research Center of Finland
Wiener, Plein & Baus, Ltd.
X-Ray Imaging Europe GmbH
XGLAB SRL.
XIA LLC

Exhibitors' Technical Session

The following table shows the preliminary list of presentations. The final list and schedule will be posted on the web and printed in the Exhibitor's Guide.

Company	Presentation
ORTEC	Technical Advances in Radiation Detection Systems
CAEN	Digital Pulse Processing in Homeland Security and Medical Imaging Applications
HAMAMATSU	Latest development for vacuum photodetector
TOKUYAMA	Scintillation properties of LiCAF for neutron detection
KROMEK	Developments within Multi-Spectral X-Ray Imaging
SAINT GOBAIN	Developments in Neutron Detection Solutions
SEMIKON	Planar HPGE- and Si(Li)-detectors – Custom-made and tailored for a great variety of physics-applications
Alibava Systems, S.L.	Flexible readout system for microstrip particle detectors
GE ENERGY	TBD
PHILIPS	Fully Integrated Arrays of Digital Silicon Photomultipliers (dSiPM's) - The way towards industrial Application

Location: Rooms 1 and 2, Valencia Convention Center

Exhibitors' Sessions will take place at the following times

Tuesday, Oct. 25 from 15:30 to 17:30.
Wednesday, Oct. 26 from 10:00 am to 17:30.
Thursday, Oct. 27 from 10:00 am to 13:00.

Check our website: http://www.nss-mic.org/2011 for up-to-date information. An Exhibitor Program brochure will be available at the meeting with full details of the exhibitors and the seminar program. Companies interested in participating should contact one of the Co-chairs: Ronald Keyser (ronkeyser@ieee.org, +1 865 483 2146) or Manuel Lozano (Manuel.Lozano@imb-cnm.csic.es, +34 93 594 77 00).

Workshop on ^{3}He Alternatives for Neutron Detection

Friday, October 28, 08:30-18:30,

Meliá Valencia Palacio Congresos Hotel, Valentia B&C

Organizers:
Ralf Engels, *Forschungszentrum Jülich GmbH, Germany*
Richard Kouzes, *Pacific Northwest National Laboratory, USA*

Ralf Engels

Richard Kouzes

This workshop will focus on neutron detection methods and technologies for science and applications in the age of a diminishing supply of ^{3}He. One of the main uses for ^{3}He is in gas proportional counters for neutron detection, which are applied to homeland security, non-proliferation, neutron scattering science, commercial instruments, and well-logging detectors. It is also used in dilution refrigerators, targets or target cooling in research, and for basic research in condensed matter physics. Due to the large increase in the applications named above, the supply can no longer meet the demand and the ^{3}He supply is dwindling. The objective of this workshop is to provide a forum for discussion of the state of the art of neutron detection and the issues surrounding the current shortage of ^{3}He. The workshop will cover the progress achieved in the areas described by the following keywords:

- The ^{3}He supply limitations and possible supplies
- Alternative neutron detector technology
- Neutron detection for homeland security
- Neutron detection for neutron scattering science
- Neutron detection for medicine
- Neutron detection for petroleum and gas exploration

Program:

08:30 Welcome by the Chairs; *Ralf Engels/Richard Kouzes*

08:30 Overview of supply and demand issues; *Richard Kouzes (PNNL)*

08:50 Neutron Detector Technical Requirements for IAEA Safeguards Applications; *Howard Menlove (LANL)*

09:10 Alternatives to ^{3}He for Neutron Detection in National Security Applications; *James Ely (PNNL)*

09:30 Helium-3 Alternatives for Neutron Detection in Neutron Scattering Science; *Karl Zeitelhack (FRM II)*

09:50 Detector Requirements for the European Spallation Source;

Richard Hall-Wilton (ESS)

10:10 Potential Role of IAEA Towards Promotion of Alternative Solutions for Neutron Detectors; *Francoise Mulhauser (IAEA)*

10:30 Coffee break

11:00 Neutron and Gamma Measurements with Polyvinyl Toluene Detectors; *Dean Mitchell (SNL)*

11:20 Performance Characteristics of a High Efficiency Passive Neutron Assay System Using Alternative Neutron Detectors to Helium-3; *Alan Simpson (Pajarito Scientific)*

11:40 He-4 Detectors for Mixed-Oxide (MOX) Nuclear Fuel Measurements; *Rico Chandra (Arktis)*

12:00 Straw-Based Portal Monitor 3He Replacement Detector with Expanded Capabilities; *Athanasios Athanasiades (Proportional Technologies)*

12:20 Boron-Lined Tubelet Clusters Applied to Waste Assay Applications as a 3He Alternative Technology; *Robert McKeag (Centronics)*

12:40 Development of Novel Neutron Detectors with Thin Conversion Layers; *Reinhard Kampmann (Helmholtz-Zentrum Geesthacht)*

13:00 Lunch break

14:30 Microstructured Semiconductor Neutron Detectors; *Douglas McGregor (Kansas State Univ.)*

14:50 Neutron Detector for the Instruments of CSNS; *Zhijia Sun (Institute of High Energy Physics, China)*

15:10 The Efficiency of MeV Neutron Counting with Plastic Microchannel Plates; *Anton Tremsin (Arradiance)*

15:30 Light Output Uniformity of Czochralski Grown Rare-Earth-Ion Doped 6LiCaAlF6 Single Crystal for Thermal Neutron Detection; *Noriaki Kawaguchi (Tokuyama Corp.)*

16:00 Coffee break

16:30 Design Optimization of a Layered Boron Based Solid State Neutron Spectrometer; *Abigail Bickley (Air Force Institute of Technology)*

16:50 Wavelength-Shifting-Fibre Based Position-Sensitive Scintillator Detectors for the J-PARC/MLF; *Kazuhiko Soyama (JAEA)*

17:10 Wavelength-Shifting-Fiber and Scintillator Based Neutron Detector Development at SNS; *Cai-Lin Wang (ORNL)*

17:30 First Tests of Linear-Position-Sensitive Twin Tubes with BF3; *Thomas Wilpert (Helmholtz-Zentrum Berlin)*

17:50 Characterization of a Large-Area ZnS/6LiF Thermal Neutron Detector Read Out by Wavelength-Shifting Fibers; *Zane Bell (ORNL)*

18:10 Discussion

18:30 End

Organizers:
Javier Bermejo, *ESS Bilbao, Spain*
Ray Larsen, *SLAC, USA*

The original motivation for interest in the new telecom xTCA standards stemmed from studies for large high energy accelerator controls and detector systems. The main attraction was to achieve very high availability for very large systems which studies demonstrated would be necessary for acceptable up-time. However such systems also would bring many advantages to any large system, including an architecture that accommodates state-of-the-art multi-gigabit serial rather than parallel bus backplane inter-module communication. In November 2008 at the 2nd xTCA for Physics Workshop in Dresden an ad hoc committee from several major physics labs agreed to accept an invitation to join the PICMG open standards consortium to develop xTCA for physics extensions to the existing PICMG standards. Work began in May-June 2009 and in 2011 has now produced important new IO, timing, and intelligent platform management standards for two hardware extensions, one for ATCA and one for MicroTCA; a guideline document for precise timing distribution; and progress toward uniform software architectures and protocols to promote greater design uniformity and interoperability of hardware and software modules developed by both labs and industry. In 2011 key infrastructure support became available from industry and several labs are pursuing implementation programs for both controls and detector applications.

The Workshop is under the auspices of IEEE and the Laboratory Members of the PICMG[1] xTCA[2] for Physics open standards consortium.

Outline:
Since many potential users are still new to ATCA/μTCA while others are actively designing on the open standard, this workshop has four main components:

1. introductory xTCA hardware and software tutorials
2. status reports on the new extensions by committee members
3. tutorials of hardware and software products by industry and labs
4. new application developments in progress by both labs and industry

The program includes a small industrial exhibit and invited talks by vendors. The preliminary program is given below.

Registration:
The registration fee, inclusive of a reception on Saturday Oct 22, 18:30-20:00 (Tapas & Drinks) is, by 5 Oct., € 60; after 5 Oct., € 80.

Advance registration is required and companions are welcome to the

1 PICMG is the industry open standards group, PCI Industrial Computer Manufacturers Group, consisting of 250 companies and the following international physics Laboratories developing xTCA for Physics: CERN, DESY, ELETTRA, FNAL, IHEP, IPFN (Lisbon), ITER, LBNL, and SLAC.

2 ATCA is shorthand for ATCA (Advanced Telecom Computer Architecture) and/or MicroTCA, also called μTCA, the packaged mezzanine card standard platform.

Workshop Reception on Saturday October 22.

Preliminary Program:

Saturday Oct 22

08:00 Registration

09:00 Opening Welcome and Workshop Agenda; *Javier Bermejo, ESSB, Workshop Chair*

Session 1: PICMG XTCA Introductory Tutorials
Chair**:** *Bruno Gonçalves, IPFN*

09:15 1.1 Introductory Tutorial – ATCA/μTCA Hardware Basics; *Robert Downing, SLAC Consultant, Chair PICMG Physics HWG*

10:00 1.2 Introductory Tutorial – ATCA/μTCA Software Basics; *Stefan Simrock, ITER, Chair PICMG Physics SWG*

10:45 Refreshment Break

11:15 1.3 Introductory Tutorial – ATCA/TCA Hardware Platform Management Systems Basics (IPMI); *Dariusz Makowski,Lodz & DESY, Member PICMG Software SWG*

12:00 1.4 Introductory Tutorial - Managed Crate, Power & Cooling Systems; *Dietmar Mann, Schroff, Member PICMG Physics HWG*

12:45 Lunch Break

Session 2: PICMG XTCA for Physics Extensions
Chair**:** *Stefan Simrock, ITER*

14:00 2.1 PICMG Hardware Extensions for Physics: ATCA Intelligent RTM (PICMG 3.8), New MicroTCA for Physics Platform (MTCA.4); *Robert Downing, R.W. Downing Inc., Chair, PICMG Physics HWG*

15:00 2.2 PICMG Software Extensions for Physics: Guidelines, Roadmap & Status; *Augustus (Gus) Lowell, Triple Ring Technologies,, Secretary PICMG Software SWG*

16:00 Refreshment Break

16:30 2.3 Timing Distribution Extensions for ATCA Standard Backplane; *Jorge Sousa, IPFN, Member PICMG Physics HWG*

Session 3: Industry Exhibits 1
Chair: *TBD*

17:00 3.1 Industry Exhibits

18:30-20:00 Workshop Reception

Sunday Oct 23

Session 4: Lab and Lab-Industry Initiatives 1

Chair: *Prof. Javier Bermejo, ESSB*

09:00 4.1 Goals of Lab-Lab and Lab-Industry Collaboration: Infrastructure & Generic Modules; *Ray Larsen, SLAC, Chair PICMG Physics Coordinating Committee*

09:20 4.2 xTCA Physics Timing Distribution AMCs; *Attila Hidvégi, Physics Department, University of Stockholm*

09:40 4.3 ATCA Developments for Fusion Fast Plasma Control Systems; *Bruno Gonçalves et al, IPFN, Member PICMG Physics*

Standards Committees

10:10 4.4 xTCA Initiatives for ITER; *Stefan Simrock, ITER, Chair PICMG Physics SWG*

10:30 Refreshment Break

11:00 4.5 xTCA Initiatives for IHEP; *Zhen'An Liu, IHEP, Member & Officer PICMG for Physics Committees*

11:20 4.6 xTCA Initiatives for ESSB Injector Project; *Prof. Javier Bermejo, ESSB, Workshop Chair*

11:40 4.5 MTCA.4 Fast Digitizers for RF; *Matthias Kirsch, Strück Company*

12:00 4.6 MTCA.4 Generic FPGA for Physics; *Andreas Pruess, TEWS Company*

12:20 4.7 MTCA.4 Monterey System for 10/40 Gbps Telecom and Physics Applications; *Tony Romero, PT-Performance Technologies Inc.*

12:45 Lunch Break

Session 5: Lab and Lab-Industry Initiatives 2

14:00 5.1 MTCA.4 Hardware-Software Infrastructure Development for RF & Controls; *Qing Yang & Zheqiao Geng, SLAC, Members PICMG Physics SWG*

14:20 5.1 CERN xTCA for Physics Interest Group; *Markus Joos, CERN, Member PICMG for Physics Coordinating Committee*

14:40 5.2 ESSB-IPFN-SLAC Collaboration; *Bruno Gonçalves, IPFN, Member PICMG for Physics Committees*

15:00 5.3 MTCA.4 DESY ITER Initiatives; *Tomasz Jezynski, DESY, Member PICMG for Physics Hardware WG*

15:20 5.4 MTCA.4 SLAC LCLS Upgrade Controls & RF Initiatives; *Ray Larsen, SLAC, Chair PICMG Physics Coordinating Committee*

15:40 TBD

16:00 Refreshment Break

Session 6: Future Workshop Goals & Wrapup
Chair: *Ray Larsen*

16:30 Feedback suggestions – future standards collaboration plans – standards maintenance – committee memberships

17:00 Adjourn

International Organizing Committee:
Martin Tornai, *Duke University, USA*
Stanislaw Majewski, *West Virginia University, USA*
Mark Williams, *University of Virginia, USA*
Marie-Alix Duval, *Imaging & Modeling in Neurobiology & Cancer Laboratory, France*
Michael Hofmann, *University of Hannover Medical School, Germany*
Craig Levin, *Stanford University, USA*

This one-day Workshop will take place on Sunday immediately after the annual IEEE Nuclear Science Symposium & Medical Imaging Conference in Valencia, Spain. As in past years since 2002, the overall goals of the proposed events are to convene imaging physicists and engineers as well as chemists, biologists, physicians and students from around the world to discuss important issues related to breast cancer evaluation using functional Molecular Imaging techniques involving nuclear radiotracers, x-rays, and other technologies. Key issues to address are the recent successes and limitations of nuclear imaging approaches (molecular breast imaging/breast specific gamma imaging, PEM, and mammotomography with single gamma and positron emitting tracers) and what steps are required to continue to increase their role in breast cancer detection, diagnostics and management. Thus, in addition to having educational goals, the meeting serves as a venue to understand and suggest solutions to problems associated with incorporating nuclear imaging methods into the clinic for breast cancer screening, diagnosis, and staging.

The outline of the program, which incorporates suggestions from past convened Workshops, is as follows:

1. Review of the pathology of breast cancer
2. Clinical management and imaging of breast cancer
3. New tracers for nuclear imaging
4. Review and outlook of the future direction of molecular breast imaging
5. Interventional molecular imaging
6. Latest developments in non-ionizing (e.g. optical or ultrasound) breast imaging approaches

While there is a logically progressive and structured format, the setting is meant to be informal, with the morning portion of the Workshop devoted to discussion and interaction between the audience members and invited didactic presenters. There will be a competition for student travel awards to promote education/training in this field. This Workshop will provide the latest research information and lively interaction and discussions.

Registration:
The registration fee by 5 Oct. of € 110 includes all meals, breaks and handouts.

Student Support:
Provided adequate external funding, there will be student/post-doc travel awards available on a competitive basis, based on the relevance

and quality of abstract(s) submitted to the regular IEEE NSS/MIC Conference. Further details may be found on the 2011 IEEE NSS-MIC website.

Preliminary Program:

08:00 Introduction / Welcome

Session I - Breast Cancer Pathology

08:30 Speaker – TBD

09:15 Discussion

Session II - Detection and Characterization: A Clinical Perspective

09:30 Current Methods of Percutaneous Breast Biopsy: Hardware Requirements for Targeting and Biopsy; *Debra Ikeda, MD (Stanford University)*

10:45 Molecular Breast Imaging Clinical Trial Results; *TBD*

11:00 Discussion Session

11:30 Coffee Break

Session III - Nuclear Tracer Status

11:45 Tracers on the Horizon; *Michael Hofmann, MD/PhD, University of Hannover*

12:30 Discussion

12:45 Lunch

Session IV - Successes and Challenges in Human Studies to Date

13:45 Speaker 1 – TBD

14:30 Speaker 2 – TBD

15:15 Discussion Session

Session V - Intervention: A Clinical Perspective

15:45 Speaker 1 – TBD

16:30 Speaker 2 – TBD

17:15 Discussion Session

17:45 Coffee Break

Session VI - Recent Developments in Non-ionizing Molecular Breast Imaging

18:00 Speaker – TBD

18:45 Discussion Session

19:00 Concluding Remarks, Adjournment

Reception for IEEE GOLD Members
Thursday, October 27,19:00-20:30,
Sorolla Palace Hotel, Pinedo/Faro and Almarda/Raco Rooms

Christoph Ilgner

IEEE GOLD (Graduates of the Last Decade) members are welcome to join a casual reception to be held on Thursday, October 27 at 18:30 to 20:00 in Pinedo/Faro and Almarda/Raco Rooms of the Sorolla Hotel.

Attendance is free, but restricted to GOLD members and to conference attendees that join IEEE or the Nuclear and Plasma Sciences Society during the conference in Valencia, in order to extend a special welcome to them and allow for networking right away.

In a comfortable, casual atmosphere, personal contact between the attendees will be easily established: After a short welcome address the participants will be invited to take some refreshments. A couple of speakers that can look back on their bright careers in both academia and industry will then give very brief summaries on what they have done to get where they are today. Also IEEE fellows will be among these speakers. Their statements will focus on aspects of successful career planning. Since these brief statements are meant to set the pace for peer-to-peer discussions among the participants, a lot of time will be reserved for this.

Over the past years, the GOLD reception at NSS-MIC has proven to foster direct contact between young professionals and colleagues at the zenith of their careers. So, if you are an IEEE GOLD member or have joined our society right here in Valencia, you are cordially invited to participate. It is up to you to profit from the opportunities the GOLD reception offers. I look forward to welcoming you.

Christoph Ilgner
GOLD Membership Committee Chair

Special Women in Engineering (WIE) Session: Contribution of Women Scientists to Nuclear Science and Medical Imaging
Thursday, October 27,18:30-20:00,
Sorolla Palace Hotel, Arenas & Perellonet Rooms

Organizers:
Jane Lehr, *Sandia National Laboratories, USA*
María J. Ledesma-Carbayo, *Universidad Politécnica de Madrid, Spain*

We are pleased to welcome you to the Women in Engineering (WIE) Session, a special session to provide an opportunity for participants to exchange ideas and experiences in an informal setting. The special session will address the theme of women's contributions to nuclear science and medical imaging by presenting encouraging examples from the IEEE NSS and MIC. The session has the following goals:

- encouraging young ladies to choose science and engineering as a career
- how to improve the progression of women in order to minimize the movement of women out of these fields
- how to overcome barriers for the advancement of women already working in science and engineering
- how to combine a career with personal life

Jane Lehr

María J. Ledesma-Carbayo

Several speakers with outstanding careers in scientific laboratories, industry, and government have been invited to give brief summaries on what they have done to get where they are today and how they have addressed the incorporation of women in their teams.

These women and men are role models for generations to come. There will be keynote presentations, followed by a panel discussion on the session issues, which are of importance not only to the society of women in science and engineering but to the general public as well. Students who are beginning their careers in these areas will be invited to participate in the panel discussion. We hope that the WIE Session will help foster efforts to counter a worrisome trend that has been recently noticed in European countries: the more developed the country is and the richer the society is, the fewer women there are in S&E. We cannot afford to lose these talented women and we encourage all members of the IEEE NSS & MIC community to attend.

Details about the WIE Session can be found on the website: http://www. nss-mic.org/2011/ under Special Focus Workshops

Nuclear Science Symposium - NSS

Paul Lecoq

Faustino Gomez

The Nuclear Science Symposium has become year after year a reference international event in the domain of radiation instrumentation. It offers an outstanding opportunity for scientists and engineers interested in, or actively working in the fields of nuclear science, high energy physics, radiation instrumentation and related software for different applications, to meet and discuss with colleagues from around the world. The program emphasizes the latest developments in technology and radiation instrumentation and their implementation in experiments for particle physics, biomedical sciences, homeland security, space, accelerators, and other radiation environments. The NSS program consists of plenary, parallel, and poster sessions, with a number of joint sessions with the Medical Imaging conference (MIC) as well as with the Room-Temperature Semiconductor Detector workshop (RTSD).

Particular attention will be given this year to multi-disciplinarity and cross-fertilization between closely related domains. For this purpose the large number of topics usually proposed (20 or even more) are regrouped in 5 main sectors:

- Detection components
- Front End, DAQ, Trigger electronics
- Software and Computing
- Detectors/Intrumentation (small systems)
- Large detection systems

Each sector is placed under the supervision of 2 topic conveners, who will organize the sessions in such a way as to avoid as much as possible conflicts of interest and promote interactions between different subtopics.

This year the NSS luncheon, in Meliá Valencia Palacio Congresos Hotel, Rooms A&B, will include the talk from D. Manuel Toharia, director of the Science Museum at Valencia, a recognized expert in science divulgation, that is specially important in the perception of general public about nuclear science and technology.

Posters are organized following the same approach with five two-hours dedicated poster sessions not overlapping the corresponding oral sessions on the same subject. However each poster will stay on the board 2.5 day to allow individual viewing.

In the same spirit the oral and poster sessions addressing the solid-state detector topics are organized in close collaboration with the RTSD program chair and co-chair.

Educational Short Courses are organized focusing on topics of interest for the scientific community. They will offer the opportunity for very detailed presentations and discussions by renowned experts in the corresponding fields.

We have also introduced 3 refresher courses to allow students to be up-to-date on the following generic subjects: Geant4, Gaseous detectors, and Neutron detection.

We have tried also to restrict the number of parallel workshops allowing only emerging fields, which are not yet addressed in the NSS topics and where a community needs to be organized.

We would like to take this opportunity to thank all the authors for the excellent scientific contributions to the NSS conference this year, and also all the people who have been working so hard to prepare this event, and in particular the large number of reviewers as well as the topic conveners.

We hope the 2011 NSS conference will be a memorable event for all of you, both scientifically and socially, and we are looking forward to seeing you in Valencia in October 2011.

Paul Lecoq
NSS Program Chair

Faustino Gomez
NSS Program Deputy Chair

NP1-4: Lessons to be learned from Fukushima

Michael Kröning
TOLMI, Polytechnic University of Tomsk

Monday, October 24, 08:55-10:00, VCC, Auditorium 1

Biography:

Michael Kröning

Prof. Dr. Michael Kröning was born on January 6, 1944 in Weixdorf, Germany. In 1971 he graduated with a Diploma in physics at the Johannes Gutenberg-University in Mainz. In 1974 he achieved his Ph.D. in the field of experimental nuclear physics at the Johannes Gutenberg-University in Mainz. From 1972 to 1974 Dr. Michael Kröning was a Research assistant at the Max Planck-Institut für Chemie in Mainz and was promoted to Researcher at the Max Planck-Institut für Chemie in Mainz (1974-1978).

During 1978 to 1990, Dr. Kröning was manager of various research groups in nuclear engineering, quality assurance, and inspection technologies at Siemens AG, Kraftwerk Union, in Erlangen. In 1990, Dr. Michael Kröning was elected to serve as the Director of the Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren (Institute for Nondestructive Testing) in Saarbrücken, and Professor at the University of Saarbrücken, Chair of Nondestructive Testing and Quality Assurance.

From 2000 to 2003, he took a sabbatical leave to hold a post of the Executive Director of the International Science and Technology Center in Moscow. In October of 2003, he returned to the position as Director of the Fraunhofer-Institut Zerstörungsfreie Prüfverfahren, IZFP, in Saarbrücken, and Professor at the University of Saarbrücken - Chair of Nondestructive Testing and Quality Assurance, until February 2009.

Prof. Dr. Michael Kröning was a member of the German Reactor Safety Committee (from 1992 to 1999) and a co-opted scientific member of the advisory board of the German Society of Nondestructive Testing.

He is Chairman of a number of SME committed to the international scientific cooperation in the field of technical safety.

Prof. Dr. Michael Kröning is an Honorary Fellow of the Indian Society for Nondestructive Testing and Honorary Fellow of the Indian National Academy of Engineering and appointed part-time lecturer and Professor of the Su Zhou Nuclear Power Research Institute, China.

After retirement from the position as Director of Fraunhofer IZFP in 2009, he was contracted by various nuclear engineering institutions

in the USA, Germany, Brazil, and China, working on applied research problems in the field of nondestructive testing.

In October of 2010, Michael Kröning was a winner of the open grant competition of the Government of the Russian Federation, designed to support research projects implemented by leading scientists. Since then, he is developing the Tomsk open Laboratory for Material Inspections, TOLMI, at the Polytechnic University of Tomsk with the objective of advanced inspection techniques for Risk Based Assessment of the structural integrity of nuclear systems and components.

He has been honored by Universities and Institutions, including:

Honorary Professor of the Tomsk Polytechnical University
Honorary Doctorate of the St. Petersburg Railway University
Honorary Doctorate of the Kyrgyz-Russian-Slavonic University
Honorary Professor of the Issyk-Kul State University
Honorary Doctorate of the Eurasian National L.N. Gumilyov-University, Astana
Honorary Doctor of the National Academy of Science of the Kyrgyz Republic
Honorary Professor of the L.N. Gumilyov Eurasian National University, Republic of Kazakhstan
2008 NDE Lifetime Achievement Award SPIE, US

Abstract:
On March 11, 2011 one of the most severe natural catastrophes in the history of Japan caused inconceivable human grief and sorrow and destroyed parts of the infrastructure of one of the most developed high-technology countries. The Tsunami following the earthquake resulted in the disastrous incident at the Fukushima Daichii I-IV nuclear power plant. We feel the disappointment and sympathize with the Japanese people. In consequence, we have to take responsibility as nuclear engineering and peaceful use of nuclear power is a result of the global state of engineering and international regulations.

Meanwhile, experts understand the reasons that lead to the nuclear disaster. This talk covers the technical and design-related facts and what we have learned to improve the design and management structure. However, the technical analysis is only one of the lessons to be learned in view of the world-wide reframed perception on the usage of nuclear energy. The future will show whether we will have learned the right lessons for the appropriate use of human knowledge and engineering to master these global challenges.

NP2-1: Exploring Nature Moments after the Big Bang at the LHC

Tejinder S. Virdee
Imperial College, London, UK

Monday, October 24, 10:30-11:10, VCC, Auditorium 1

Biography:
Tejinder (Jim) Virdee is Professor of Physics at Imperial College, London. He did his graduate studies at Imperial College on an experiment conducted at the Stanford Linear Accelerator Centre, Stanford. He has worked on an experiment studying deep inelastic Compton scattering of photons off of quarks and then on the UA1 proton-antiproton collider experiment both at CERN. The UA1 experiment discovered the W and Z bosons. After the termination

Tejinder S. Virdee

of UA1 (1990), Dr. Virdee concentrated on the physics of, and experimentation at, the next generation of hadron colliders. He is one of the founding members of the Compact Muon Solenoid Collaboration (CMS) at CERN-LHC. Dr. Virdee has played a major role in all phases of the experiment. These phases have lasted around 20 years and include the formation of CMS, the definition of the physics goals, checking performance against benchmark physics reactions, detector R&D, detector prototyping, construction and installation, commissioning, data-taking and the start of the extraction of science. He poineered some of the techniques used in its calorimeters, crucial for the measurement of the energies of electrons, photons and jets. Dr. Virdee was the Spokesperson (leader) of the CMS Collaboration for three years, between 2007 to 2009, and was the Deputy Spokesperson of CMS from 1993 to 2006.

Dr. Virdee's current work involves analysis of data to search for new physics including the Higgs boson, and to consider the improvements necessary to keep the CMS experiment operating over the next two decades, at rates of proton-proton collisions some ten times higher than anticipated in the original design.

Dr. Virdee was awarded the 2009 James Chadwick Medal and Prize of the U. K. Institute of Physics for his crucial role in the design and construction of CMS.

Abstract:
The Large Hadron Collider project, comprising the accelerator and the experiments, aims is to tackle some of the most fundamental questions about the origin, evolution and composition of our universe. Potential discoveries include new forms of matter, new forces of nature, new dimensions of space and time. Particular questions to be addressed include: what is the origin of mass, what constitutes dark matter, why is the universe composed of matter, not antimatter, and more. The discoveries have the potential to alter our perception of how Nature operates at the fundamental level.

In 2010 the LHC accelerator collided protons and lead ions at unprecedented high energies. Outstanding progress was made in operating the accelerator with very good performance. Continued good progress in 2011 has seen the proton-proton interaction rate increase to about 100 million per second.

All the LHC experiments also performed very well, close to their desired and ambitious design performance set down some fifteen years ago. Physics measurements are confronting, more and more precisely, the predictions of the Standard Model of particle physics, whilst looking for new physics.

The LHC experiments are designed to operate in a very harsh

environment created by hundreds of billions of particles produced every second, and to register with high accuracy the passage and energies of all these particles, thus demanding huge data collection, transfer and processing rates on a scale greater than ever previously attempted. The two large LHC experiments, ATLAS and CMS, each comprise over 3500 scientists and engineers from around 170 institutions in around 40 countries.

The talk will briefly recall the physics of the LHC, outline some of the challenges faced during construction, the operation and the performance, the first physics results from the experiments, and the outlook.

The talk will also touch upon the societal impact of fundamental research, CERN and the LHC.

NP2-2: Heavy Ions at the LHC

Paolo Giubellino
CERN and INFN Torino, Italy

Monday, October 24, 11:10-11:50, VCC, Auditorium 1

Biography:

Paolo Giubellino

Paolo Giubellino, after his studies at Torino University and University of California, Santa Cruz, has dedicated most of his scientific life to the Physics of High-Energy Heavy-Ion collisions, first in HELIOS, then in NA50 and finally in ALICE. He has been in ALICE from the very first feasibility studies, and has later carried a number of responsibilities in the experiment, including Project Leader for the Inner Tracking System, Chair of Conference Committee, Upgrade Coordinator and, for the past six years, Deputy Spokesperson. Since Jan 1st, 2011, he is the Spokesperson of the ALICE Collaboration. He has been active in the development of silicon detectors and is a member of the ICFA Instrumentation Panel. He has served in many scientific committees and panels and is currently Chair of the G-PAC of GSI and member of the Conseil Scientifique of IN2P3. He also chaired the working group charged of writing the Phase Transitions chapter of the NUPECC Long-Term Plan. Author of over 300 scientific papers, he has been awarded the Medal of the Ukrainian Academy of Sciences and the Medal of the Particles and Fields section of the Mexican Physical Society. He is based at both INFN Torino and CERN.

Abstract:
In November 2010, three LHC experiments, ALICE, ATLAS and CMS, took first Pb-Pb data at the unprecedented centre of mass energy per nucleon pair of 2.76 TeV, a jump of a factor 13 over the highest energies ever achieved with nuclear beams. Both the CERN

accelerator complex and the experiments performed remarkably well, so that important scientific results could be obtained in a very short time. The talk will cover the experimental challenges of the LHC Heavy Ion program and give an overview of the first physics results obtained, with a special attention given to ALICE, the dedicated Heavy-Ion experiment.

NP2-3: Ultra-High Energy Cosmic Rays and the Pierre Auger Observatory

Alan Watson
University of Leeds, UK

Monday, October 24, 11:50-12:30, VCC, Auditorium 1

Biography:

Alan Watson

Alan Watson has worked on high-energy cosmic rays since 1964 when he moved from Edinburgh to join the shower-group at the University of Leeds, UK, to help construct the 12 km^2 air-shower array at Haverah Park. He became head of the group in 1976. While his primary interests have been in the study of charged cosmic rays above 10^{17} eV, he has also done some gamma-ray astronomy. Together with a team from the Bartol Institute of the University of Delaware, he was involved in a search, made from the South Pole, for gamma-rays of ~10^{14} eV from SN1987A. During this period the first coincidences between a shower detector and muons observed in the AMANDA instrument were recorded: this served as a prototype for the IceTop/IceCube configuration now in operation. In 1994 he spent time at the Whipple Observatory in Arizona and helped in the discovery of flared-emission at ~ 1 TeV of gamma-rays from Markarian 421. In 1991, with Jim Cronin (Chicago), he started the processes that led to creation of the Pierre Auger Observatory and is currently interested in using data obtained with it to determine the mass composition of the highest-energy cosmic rays. He is emeritus spokesperson of the Pierre Auger Observatory and an emeritus professor at the University of Leeds. He is a Fellow of the Royal Society.

Abstract:

I will explain why cosmic rays of energies above 10^{19} eV, the most energetic particles in Nature, are of interest to astrophysicists and particle physicists. While the former can use them to probe the galactic and intergalactic magnetic fields and to learn something of the workings of active galactic nuclei, the particles give the latter the opportunity to gain information about limited features of hadronic interactions at centre-of-mass energies up to 30 times above what is accessible at the LHC.

The Pierre Auger Observatory was constructed to measure the

properties of the highest-energy cosmic rays with unprecedented precision and statistical accuracy. I will describe how it operates and discuss the impact of the most recent results on our understanding of the nature and origin of the particles above 10^{18} eV. Inferences drawn from the data on the p-air cross section at a centre-of-mass energy of 57 TeV and on the number of muons found in air-showers, which are greater than predicted using models of hadronic interactions defined by Tevatron and LHC data, will be presented.

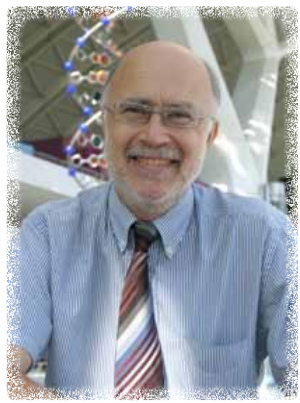
Climate change: myth and reality

Manuel Toaria Cortès
City of Arts and Sciences in Valencia, Spain

Monday, October 24, 12:30-14:30

Meliá Valencia Palacio Congresos Hotel, Valentia A&B&C

Biography:



Manuel Toaria Cortès

Manuel Toharia was born in Madrid on August the 3rd, 1944. He got the French and Spanish bachelor's degree in the "Lycée Français de Madrid" and afterwards he became a Physicist in the special field of the cosmos physics by the University Complutense of Madrid.

He has been a public official at the National Institute of Meteorology from 1969 to 1975 and started at the same time his activity in journalism and scientific dissemination as an editor of the newspaper "Informaciones" and as a redactor for the science information services of the Spanish public TV, TVE. Since 1979 he has guided and presented several cultural and scientific related programmes in the Spanish public TV.

He has been a scientific editor for the newspaper "El País", he has launched the magazine "Muy Interesante" and has founded the scientific journal "Conocer". Afterwards he has been working as a TV producer for several scientific related videofilms and programmes, and he has designed and developed several exhibits for science, technology and environment hands-on museums.

He has published 35 scientific dissemination books and he has been recognized with several rewards, one of them is the outstanding journalism award by the Scientific Investigation Council of Spain.

He has been the Director of the Interactive Science Museum ACCIONA and then the director of the Science Museum of the Foundation LA CAIXA, in Madrid. Since January 2000 he has been the Scientific Director of the City of Arts and Sciences in Valencia, and was elected president of the Spanish Association of Science Communication in spring 2005.

Abstract:

Every negative atmospheric phenomena - extreme temperatures, heavy rains, tropical cyclones, persistent drought, icy weather, etc. - is nowadays attributed to climate change, in such a way that the scientific forecasts are, according to public media, announcing an apocaliptic future. The political leaders are so convinced of this, that they claim we are facing the worst threat to human society in this century. Does it mean that this problem is more serious than the

actual fact of a thousand million people dying because of starvation in the world? Is this of higher concern than the thousands of nuclear weapons stored at military arsenals by the most powerful countries in the world? Even more grave than the fanatical, blind, international, suicidal and non-rational uncontrollable terrorism? Human beings are not making relevant efforts to avoid these dramas, in fact we ignore them. Climate change, on the other hand, is certainly a famous myth but also a reality difficult to ignore, because it has appeared as a scientific warning related to the development consequences of rich countries, and also from poor countries that want to become rich. It is not an immediate or short term warning, but requires reflexive and preventive, rather than paliative, actions, in an attempt to get an alternative scenario better than the existing forecast. Concerning global warming, we already know some facts, although we still ignore many more, and we are probably excessively fearful, but also doing very little to correct our previous behaviour.

Gas Detectors Refresher Course

Fabio Sauli
TERA Foundation and CERN, Switzerland

Monday October 24, 07:30-08:30,
Meliá Valencia Palacio de Congresos Hotel, Meeting 1&2&3

Since the introduction of multiwire chambers in the late sixties, gaseous detectors have been and are used in a variety of configurations and sizes in most experiments in physics and other fields. To cope with the increasingly stringent requirements of modern applications, both in terms of tracking accuracy and rate capability, new generations of devices have emerged, generally named Micro-Pattern Gas Detectors. In this introduction to the topic, I will briefly summarize the performances and limitations of the classic and improved generations of gaseous detectors, as well as indicate directions of research aimed at solving endemic problems such as rate capability, long term survivability at high radiation levels, energy, and position resolutions.

Neutron Detection Refresher Course

Nolan E. Hertel, Ph.D., P.E.
Georgia Institute of Technology, Atlanta, USA

Tuesday, October 25, 07:30-08:30,
Meliá Valencia Palacio de Congresos Hotel, Meeting 1&2&3

In recent years neutron detection has been the object of renewed interest largely due to detection needs for homeland security and various other nuclear security/safeguards applications. In many applications, ^{3}He gas detectors were used as thermal neutron detectors and surrounded with moderating material to detect higher energy neutrons. There is now a shortage of ^{3}He for neutron detection applications. As a result, research efforts have been encouraged to find a replacement detection material for ^{3}He. This refresher course will review the basic physics mechanisms by which various energy neutrons are detected. The principal reactions and cross sections for detecting slow, fast and high-energy neutrons will be reviewed. The detector types that have been traditionally used for neutron detection will also be reviewed: namely gas-filled, scintillators, and semiconductor-based detectors. The detector requirements for neutron spectroscopy will be presented along with a short discussion of the deconvolution of pulse-height spectra usually required to obtain a spectrum. Some cursory information on the applications of neutron detectors will be presented and the challenges that must be addressed to provide neutron detection capabilities now of interest. The attendee should keep in mind that this is a refresher course and will not address anything but the fundamentals of neutron detection.

Geant4 Refresher Course

Maria Grazia Pia.
INFN Sezione di Genova and CERN, Switzerland

Wednesday, October 26, 07:30-08:30,
Meliá Valencia Palacio de Congresos Hotel, Meeting 1&2&3

This Refresher Course overviews Geant4 main features, with emphasis on Geant4 physics modeling capabilities and their use in

Monte Carlo simulation applications.

The selection of physics processes and models to be used in a simulation is one of the most critical tasks of Geant4 experimental applications. Geant4 users are invested of the responsibility of configuring the physics of their simulation, since Geant4 does not provide any default physics settings. The configuration of a user application requires in-depth knowledge of Geant4 physics functionality to identify appropriate processes and models, and understanding of their validity to estimate the reliability and accuracy of the simulation results

This Geant4 simulation domain is by far the most difficult to master, not only for novice users, but also for more experienced ones, due to its intrinsic complexity and the large number of available options in the toolkit.

This Refresher Course reviews Geant4 simulation capabilities and physics modeling options; it summarizes the current status of Geant4 physics validation and provides guidance to deal with Geant4 physics selection in experimental applications.

Medical Imaging Conference - MIC

Alberto Del Guerra

Juan J. Vaquero

It is our great pleasure to welcome you to the 2011 IEEE Medical Imaging Conference in Valencia, Spain. The Valencia Convention Center (VCC) is a wonderful venue for the meeting. Valencia offers a stimulating scientific environment together with a rich cultural heritage of music, art, gastronomy, architecture, and folklore.

The success of these meetings is a direct consequence of the many people who volunteer their time and effort. In particular, those of you who accepted to review the large number of submitted abstracts in a timely manner were invaluable to the selection process and we thank you sincerely for your efforts.

We would also like to thank the General Chair, David Townsend, who guided us through the whole process. Bo Yu, who managed the conference website and provided the necessary software tools, deserves a special mention for his rapid response to implementing new facilities and to fixing any problems that arose. We also acknowledge the generous support from the sponsors listed in this program book for the training grants that allows younger researchers to attend the meeting each year.

This year, we received a total of 764 abstracts and we accepted 684 of them after a rigorous review process. Of the 684 accepted abstracts, 126 have been assigned to 16 MIC oral sessions and to the two joint NSS-MIC and MIC-RTSD sessions and 555 to the MIC poster sessions; 3 accepted posters were withdrawn by the corresponding authors. The joint sessions between NSS, RTSD, and MIC will again be held on Tuesday afternoon. The MIC oral sessions are organized in two parallel sessions, where we have attempted to minimize the overlap between the subject matter in order to avoid conflicts. As last year, we have kept the number of poster sessions to 5 accommodating a total of 555 posters in an effort to reduce the number of posters per session. Although the physical space assigned to the poster sessions had to be split between two locations, we have tried to reduce the inconvenience to the minimum.

The Best Student paper competition will be particularly visible to attendees this year. There will be a special oral session devoted to finalists and the selected posters that are finalists will be indicated by a ribbon on the respective poster board.

There will be two MIC plenary sessions held on Wednesday. The first session will feature two renowned speakers, Prof. Willi Kalender from Erlangen University who will speak on “Is there still room for research in CT?” and Dr. Cristoph Bert from GSI, who will speak on “New frontiers in particle therapy”. The second plenary session will feature the third keynote speaker, Prof. Anders Brahme from Karolinska Institute and Stockholm University, who will speak on “Optimal use of imaging in radiation therapy”, followed by presentations from

this year's winners of the Hoffman and Hasegawa Awards and by the recognition of the recipient of the 2011 IEEE Medal for Innovation in Healthcare Technology: Prof. Harry Barrett.

We have kept last year primer: the refresher courses to be held before the start of the main scientific sessions each morning on Thursday, Friday, and Saturday and covering the basics of Radiotherapy, CT, and PET/MRI imaging, respectively. On Wednesday, just before the opening, there will be an interesting refresher course on the European patent system.

There will also be the usual social events at the meeting, including the MIC dinner that will feature a fascinating after-dinner talk from the Spanish architect Luis Fernández-Galiano on "Biology and design: the city as artificial nature". The prizes for the best student papers will be also given at the MIC dinner.

The "5th International Workshop on the Molecular Radiology of Breast Cancer" will take place on Sunday after the closing of the Medical Imaging Conference. As in past years since 2002, the overall goals of the proposed event are to convene imaging physicists and engineers as well as chemists, biologists, physicians, and students from around the world to discuss important issues related to breast cancer evaluation using functional Molecular Imaging techniques involving nuclear radiotracers, x-rays, and other technologies.

Based on the venue and the high scientific quality of the submissions, we anticipate an exciting and stimulating meeting. It is our pleasure to welcome you to the 2011 IEEE Medical Imaging Conference in Valencia, Spain.

Alberto Del Guerra
MIC Program Chair

Juan J. Vaquero
MIC Program Deputy Chair

M01-1: Is there still room for research in CT?

Willi Kalender
Institute of Medical Physics, Erlangen University, Germany

Wednesday, October 26, 09:00–9:45, VCC, Auditorium 1

Biography:

Willi Kalender

Willi A. Kalender was born on August 1, 1949. He received his Master's Degree and Ph.D. in Medical Physics from the University of Wisconsin, Madison, Wisconsin, USA in 1979. In 1988 he completed all postdoctoral lecturing qualifications (Habilitation) for Medical Physics at the University of Tübingen, Germany.

From 1979 to 1995 Willi A. Kalender worked in the research laboratories of Siemens Medical Systems in Erlangen, Germany. He was appointed head of the Department of Medical Physics from 1988 to 1995. Since 1992 he has been Visiting Professor of Medical Physics at the University of Wisconsin, he was nominated as Distinguished Visiting Professor to the Department of Radiology at Stanford University, Stanford, CA, USA. In 1995 he was appointed full Professor and Chairman of the newly established Institute of Medical Physics at the Friedrich-Alexander-University Erlangen-Nuremberg, Germany.

Willi A. Kalender has conducted research mainly in the area of diagnostic imaging. The development and introduction of volumetric spiral computed tomography was a particular focus of his work. Other highly interesting fields of research were radiation protection and the development of quantitative diagnostic procedures, e.g. for the assessment of osteoporosis, lung and cardiac diseases. His work is documented in more than 800 scientific papers with 295 original publications among these, and more than 30 patents.

Willi A. Kalender is a Fellow of the American Association of Physicists in Medicine; from 2005 to 2007 he was an elected Member of the Board of Directors of this society. He is member of the International Commission on Radiation Units and Measurement (ICRU). In 2009 he was awarded an honorary doctorate in Medicine by the Medical Faculty of the RWTH Aachen, Germany. He organized and hosted numerous international workshops and conferences, among them the World Conference of Medical Physics in 2005 in Nuremberg, Germany.

Abstract:
X-ray computed tomography (CT) was considered a mature technology as early as the 1980s and was considered dead in the late 1980s due to the advent of magnetic resonance imaging (MRI). In spite of these predictions CT underwent remarkable developments in

technology and applications since then. The state of the art in clinical CT will be reviewed briefly.

The speed and the spectrum of the ongoing developments are remarkable. The lecture will primarily focus on the following areas: photon-counting energy-discriminating detectors for CT in general, dedicated scanners beyond clinical CT, special applications such as dual energy CT and breast CT, and efforts at the assessment and reduction of patient dose. There appear to be many topics still for basic and applied research in CT.

M01-2: New frontiers in particle therapy

Cristoph Bert
GSI, Germany

Wednesday, October 26, 09:45–10.30, VCC, Auditorium 1

Biography:

Christoph Bert

Christoph Bert is deputy director of the Biophysics Department and leading the group working on moving targets at GSI Helmholtz-Centre for Heavy Ion Research in Darmstadt, Germany. He joined GSI after receiving his diploma in physics from the Friedrich-Alexander University of Erlangen-Nuremberg, Germany in 2002 as a PhD student. Part of the PhD research took place at Massachusetts General Hospital (Harvard Medical School) in Boston, USA. Also after his PhD (2006 from Technical University in Darmstadt, Germany) Dr. Bert remained at GSI to continue research in the direction of particle beam therapy. His PostDoc time included a short term stay at the National Centre for Radiological Sciences in Chiba, Japan. Most of his research is dedicated to translational challenges involving close collaboration with clinical partners and industry.

Abstract:
Proton and especially carbon beam radiotherapy were recently established as therapy options in a clinical setting. Especially for scanned beam treatments numerous aspects are still investigated and will be transferred to clinical practice in the next few years. Within the lecture an introduction to the challenge of organ motion will be given. Scanned beam treatment of moving objects results in interference effects that can lead to under-dosage of the tumor. All links of the radiotherapy chain thus have to incorporate the temporal domain. The lecture will focus on: i) 4D treatment planning that has to incorporate the increased radiobiological effect of carbon beams; ii) beam tracking, gating, and rescanning that are investigated as treatment techniques to mitigate the interference effect; and iii) radiobiological validation of the techniques by irradiating cell samples in a biological phantom.

M02-1: Optimal use of Imaging in Radiation Therapy

Anders Brahme
Department of Medical Radiation Physics, Karolinska Institute and Stockholm University, Sweden

Wednesday, October 26, 11:00–11:45, VCC, Auditorium 1

Biography:

Anders Brahme

Anders Brahme is Professor of Medical Radiation Physics at the Department of Oncology-Pathology, Karolinska Institutet and Department of Medical Radiation Physics, Stockholm University, and Manager of the Research Center for Radiation Therapy, Karolinska Institutet. He got his Master of Science degree in electrical engineering at the Royal Institute of Technology in 1969 and his Ph.D. thesis on the application of the Microtron accelerator for radiation therapy was presented 1975 at Stockholm University. Since then he has been active in the development of radiation dosimetry, quality assurance and radiation therapy equipment and techniques for most types of radiation from electrons and photons to neutrons, protons and light ions. He initiated the development of inverse radiation therapy planning and intensity modulated radiotherapy using scanning beams and dynamic multileaf collimator systems. During the last three decades he has been mainly active in the field of radiotherapy optimization using light ions and accurate radiobiological models describing the response of tumors and normal tissues. By such techniques he has been able to maximize the expectation value of the complication-free tumor cure under consideration of intensity modulation, dose fractionation, the choice of radiation modality, the number of beam portals and their angles of incidence as well as uncertainties in geometrical and biological parameters. Anders Brahme was head of the department of Oncology-Pathology 1998 – 1999 and has been director for the Vinnova Center of Excellence: Research Center for Radiation Therapy (1995 – 2007) and coordinator to the 6th FP of EU project BioCare on Molecular Tumor Imaging for Biologically Optimized Cancer Therapy (2004 – 2009). In 2008 he started a very close collaboration with the National Institute of Radiological Sciences (NIRS) in Chiba, Japan on the future development of light ion therapy.

Abstract:

The fast development of energy and intensity modulated radiation therapy during the last two decades using photon and electron beams has resulted in a considerable improvement of radiation therapy, particularly when combined with radiobiologically based treatment optimization techniques. This development and the recent development of advanced tumor diagnostics based on PET-CT and Spectroscopic MR imaging of the tumor density opens the field

for new powerful radiobiologically based treatment optimization methods. It is even possible by repeated PET-CT imaging to perform a real 3-dimensional (3D) predictive assay in vivo on the patient to determine the radiation responsiveness of the tumor being treated. The ultimate step is to use the unique radiobiological and dose distributional advantages of light ion beams for truly optimized bioeffect planning where the integral 3-dimensional dose delivery and tumor cell survival can be monitored by PET-CT imaging and corrected by adaptive therapy optimization methods.

The main purpose of this presentation is to discuss the principal areas of development of therapy optimization considering the whole therapy chain from tumor diagnostics and patient fixation through therapy planning and treatment optimization to the repeated treatment setups and dose delivery on a patient that hopefully has a shrinking tumor and often may loose weight. Finally, it is the integral dose delivery and the biological effect distribution that matters so the shaping of the optimal incident beams is a truly complex inverse problem which is hard to solve by such a simplistic concept as a planning target volume.

The above introduction indicates that Biologically Optimized 3D in vivo predictive Assay based Radiation Therapy (BIO-ART) is really the ultimate way to perform high precision radiation therapy using checkpoints of the integral dose delivery and the tumor response, and based on this information, performing compensating corrections of the dose delivery. By using biologically optimized scanned high energy photon or ion beams it is possible to measure in vivo the 3D dose delivery using the same PET-CT camera that was used for diagnosing the tumor spread. This method thus opens up the door for truly 3D biologically optimized adaptive radiation therapy where the measured dose delivery to the true target tissues can be used to fine adjust the incoming beams so that possible errors in the integral therapy process are eliminated towards the end of the treatment. Interestingly enough practically all major error sources can be corrected for in this way such as organ motions, treatment planning errors, patient setup errors, and dose delivery problems due to gantry, multileaf, or scanning beam errors. When it is possible to quantify surviving tumor clonogens after the first week or two of therapy, this information can be used to also account for uncertainties in biological response data and really cover all clinical uncertainties at the same time as more accurate dose response data can be derived. The response of the PET-CT camera is related to the truly delivered integral dose with correct temporal averaging, thus if only small errors are seen, it is sufficient to adjust the last few treatment fractions. Thus, when using PET-CT tumor response monitoring, it is even possible to account for the uncertainty in biological response of the patient and to do real time in vivo predictive assay to perform truly biologically optimized radiation therapy.

Several examples of radiobiologically optimized dose delivery are presented and examples of the above mentioned new treatment techniques are illustrated for a number of clinically relevant targets. The unique properties of light ion therapy in this context are also presented in more detail.

Using the recently available biologically based treatment optimization algorithms it is possible to improve the treatment outcome for

advanced tumors by as much 10 – 40%. The adaptive radiotherapy process based both on 3D tumor cell survival and dose delivery monitoring has the potential of percent accuracy in tumor response and dose delivery, not least with 3D geometric Bragg peak scanning and intensity modulated ion beam dose delivery. There is no doubt that the future of radiation therapy and diagnostic tumor imaging is very promising and gradually more and more patients may not even need advanced surgery but instead could be cured by photon and electron IMRT and ultimately biologically optimized light ion therapy, where the high LET-RBE Bragg peak is solely placed in the gross tumor volume.

M02-2: Awards Plenary

Anna M. Celler
University of British Columbia, Canada

Wednesday, October 26, 11:45–13:00, VCC, Auditorium 1

11:45 Presentation of the Bruce H.Hasegawa Award

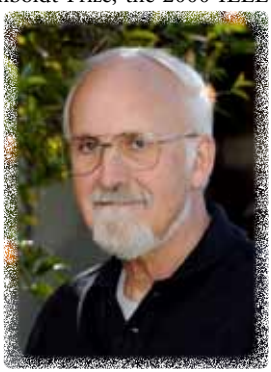
12:00 Presentation of the Edward J. Hoffman Award

12:05 NPS Awards (Graduate scholar award; 2011 NPSS Fellow)

12:15 Recognization of the recipient of the 2011 IEEE Medal for Innovation in Healthcare Technology: Harry Barrett

Harrison H. Barrett, Ph.D.
Regents Professor, University of Arizona

Dr. Barrett received a bachelor's degree in physics from Virginia Polytechnic Institute in 1960, a master's degree in physics from MIT in 1962, and a Ph.D. in applied physics from Harvard in 1969. He worked for the Raytheon Research Division until 1974, when he came to the University of Arizona. He is a professor in the College of Medicine and the College of Optical Sciences, and he has appointments in Applied Mathematics, Biomedical Engineering and the Arizona Cancer Center. In 1983 he served as acting director of the Optical Sciences Center, and in 1990 he was named a Regents Professor. He is a fellow of the Optical Society of America, the Institute of Electrical and Electronic Engineers, the American Physical Society, and the American Institute of Medical and Biological Engineering. He has 25 U. S. patents and over 250 technical papers, and 55 students have received Ph.D. degrees under his direction. His awards include a Humboldt Prize, the 2000 IEEE Medical Imaging Scientist Award, an E. T. S. Walton Award from Science Foundation Ireland, and the 2005 C. E. K. Mees Medal from the Optical Society of America. He is the 2011 recipient of the IEEE Medal for Innovations in Healthcare Technology and also the 2011 recipient of the SPIE Gold Medal of the Society.



Harry Barrett

His current research is in image science, with applications in medicine and astronomy. He is director of the Center for

Gamma-ray Imaging, an NIH-funded research resource that develops state-of-the art instruments for radiotracer studies of small animals. He is also active in developing new methods for the assessment and optimization of image quality and in applying parallel computers to tomographic imaging. In collaboration with Kyle J. Myers, he has written a book entitled Foundations of Image Science, which in 2006 was awarded the First Biennial J. W. Goodman Book Writing Award from OSA and SPIE.

Biology and design: the city as artificial nature

Luis Fernández-Galiano
School of Architecture of Madrid's Universidad Politécnica, Spain

Friday, October 28, VCC, Multipurpose room 2, 20:00

Biography:

Luis Fernández-Galiano (1950) is an architect, professor at the School of Architecture of Madrid's Universidad Politécnica and editor of the journals AV/Arquitectura Viva. Between 1993 and 2006 he was in charge of the weekly architecture page of the newspaper El País, where he now writes in the Op-Ed section. A member of the Royal Academy of Doctors, he has been Cullinan Professor at Rice University, Franke Fellow at Yale University, a visiting scholar at the Getty Center of Los Angeles and a visiting critic at Princeton, Harvard, and the Berlage Institute; and has taught courses at the Menéndez Pelayo and Complutense universities. President of the jury in the 9th Venice Architecture Biennial, expert and juror of the Mies van der Rohe European Award, he has curated the exhibitions El espacio privado, Extreme Eurasia (in Tokyo and in Madrid) and Bucky Fuller & Spaceship Earth, and has been on the jury of several international competitions, in Europe and America. Among his books are La Quimera Moderna, Fire and Memory (MIT Press), Spain Builds (with New York's MoMA in its English version, and presented in its Chinese version with symposiums in Shanghai and Beijing) and Atlas, Global Architecture circa 2000, a series of five volumes.

Luis Fernández-Galiano

Abstract:

Living beings have been interpreted as machines, but they also have served as inspiration for designing objects: organisms and mechanisms have exchanged a fertile dialogue, and both have served as a source of metaphors that have helped to blur the boundaries between what is natural and what is artificial. Cities, like buildings, have been described as organisms that are susceptible to mechanical and thermodynamic analysis, and these visions of the artificial environment help to understand the ecology of urban areas and to suggest sustainable ways of occupying the territory, which is an especially urgent challenge at the time of climate change and growing scarcity of fossil fuels, two vectors that should promote a thorough technical and spatial transformation of our societies.

Patents: why they matter to researchers, searching for prior art, and medical technology related issues

Sascha Moehrs and Pau Montes
European Patent Office

Wednesday, October 26, 07.30-08.30, VCC, Auditorium 2

Academic research is more and more interacting with industrial partners and technology transfer institutions, which have a strong interest in commercialising their inventions and research results. At the same time, especially in academics, there seems to be a considerable lack of information on how to use intellectual property rights (IPR) to protect these results but also on how to make use of the enormous information published in patent applications.

Consequently, the aim of this refresher course is to give researchers an insight into the world of patents with an emphasis on the European patent system. First an introduction to patents and practical information on the procedure to obtain a patent will be provided. Moreover, topics related to the search of patent literature will be presented, including an introduction to patent classification systems as well as an overview of public tools/databases for patent literature search and file inspection. Finally, patent related issues for medical technologies will be briefly addressed. The course includes presentations and a question and answer session to discuss the issues raised.

Recent developments of Photon and Light Ion Radiation Therapy

Anders Brahme
Karolinska Institute, Sweden

Thursday, October 27, 07.30-08.30, VCC, Auditorium 2

During the last 30 years radiation therapy has developed from classical rectangular beams via conformation therapy with largely uniform dose delivery but irregular field shapes to fully intensity modulated dose delivery where the total dose distribution in the tumor can be fully controlled in three dimensions. This last step has been developed during the last 15 – 20 years and has opened up the possibilities for truly optimized radiation therapy also with multiple radiation modalities.

This refresher course will briefly discuss biological objective functions and the associated advantages in the treatment outcome using new approaches such as consideration of stochastic positioning and sensitivity uncertainties and angle of incidence and fractionation schedule optimization with intensity-modulated beams. Finally, future possibilities for realizing general three-dimensional intensity-modulated dose delivery with the wide spectrum of radiation modalities from electrons and photons to protons and light ions will be discussed. The clinical value of different radiation modalities will also be briefly reviewed.

An introduction to modern CT

Willi A. Kalender
Institute of Medical Physics, Erlangen University, Germany
Friday, October 28, 07:30-08:30, VCC, Auditorium 2

The refresher course aims at providing an introduction to basics, technology and applications of modern CT for "novices" in the field. The focus will be on the scan approaches and technology which are the basis for the amazingly high performance of modern CT. For this purpose the state of the art in clinical CT will be reviewed and recent development trends will be analysed briefly; 64-slice high-resolution spiral CT for whole-body imaging constitutes the standard today with rotation times below 0.3 s and total body scan times of just a few seconds. Performance has been enhanced significantly by the introduction of dual source CT. Further developments such as dedicated scanners for special applications and detector developments are key topics and will be outlined briefly to complete the overview. The basic physics of data acquisition and image reconstruction will be covered only briefly.

Fundamentals of PET/MRI Imaging

Sibylle Ziegler
Münich University, Germany
Saturday, October 29, 07:30-08:30, VCC, Auditorium 2

PET/MR has attracted a lot of attention and the first systems are being used in the clinical arena. The major challenges in terms of detectors, system design, quantification, and protocols will be summarized. Different available hardware solutions in preclinical as well as clinical systems will be reviewed. Furthermore, issues and potential solutions for MR-based attenuation correction procedures will be covered.

18th International Workshop on Room-Temperature Semiconductor X- and Gamma-Ray Detectors - RTSD

It is our great pleasure to welcome you to the 18th International Workshop on Room-Temperature Semiconductor X-Ray and Gamma-Ray Detectors. This conference represents the principal forum for scientists and engineers working to develop new solid-state radiation detectors and imaging arrays.

Ralph James

For those of you who have attended the past workshops, welcome back! As Chairs of the workshop, we are particularly delighted to make the acquaintance of new contributors, as there are many challenges that lie ahead, some of which will be solved by those who are relatively new to the subject area.

Ernesto Dieguez

It is our sincere hope that this conference will facilitate cross-fertilization of research and spawn creative ideas, and that these ideas will be incorporated into knowledge, leading to new directions and thrusts. We urge you to take time at this meeting to build on the commonality of your work with colleagues within the RTSD, NSS and MIC conferences, and to share your data, energy, and experience, and explore ways to enhance cooperation and collaboration with others.

We have chosen to hold this meeting in conjunction with the IEEE NSS and MIC meetings for the purpose of encouraging information exchange between a much larger body of scientists and engineers who have an in-depth knowledge of detectors, instrumentation, nuclear science and technology, and medical imaging. Joint sessions with NSS and MIC are scheduled to help bring people together with common interests and offer the right environment for the creation of new and fruitful associations. These joint sessions are clearly identified in the program booklet, and we request everyone's participation.

A RTSD luncheon will be held again this year. You are encouraged to purchase your ticket(s) when you pre-register as seating will be limited.

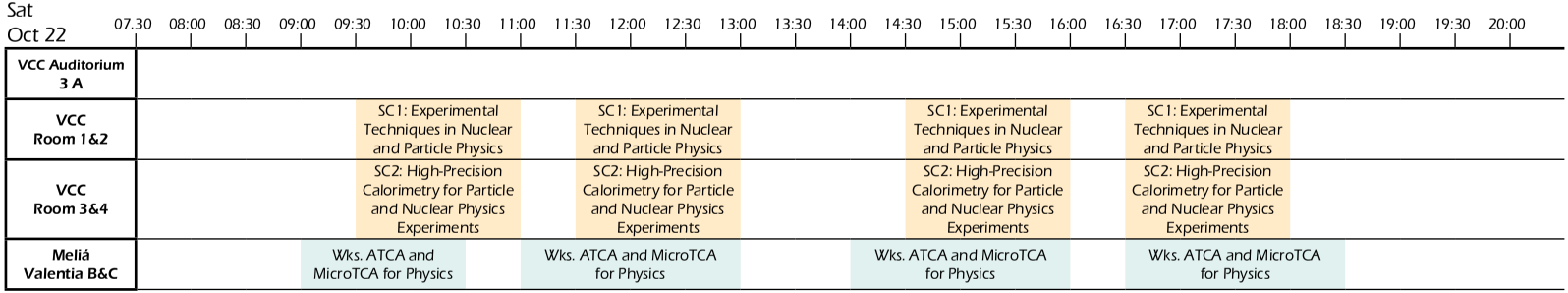
We would like to thank the speakers and attendees for their contributions, the workshop sponsors for their kind support, and express our gratitude to the session chairs and members of the Workshop Program Committee, who have offered their time to enlist the involvement of most researchers in the field.

Ralph James
RTSD Program Co-Chair

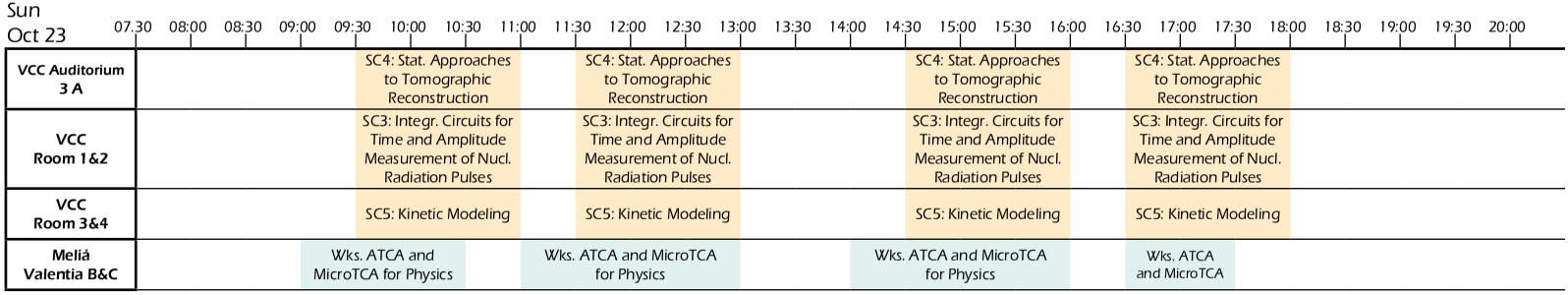
Ernesto Dieguez
RTSD Program Co-Chair

Scientific Program

Sat Oct 22



Sun Oct 23



Mon
Oct 22

	07.30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
VCC Auditorium 1			NP1: NSS Plenary 1					NP2 NSS Plenary 2								N1 Scintillators 1				N4 Photodetectors 1						
VCC Auditorium 2																N2 Nuclear Power				N5 Gaseous Detectors 1						
VCC Auditorium 3 A&B				R01 CZT I				R02 Applications I								R03 Characterization I				R04 Characterization II						
VCC Room 1&2					SC7: Physics and Design of Detectors for SPECT and PET				SC7: Physics and Design of Detectors for SPECT and PET							SC7: Physics and Design of Detectors for SPECT and PET				SC7: Physics and Design of Detectors for SPECT and PET						
VCC Room 3&4					SC6: Stat Approaches to Medical Image Analysis				SC6: Stat Approaches to Medical Image Analysis							SC6: Stat Approaches to Medical Image Analysis				SC6: Stat Approaches to Medical Image Analysis						
VCC Multipurpose 1&2																										
Meliá Valentia A												NSS Luncheon								N6 Grid and Core Software Tools						
Meliá Valentia B																				N7 Solid State Hybrid And Monolithic Detectors 1						
Meliá Valentia C																				N8 Astrophysics and Space Instrumentation 1						

Mon
Oct 22

	07.30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
Meliá Meeting 1&2&3		Refresher NSS Gaseous Detector														N3 Multi-Level Trigger Approaches And Trigger Farms				N9 DAQ Architectures and Hardware Standards 1						
Meliá Room A&B																				NP1.M Poster Session Detectors & Instrumentation Small Systems						
Sorolla Gran Recati																										
Sorolla Arenas-Perellonet																										
Sorolla Pinedo/ Faro Almarda/ Raco																										

Monday

NP1 NSS Plenary 1

Monday, Oct. 24 08:30-10:00 VCC, Auditorium 1

Session Chairs: **Jose M. Perez**, CIEMAT, Spain
Faustino Gomez, University of Santiago, Spain

NP1-1 (08:30) Welcome by General Chair
D. W. Townsend, *Singapore Bioimaging Consortium, Singapore*

NP1-2 (08:40) Welcome by NSS Chair
P. Lecoq, *CERN, Switzerland*

NP1-3 (08:50) Tribute to Juan Antonio Rubio
E. Gonzalez, *CIEMAT, Spain*

NP1-4 (08:55, invited) Lessons to be learned from Fukushima
M. Kröning, *Fraunhofer-Institut Zerstörungsfreie Prüfverfahren, Germany*

NP2 NSS Plenary 2

Monday, Oct. 24 10:30-12:30 VCC, Auditorium 1

Session Chairs: **Paul R. Lecoq**, CERN, Switzerland
David W. Townsend, Singapore Bioimaging Consortium, Singapore

NP2-1 (10:30, invited) Exploring Nature Moments after the Big Bang at the LHC
T. Virdee, *CERN, Switzerland*

NP2-2 (11:10, invited) Heavy ions at the LHC
P. Giubellino, *INFN, Italy*

NP2-3 (11:50, invited) Ultra-High Energy Cosmic Rays and the Pierre Auger Observatory
A. Watson, *University of Leeds, UK*

N1 Scintillators 1

Monday, Oct. 24 14:30-15:45 VCC, Auditorium 1

Session Chairs: **Etiennette Auffray**, CERN, Switzerland
Chuck Melcher, University of Tennessee, United States

N1-1 (14:30) Scintillation Properties of Eu^{2+}-Activated BaBrCl
G. Gundiah, Z. Yan, G. Bizarri, S. E. Derenzo, E. D. Bourret-Courchesne
Lawrence Berkeley National Laboratory, USA

N1-2 (14:45) ZnO Neutron Detectors Designed for High Sensitivity and Gamma-Ray Discrimination
B. J. Connors, N. E. Hertel, C. J. Summers, J. Blair, B. D. B. Klein
Georgia Institute of Technology, USA

N1-3 (15:00) Advanced Scintillator Development for a Fast Scintillator Compton Telescope (FACTEL)
S. R. Tornga, E. A. McKigney, R. M. Kippen, M. S. Wallace, *Los Alamos National Laboratory, USA*; J. Ryan, P. Bloser, *University of New Hampshire, USA*

N1-4 (15:15) Characteristics of Undoped and Europium-Doped SrI_2 Scintillator Detectors
B. W. Sturm, N. J. Cherepy, P. A. Thelin, S. A. Payne, *Lawrence Livermore National Laboratory, USA*; J. O. Ramey, L. A. Boatner, *Oak Ridge National Laboratory, USA*; A. Burger, *Fisk University, USA*; R. Hawrami, K. S. Shah, *Radiation Monitoring Devices, Inc., USA*

N1-5 (15:30) Large-Area Crystalline Microcolumnar $LaBr_3$:Ce for High-Resolution Gamma Ray Imaging
H. B. Bhandari[1], V. Gelfandbein[1], S. Miller[1], S. Cool[1], B. W. Miller[2], H. B. Barber[2], V. V. Nagarkar[1]
[1]Radiation Monitoring Devices, Inc., USA; [2]The University of Arizona, USA

N2 Nuclear Power

Monday, Oct. 24 14:30-15:15 VCC, Auditorium 2

Session Chairs: **Gordon E. Kohse**, MIT, United States
Stephen Peggs, Brookhaven National Laboratory, United States

N2-1 (14:30) Measurements of Fukushima Fallout by the Berkeley Radiological Air and Water Monitoring Project
M. S. Bandstra[1], K. Vetter[1,2], D. Chivers[1], T. Aucott[1], C. Bates[1], A. Coffer[1], J. Curtis[1], D. Hogan[1], A. Iyengar[1], Q. Looker[1], J. Miller[1], V. Negut[1], B. Plimley[1], N. Satterlee[1], L. Supic[1], B. Yee[1]
[1]University of California, USA; [2]Lawrence Berkeley National Laboratory, USA

N2-2 (14:45) Imaging of Reactor Cores Using Cosmic-Ray Muon Tomography
C. L. Morris, K. N. Borozdin, S. Greene, E. C. Milner, H. Miyadera
Los Alamos National Laboratory, United States

N2-3 (15:00) A Device for Ultrafast Three-Dimensional X-Ray Computed Tomography with a Scanned Electron Beam
T. Stuerzel, *Uni Stuttgart, Institut fuer Kernenergetik und Energiesysteme IKE, Germany*; M. Bieberle, U. Hampel, *Institut fuer Sicherheitsforschung, HZDR, Germany*

N3 Multi-level Trigger Approaches and Trigger Farms

Monday, Oct. 24 14:30-15:45 Meliá, Meeting 1&2&3

Session Chairs: **Stefan Ritt**, Paul Scherrer Institute, Switzerland
Alberto Aloisio, University of Naples 'Federico II' and INFN, Italy

N3-1 (14:30) The PHENIX Muon Level-1 Trigger Upgrade
J. Lajoie, *Iowa State University, USA*
On behalf of the PHENIX Collaboration

N3-2 (14:45) Online Muon Reconstruction in the ATLAS Muon Spectrometer at the Level-2 Stage of the Event Selection
A. Di Mattia, *Michigan State University, USA*
On behalf of the ATLAS Collaboration

N3-3 (15:00) Data Compression for Large Tracking Detectors for High Energy Nuclear Physics
M. Richter, *University of Oslo, Norway*
On behalf of the ALICE Collaboration

N3-4 (15:15) A Trigger System Based on Fast Sampling ADCs - Implementation and Tests
P. Marciniewski, P. Plucinski, K. Fransson, L. Heijkenskjld, A. Kupsc, J. Zlomanczuk, M. Wolke, *Uppsala University, Sweden*; W. Erven, P. Wuestner, H. Kleines, V. Hejny, D. Coderre, *Forschungszentrum Juelich, Germany*

N3-5 (15:30) Trigger-Less Readout Chain for the PANDA Electromagnetic Calorimeter
M. Kavatsyuk, *KVI, University of Groningen, The Netherlands*
On behalf of the PANDA Collaboration

N4 Photodetectors 1

Monday, Oct. 24 16:30-18:15 VCC, Auditorium 1

Session Chairs: **William W. Moses**, Lawrence Berkeley National Laboratory, United States
Roger Lecomte, Université de Sherbrooke, Canada

N4-1 (16:30) Mean and Variance of the Response of Digital SiPM-Based Scintillation Detectors: Model and Measurements
H. T. van Dam, S. Seifert, G. J. van der Lei, D. R. Schaart
Delft University of Technology, The Netherlands

N4-2 (16:45) Modeling of Single Photon Avalanche Diode Array Detectors for PET Applications
A. Corbeil Therrien, B.-L. Berube, C. Thibaudeau, S. Charlebois, R. Lecomte, R. Fontaine, J.-F. Pratte
Universite de Sherbrooke, Canada

N4-3 (17:00) Highly Integrated Arrays of Digital SiPMs with Simplified Readout Interface
C. Degenhardt, B. Zwaans, O. Muelhens, R. de Gruyter, T. Frach
Philips Digital Photon Counting, Germany

N4-4 (17:15) Silicon Photomultiplier Characterization and Its Impact on Time Resolution for Application in an Endoscopic TOF PET Detector
C. Xu, E. Garruti, M. Goettlich, A. Silenzi
Deutsches Elektronen-Synchrotron (DESY), Germany

N4-5 (17:30) Timing Performance of Large Area SiPMs Coupled to LYSO Using Noise Compensation Methods
C. Piemonte, A. Gola, A. Picciotto, N. Serra, A. Tarolli, N. Zorzi
FBK, Italy

N4-6 (17:45) Study of the Coincidence Time Resolution for Several Scintillators of Different Size and Wrappings Read Out by SIPMs Using the Time over Threshold Method
E. Auffray, B. Frisch, S. Gundaker, H. Hillemanns, P. Jarron, P. Lecoq, T. Meyer, K. Pauwels
CERN, Switzerland

N4-7 (18:00) Assessment of New Photosensors for Fast Timing Applications with Large $LaBr_3$(Ce) Scintillator Detectors
L. M. Fraile, B. Olaizola, E. Picado, J. M. Udías
Universidad Complutense de Madrid, Spain

N5 Gaseous Detectors 1

Monday, Oct. 24 16:30-18:15 VCC, Auditorium 2

Session Chairs: **Jae Yu**, Univ. of Texas Arlington, United States
Fabio Sauli, TERA FOUNDATION AND CERN, Switzerland

N5-1 (16:30) Performances and Sparking Rate Study of Resistive-Anode Micromegas Detectors for the HL-LHC Environment
F. Jeanneau, *CEA Saclay, France*
On behalf of the CEA Saclay, NTU Athens and NSCSR (Demokritos) groups

N5-2 (16:45) Novel Spark-Protected Microstrip and Microdot-Type Gaseous Detectors
V. D. Peskov[1], R. Oliveira[1], F. Pietropaolo[2], P. Picchi[2], P. Martinengo[1], E. Nappi[2]
[1]CERN, Switzerland; [2]INFN, Italy

N5-3 (17:00) R&D on MRPC for BESIII E-TOF Upgrade
Y. Sun[1], C. Li[1], H. Chen[1], Y. Heng[2], X. Jiang[2], S. Liu[1], S. Liu[2], S. Qian[2], Z. Tang[1], Y. Wang[2], L. Xu[1], S. Yang[1]
[1]University of Science and Technology of China, China; [2]Institute of High Energy Physics, CAS, China

N5-4 (17:15) A Setup to Study Properties of Micro-Pattern Gaseous Detectors with Laser-Photoelectrons
K. Temming[1], G. Herten[1], U. Landgraf[1], W. Mohr[1], S. Weber[2], S. Zimmermann[1]
[1]Albert-Ludwigs-Universitaet Freiburg, Germany; [2]Universitaet Wuerzburg, Germany

N5-5 (17:30) High-Rate Performance of New Fast Muon Drift Tube Chambers for LHC Upgrades
B. Bittner, J. Dubbert, H. Kroha, P. Schwegler
Max-Planck-Institut fuer Physik, Germany

N5-6 (17:45) Development of the GridPix Detector for Dual Phase Noble Gas Time Projection Chambers
M. Alfonsi, N. van Bakel, M. P. Decowski, G. Hemink, H. van der Graaf, R. Schoen

Nikhef, Netherlands

N5-7 (18:00) Test for Upgrading the RPCs at Very High Counting Rate
B. Liberti[1], R. Santonico[2], R. Cardarelli[1], A. Di Ciaccio[2], P. Camarri[2], L. DiStante[2], E. Pastori[1], M. Toppi[2], L. Paolozzi[2], G. Aielli[2]
[1]INFN, Italy; [2]University of Rome, Italy

N6 Grid and Core Software Tools

Monday, Oct. 24 16:30-17:45 Meliá, Valentia A

Session Chairs: **Rafael Mayo**, CIEMAT, Spain
Gabriele Benelli, CERN, Switzerland

N6-1 (16:30) More Efficient Monte Carlo Grid Executions with Montera Framework
M. Rodrguez-Pascual, A. J. Rubio-Montero, R. Mayo
CIEMAT, Spain

N6-2 (16:45) A General Purpose Suite for Grid Resources Exploitation
A. Fella, *INFN Sezione di Pisa, Italy*; E. Luppi, M. Manzali, L. Tomassetti, *University of Ferrara and INFN, Italy*

N6-3 (17:00) Services for the Heavy User Communities of the European Grid Infrastructure: High Energy Physics, Life Sciences, Earth Sciences, Astronomy & Astrophysics and Beyond
J. D. Shiers, *CERN, Switzerland*
On behalf of the The EGI-InSPIRE Heavy User Communities (SA3)

N6-4 (17:15) ATLAS Detector Data Processing on the Grid
A. Vaniachine, *Argonne National Laboratory, USA*
On behalf of the ATLAS Collaboration

N6-5 (17:30) The CMS Software Performance in the First LHC Collisions Years
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

N7 Solid State Hybrid and Monolithic Detectors 1

Monday, Oct. 24 16:30-18:00 Meliá, Valentia B

Session Chairs: **Laci Andricek**, MPI Halbleiterlabor, Germany
Gianluigi Casse, CERN, Switzerland

N7-1 (16:30) Performance of P-Type Silicon Sensors after Cleaving and Al_2O_3 Sidewall Passivation
V. A. Fadeyev, H. F.-W. Sadrozinski, J. G. Wright, *UCSC, USA*; M. Christophersen, B. F. Phlips, *U.S. Naval Research Laboratory, USA*

N7-2 (16:45) Alumina, Al2O3, Layers as Effective P-Stops for Silicon Radiation Detectors
M. Christophersen, B. F. Phlips
U.S. Naval Research Laboratory, USA

N7-3 (17:00) Radiation Hard Sensor Materials for the CMS Tracker Upgrade
M. Dragicevic, *HEPHY, Austria*
On behalf of the CMS Tracker Collaboration

N7-4 (17:15) Diamond Pixel Detectors Confronting Silicon in High Radiation Environments
J.-W. Tsung[1], M. Havranek[1], F. Huegging[1], H. Kagan[2], M. Karagounis[1], N. Wermes[1]
[1]Bonn University, Germany; [2]Ohio State University, USA

N7-5 (17:30) Performance of Silicon N-in-P Pixel Detectors Irradiated up to 10^{16} N_{eq} cm^{-2} for Future ATLAS Upgrades
P. Weigell[1], C. Gallrapp[2], A. La Rosa[2], A. Macchiolo[1], R. Nisius[1], H. Pernegger[2], R. Richter[3]
[1]Max-Planck-Institut fr Physik, Germany; [2]CERN, Switzerland; [3]Max-Planck-Institut Halbleiterlabor, Germany

N7-6 (17:45) Recent Progress of the ATLAS Upgrade Planar Pixel Sensors R&D Project
D. Muenstermann, *CERN, Switzerland*
On behalf of the ATLAS Upgrade Planar Pixel Sensors R&D Project

N8 Astrophysics and Space Instrumentation 1

Monday, Oct. 24 16:30-18:15 Meliá, Valentia C

Session Chairs: **Tadyuki Takahashi**, ISAS/JAXA, Japan
HongJoo Kim, Department of Physics, Kyungpook National University, South Korea

N8-1 (16:30) Extremely Low Noise Developments for Charge Coupled Devices
G. Fernandez Moroni[1,2,3], J. Estrada[1], G. Cancelo[1], S. E. Holland[4], E. E. Paolini[3,5], T. Diehl[1]
[1]Fermilab, United States; [2]CONICET, Argentina; [3]Universidad Nacional del Sur, Argentina; [4]Lawrence Berkeley National Laboratory, United States; [5]CIC, Argentina

N8-2 (16:45) The Spectral Response of eROSITA pnCCDs
S. Granato, N. Meidinger, L. Strueder, G. Weidenspointner, *MPI Semiconductor laboratory, Germany*; M. Krumrey, F. Scholze, *Physikalisch-Technische Bundesanstalt, Germany*

N8-3 (17:00) Integration and Calibration of the DEPFET Based Flight Detectors for MIXS on BepiColombo
P. Majewski[1], L. Andricek[2,3], B. Guenther[2,4], M. Hilchenbach[5], K. Hermenau[1], S. Herrmann[2,4], T. Lauf[2,4], P. Lechner[1], G. Lutz[1], M. Porro[2,4], J. Reiffers[2,4], R. Richter[2,3], G. Schaller[2,4], M. Schnecke[2,3], F. Schopper[2,4], H. Soltau[1], A. Stefanescu[2,4], L. Strueder[2,4], J. Treis[1], G. De Vita[2,4]
[1]PNSensor GmbH, Germany; [2]Max-Planck Semiconductor Laboratory, Germany; [3]Max-Planck Institute for Physics, Germany; [4]Max-Planck Institute for extraterrestrial Physics, Germany; [5]Max-Planck Institute for Solar System Research, Germany

N8-4 (17:15) The Wide Field Imager of the Advanced Telescope for High Energy Astrophysics
A. Stefanescu[1,2], *[1]Max-Planck-Institut Halbleiterlabor, Germany; [2]Max-Planck-Institut für extraterrestrische Physik, Germany*
On behalf of the ATHENA/WFI Consortium

N8-5 (17:30) Development and Performance of X-Ray Astronomical SOI Pixel Sensor
T. G. Tsuru, S. G. Ryu, S. Nakashima, *Kyoto University, JAPAN*; Y. Arai, A. Takeda, Y. Ikemoto, *KEK, JAPAN*; A. Iwata, T. Imamura, T. Ohmoto, *A-R-Tec Corp, JAPAN*

N8-6 (17:45) Single Photon Avalanche Diodes for Space Applications
M. Marisaldi[1], P. Maccagnani[2], F. Moscatelli[2], C. Labanti[1], M. Prest[3], A. Berra[3], D. Bolognini[3], M. Ghioni[4], I. Rech[4], A. Gulinatti[4], A. Giudice[5], G. Simmerle[5], A. Candelori[6], S. Mattiazzo[6,7], E. Borsato[6,7], F. Dal Corso[6,7], P. Zotto[6,7], D. Rubini[8]
[1]INAF-IASF Bologna, Italy; [2]CNR IMM Bologna, Italy; [3]INFN & Universita degli Studi dell'Insubria, Italy; [4]Politecnico di Milano, Italy; [5]Micro Photon Devices, Italy; [6]INFN sezione di Padova, Italy; [7]Universita degli Studi di Padova, Italy; [8]Italian Space Agency, Italy

N8-7 (18:00) Determination of effective axion masses in the helium-3 buffer of CAST
J. Ruz, *CERN, Switzerland*
On behalf of the CAST Collaboration

N9 DAQ Architectures and Hardware Standards 1

Monday, Oct. 24 16:30-18:15 Meliá, Meeting 1&2&3

Session Chairs: **Martin L. Purschke**, Brookhaven National Lab, United States
Gary Drake, Argonne National Laboratory, United States

N9-1 (16:30) Associative Memory Design for the Fast TracKer Processor (FTK) at ATLAS
A. Annovi[1], S. Amerio[2], M. Beretta[1], E. Bossini[3], F. Crescioli[3], M. Dell'Orso[3], P. Giannetti[3], J. Hoff[2], T. Liu[2], V. Liberali[4], I. Sacco[5], A. Schoening[6], H. K. Soltveit[6], A. Stabile[4], R. Tripiccione[7]
[1]INFN Laboratori Nazionali di Frascati, Italy; [2]FERMILAB, USA; [3]INFN Sezione di Pisa, Italy; [4]University of Milano, Italy; [5]University of Mannheim, Germany; [6]University of Heidelberg, Germany; [7]University of Ferrara, Italy

N9-2 (16:45) The NEMO Experiment Data Acquisition and Timing Distribution Systems
F. Ameli[1], A. Aloisio[1,2], A. D'Amico[1], R. Giordano[1,2], V. Izzo[1], F. Simeone[1]
[1]Istituto Nazionale di Fisica Nucleare, Italy; [2]Universita'di Napoli Federico II, Italy

N9-3 (17:00) First Experiences with the New Data Acquisition for the PHENIX Detector Upgrades
M. L. Purschke, *Brookhaven National Lab, USA*
On behalf of the PHENIX Collaboration

N9-4 (17:15) The DAQ Readout Chain of the DSSC Detector at the European XFEL
T. Gerlach, A. Kugel, A. Wurz, P. Fischer, *University of Heidelberg, Germany*; K. Hansen, H. Klaer, D. Muentefering, *Deutsches Elektronen-Synchrotron DESY, Germany*

N9-5 (17:30) The Time Assignment System of ASTRO-H
T. Kouzu[1], K. Iwase[1], Y. Mishima[1], Y. Terada[1], T. Yuasa[2], Y. Ishisaki[3], M. S. Tashiro[1], M. Kokubun[2], M. Ozaki[2], M. Nomachi[4], T. Takahashi[2]
[1]Saitama University, Japan; [2]ISAS/JAXA, Japan; [3]Tokyo Metropolitan University, Japan; [4]Osaka University, Japan

N9-6 (17:45) Functional Super Read Out Driver Demonstrator for the Phase II Upgrade of the Atlas Tile Calorimeter
F. Carrio Argos, *University of Valencia, Spain*
On behalf of the ATLAS Tile Calorimeter group

N9-7 (18:00) ITER Fast Plant System Controller Prototype Based on ATCA Platform
B. Goncalves[1], J. Sousa[1], B. B. Carvalho[1], A. Batista[1], A. Neto[1], D. F. Valcarcel[1], D. Alves[1], M. Correia[1], A. P. Rodrigues[1], P. F. Carvalho[1], M. Ruiz[2], J. Vega[3], R. Castro[3], J. M. Lopez[2], N. Utzel[4], P. Makijarvi[4]
[1]Instituto de Plasmas e Fusao Nuclear, Portugal; [2]Universidad Politecnica de Madrid (UPM), Spain; [3]Asociacion EURATOM/CIEMAT para Fusion, Spain; [4]ITER Organization, France

R01 CZT I

Monday, Oct. 24 09:00-10:25 VCC, Auditorium 3 A & B

Session Chair: **Ernesto Dieguez**, Universidad Autonoma de Madrid, Spain

R01-1 (09:00, invited) CZT Detection: from THM to Heart Imaging
H. Chen, U. El-Hanany, K. Iniewski, B. Redden, J. Mackenzie, S. Awadalla, J. Kumar, G. Macaloney, G. Bindley
Redlen Technologies, Canada

R01-2 (09:20, invited) Past Performance and Future Propects of CdZnTe Coplanar-Grid Detectors
P. N. Luke, M. Amman, J. Lee
Lawrence Berkeley National Laboratory, USA

R01-3 (09:40) Analysis of a Traveling Magnetic Field (TMF) for Active Control of the Bridgman Growth of CZT Crystals
J. J. Derby, G. Samanta, A. Yeckel
University of Minnesota, U.S.A.

R01-4 (09:55) Approaches Towards Minimization of Secondary Phases During Bridgman Growth of Cd0.9Zn0.1Te for Nuclear Radiation Detection Application
S. K. Swain, A. Datta, K. G. Lynn
Center for Materials Research, Washington State University, USA

R01-5 (10:10) Array of Virtual Frisch-Grid CZT Detectors with Common Cathode Readout for Correcting Charge Signals and Rejecting of Incomplete Charge-Collection Events
A. E. Bolotnikov, G. S. Camarda, Y. Cui, G. De Geronimo, J. Fried, R. Gul, A. Hossain, K. Kim, E. Vernon, G. Yang, R. B. James
Brookhaven National Laboratory, USA

R02 Applications I

Monday, Oct. 24 11:00-12:55 VCC, Auditorium 3 A & B

Session Chair: **Paul N. Luke**, Lawrence Berkeley National Laboratory, United States

R02-1 (11:00, invited) Development of Small-Pixel CdTe and CZT Detectors with a Hybrid Pixel-Waveform Readout System
L.-J. Meng, L. Cai, N. Li
University of Illinois at Urbana-Champaign, USA

R02-2 (11:20, invited) Development of a 128x128 Pixel CZT Imaging System Based on Orthogonal Capacitive Strip Technology
G. Montémont, M.-C. Gentet, L. Maingault, F. Mathy, O. Monnet, J.-P. Rostaing, S. Stanchina, L. Verger
CEA-Leti, MINATEC Campus, FRANCE

R02-3 (11:40) Development of the ProtoEXIST2 Advanced CdZnTe Imaging Detectors
B. Allen, J. Hong, J. Grindlay, *Harvard College Observatory, USA*; S. D. Barthelmy, R. G. Baker, *Goddard Space Flight Center, USA*; W. R. Cook, F. A. Harrison, *Caltech, USA*

R02-4 (11:55) Digital Spectroscopic System Based on Large Volume Stacked Coplanar Grid (Cd,Zn)Te Detectors
M. Dambacher, A. Zwerger, A. Fauler, C. Disch, M. Fiederle, *Freiburger Materialforschungszentrum, Germany*; W. Eickhoff, *Bundesamt fuer Strahlenschutz, Germany*; U. Stoehlker, *CTBTO, Austria*

R02-5 (12:10) Development of a CZT High Efficiency Detector with Three Dimensional Spatial Resolution for Hard X Ray Astronomy
E. Caroli[1], N. Auricchio[1], C. Budtz-Jrgensen[2], R. M. Curado da Silva[3], S. Del Sordo[4], I. Kuvvetli[2], L. Milano[5], L. Nataluccio[6], E. M. Quadrini[7], J. B. Stephen[1], M. Zanichelli[8], A. Zappettini[8]

[1]*INAF/IASF-Bologna, Italy;* [2]*DTU Space, Denmark;* [3]*LIP, Portugal;* [4]*INAF/IASF-Palermo, Italy;* [5]*University of Ferrara, Italy;* [6]*IASF/IASF-Roma, Italy;* [7]*INAF/IASF-Milano, Italy;* [8]*CNR/IMEM, Italy*

R02-6 (12:25) Thick Silicon and CZT Compton Imager
M. Subramanian, *George Mason University, USA*; E. A. Wulf, B. F. Phlips, *Naval Research Laboratory, USA*; H. Krawczynski, J. Martin, *Washington University in St Louis, USA*

R02-7 (12:40) Caliste HD: a New Fine Pitch Cd(Zn)Te Imaging Spectrometer from 2 keV up to 1 MeV
A. Meuris, O. Limousin, O. Gevin, F. Lugiez, I. Le Mer, F. Pinsard, M. Donati, C. Blondel, A. Michalowska, E. Delagnes, *CEA Saclay, France*; M.-C. Vassal, F. Soufflet, *3d Plus, France*

R03 Characterization I

Monday, Oct. 24 14:30-16:05 VCC, Auditorium 3 A & B

Session Chair: **Jan Franc**, Institute of Physics, Charles University, Czech Republic

R03-1 (14:30, invited) Effects of Post-Growth Two-Step Annealing on Deep Energy Levels in CdTe:Cl
A. Cavallini, B. Fraboni, A. Castaldini, S. Assali, *University of Bologna, Italy*; J. Franc, M. Bugar, *Charles University, Czech Republic*

R03-2 (14:50) Nonuniformity of the Electric Field near the Edges in CdZnTe Detectors
A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], R. Gul[1], A. Hossain[1], K. Kim[1], B. Raghothamachar[2], G. Yang[1], R. B. James[1]
[1]*Brookhaven National Lab, USA;* [2]*Stony Brook University, USA*

R03-3 (15:05) Correlation Between Te Inclusion Inspection by IR with Spectral Response Performance for CZT Sensor Pack Detectors
Y. Du, J. E. Tkaczyk, G. Abramovich, Y. Yao, C. A. Nafis, T. Zhang, *GE Global Research Center, USA*; H. Chen, J. McKenzie, G. Bindley, *Redlen Technologies, Canada*

R03-4 (15:20) Impact of Electric Field Non-Uniformity on Large CdZnTe Crystals
J. C. Kim, W. Kaye, Z. He, *University of Michigan, US*

R03-5 (15:35) Synchrotron Radiation Studies of Te Inclusions in CdZnTe
A. G. Kozorezov, *Lancaster University, UK*; C. C. T. Hansson, A. Owens, *European Space Agency / ESTEC, Netherlands*; V. Costilo, *Baltic Scientific Instruments, Lettland*; F. Quarati, *Technical University of Delft, Netherlands*

R03-6 (15:50) Kinetics of Tellurium Precipitation in Cd(Zn)Te
V. Lordi, *Lawrence Livermore National Lab, USA*

R04 Characterization II

Monday, Oct. 24 16:30-18:25 VCC, Auditorium 3 A & B

Session Chair: **Douglas S. McGregor**, Kansas State University, United States

R04-1 (16:30, invited) New Approach for High Quality CZT Crystals
D. J. Knuteson, N. B. Singh, A. Berghmans, D. Kahler, B. Wagner, M. King, S. McLaughlin, *Northrop Grumman Corporation, USA*; A. E. Bolotnikov, R. B. James, *Brookhaven National Laboratory, USA*

R04-2 (16:50, invited) Large Area Detector with the Medipix2 Chip
A. Canas[1], M. Chmeissani[2], R. Coll[1], D. Glass[1], M. Kolstein[1], R. Martinez[3], C. Puigdengoles[2], C. Sanchez[1], A. Sancho[1]
[1]*X-ray Imatek SL, Spain;* [2]*Institut de Fsica d'Altes Energies, Spain;* [3]*IMB-CNM (CSIC), Spain*

R04-3 (17:10) Pulse-Heigh Variation Within Pixelated CdZnTe Detectors Exposed to X-Rays and Operating under Conditions of Ballistic Deficit
D. S. Bale, C. Szeles
Endicott Interconnect Detection and Imaging Systems, USA

R04-4 (17:25) CdTe Diode Detectors with a p-n Junction Formed by Laser-Induced Doping
V. A. Gnatyuk[1,2], T. Aoki[2], O. I. Vlasenko[1], S. N. Levytskyi[1]
[1]V.E. Lashkaryov Institute of Semiconductor Physics of National Academy of Sciences of Ukraine, Ukraine; [2]Research Institute of Electronics, Shizuoka University, Japan

R04-5 (17:40) Spectroscopic Characterization of M-π-N CdTe Pixel Detectors Coupled to Hexitec and Timepix Readout Chips
J. J. Kalliopuska, *VTT, Finland*; S. Nenonen, H. Andersson, *Oxford Instruments Analytical Oy, Finland*; P. Seller, M. C. Veale, M. D. Wilson, *Rutherford Appleton Laboratory, United Kingdom*; G. Blaj, *CERN, Switzerland*

R04-6 (17:55) Investigation of Polarisation in CdTe Using Ion Beam Induced Charge Collection
D. A. Prokopovich[1], M. Ruat[2,3], M. I. Reinhard[1]
[1]Australian Nuclear Science and Technology Organisation, Australia; [2]Monash University, Australia; [3]Detector Unit, France

R04-7 (18:10) Semiconductor Detectors for High Flux
I. M. Blevis, A. Shahar, M. Kleinman, B. Rosner, *General Electric Healthcare, Israel*; E. Tkaczyk, *General Electric Global Research Centre, USA*

NP1.M Poster Session Detectors & Instrumentation Small Systems

Monday, Oct. 24 16:30-18:30 Meliá, Room A&B

Session Chairs: **Felix Sefkow**, DESY, Germany
Graham C. Smith, Brookhaven National Laboratory, United States

NP1.M-1 Preliminary Studies on Geological Fault Location Using Solid State Nuclear Track Detection
A. B. Asumadu-Sakyi[1], J. J. Fletcher[2], O. C. Oppon[1,2], F. K. Quashie[1], D. A. Wordson[1], C. A. Adjei[1], E. O. Amartey[3], E. O. Darko[4], P. E. Amponsah[3]
[1]National Nuclear Research Institute, Ghana Atomic Energy Commission, Ghana; [2]Graduate School of Nuclear and Allied Sciences, Ghana; [3]National Data Centre, Ghana Atomic Energy Commission, Ghana; [4]Radiation Protection Institute, Ghana Atomic Energy Commission, Ghana

NP1.M-3 Measurement of Rn-222 in Water by Liquid Scintillation Counting of Polycarbonates
I. S. Dimitrova[1], K. K. Mitev[1], V. N. Zhivkova[2], S. B. Georgiev[1], D. S. Pressyanov[1]
[1]Sofia University, Bulgaria; [2]Kozloduy NPP, Bulgaria

NP1.M-5 Large-Size RPCs Prototypes for R3B Time-of-Flight Wall
Y. Ayyad, C. Paradela, J. Benlliure, I. Duran, *Universidade de Santiago de Compostela, Spain*; E. Casarejos, *Universidad de Vigo, Spain*

NP1.M-7 Development of an Alpha/beta/gamma Detector for Radiation Monitoring
S. Yamamoto, *Kobe City College of Technology, Japan*

NP1.M-9 Use of LaBr3 for Downhole Spectroscopic Applications
C. Stoller, R. A. Adolph, M. Berheide, T. Brill, P. K. Clevinger, S. Crary, B. Crowder, S. Fricke, J. Grau, M. Hackbart, M. Herron, S. Herron, B. Jorion, M. Lorente, D. Madio, J. Miles, O. Philip, R. J. Radtke, B. A. Roscoe, I. Shestakova, F. Zhou, W. Ziegler, *Schlumberger, USA*; P. R. Menge, *Saint-Gobain, USA*

NP1.M-11 Realization of neutron sensitive MCP with ALD technique
N. Lu[1,2], Y. Yang[1,2], W. Huang[1,2,3]
[1]Department of Engineering Physics, Tsinghua University, 100084, P.R.China; [2]Ministry of Education, 100084, P.R.China; [3]Institutes of Chemical Defence, 102205, P.R.China

NP1.M-13 Ultra Thin 3D Silicon Detector for Plasma Diagnostics at ITER Tokamak
F. Garcia, *Helsinki Institute of Physics and Department of Physcal Sciences, University of Helsinki, Finland*; G. Pellegrini, M. Lozano, J. P. Balbuena, C. Fleta, C. Guardiola, D. Quirion, *Instituto de Microelectrnica de Barcelona,(IMB-CNM, CSIC), Spain*

NP1.M-15 Light Charged Particle Identification by Means of Digital Pulse Shape Acquisition in the CHIMERA CsI(Tl) Detectors at GSI Energies.
F. Amorini[1], R. Bassini[2], C. Boiano[2], G. Cardella[3], E. De Filippo[3], L. Grassi[3], C. Guazzoni[4], P. Guazzoni[2], M. Kis[5], E. La Guidara[6], Y. Leifels[7], I. Lombardo[1], A. Pagano[3], S. Pirrone[3], G. Politi[3], F. Porto[1], F. Riccio[2], F. Rizzo[1], P. Russotto[1], W. Trautmann[7], A. Trifir[8], G. Verde[3], P. Zambon[4], L. Zetta[2]
[1]INFN, LNS and Universita', Italy; [2]Universita' degli Studi and INFN, Italy; [3]INFN, Sezione di Catania and Universita', Italy; [4]Politecnico and INFN, Italy; [5]Universitaet Heidelberg and Ruder Bosković Institute, Germany / Croatia; [6]Centro Siciliano Fisica Nucleare e Struttura della Materia, Italy; [7]GSI Helmholtzzentrum fuer Schwerionenforschung, Germany; [8]INFN, Gruppo collegato di Messina and Universita', Italy

NP1.M-17 Evaluation of Neutron Diagnostic System for Fusion Reactor KSTAR Using Stilbene Scintillator
S. K. Lee, K. H. Jo, J. B. Son, B.-H. Kang, Y. K. Kim
Hanyang University, Korea

NP1.M-19 Experimental Investigations of Incoherent Scattering for Non-Destructive Tomographic Measurements
A. Sharma, B. Singh, B. S. Sandhu
Punjabi University Patiala, India

NP1.M-21 Development of Silica Aerogel Cherenkov Counter with N=1.003 for Electron Veto
T. Sato[1], H. Kawai[1], Y. Kishi[1], M. Kubo[1], K. Mase[1], T. Nakano[2], H. Nakayama[1], M. Ono[1], M. Tabata[1,3], M. Yosoi[2]
[1]Chiba University, Japan; [2]Osaka University, Japan; [3]Japan Aerospace Exploration Agency, Japan

NP1.M-23 Methodology Development for Analysis of in-Beam AGATA Data
F. Filmer[1], A. J. Boston[1], H. C. Boston[1], S. J. Colosimo[1], J. Cresswell[1], D. Cullen[2], D. Judson[1], I. Lazarus[3], S. Moon[1], P. J. Nolan[1], A. P. Robinson[2], J. Simpson[3], C. Unsworth[1]
[1]University of Liverpool, United Kingdom; [2]University of Manchester, United Kingdom; [3]STFC Daresbury Laboratory, United Kingdom

NP1.M-25 Large-Scale Compton-Camera Simulations, Validation Experiments, and Image Reconstruction
A. Poitrasson-Riviere, M. C. Hamel, K. Ide, J. K. Polack, K. L. McMillan, S. D. Clarke, M. Flaska, S. A. Pozzi, *University of Michigan, United States*; G. Pausch, C.-M. Herbach, M. Ohmes, J. Stein, *FLIR, United States*

NP1.M-27 Nuclear Material Imaging with Muon-Induced Signatures
K. N. Borozdin, J. Bacon, C. L. Morris, J. Perry, W. C. Priedhorsky, R. Spaulding
Los Alamos National Laboratory, United States

NP1.M-29 Determination of CsI(Tl) Scintillation Time Constants and Intensities by Direct Fitting of the Output Waveform in the CHIMERA 4π Multidetector
A. Castoldi, C. Guazzoni, P. Zambon, *Politecnico di Milano and INFN, Sezione di Milano, Italy*; C. Boiano, P. Guazzoni, F. Riccio, L. Zetta, *Universita' degli Studi di Milano and INFN, Sezione di Milano,, Italy*; F. Amorini, I. Lombardo, F. Porto, F. Rizzo, P. Russotto, *INFN, Laboratori Nazionali del Sud and Universita' di Catania, Italy*; G. Cardella, E. De Filippo, E. Geraci, L. Grassi, A. Pagano, S. Pirrone, G. Politi, G. Verde, *INFN, Sezione di Catania and Universita' di Catania, Italy*; E. La Guidara, *Centro Siciliano Fisica Nucleare e Struttura della Materia, Italy*

NP1.M-31 Optimization of Process Parameters for Amorphous Semiconductor Contacts on High-Purity Germanium Detectors
Q. Looker[1], M. Amman[2], K. Vetter[1], P. Barton[2], P. Luke[2]
[1]UC Berkeley, USA; [2]Lawrence Berkeley Laboratory, USA

NP1.M-33 3D NDP for Thin Samples
J. Vacik[1,2], V. Hnatowicz[1], D. Fink[1,3], C. Granja[4]
[1]Nuclear Physics Institute, Academy of Sciences of the Czech Republic, Czech Republic; [2]Research Center Rez, Czech Republic; [3]Universidad Autonoma Metropolitana-Iztapalapa, Mexico; [4]Institute of Experimental and Applied Physics, Czech Republic

NP1.M-35 Feasibility Study of Using Epitaxial Silicon Diodes for Clinical Electron and Photon Beams Dosimetry
J. A. C. Gonalves[1,2], T. C. dos Santos[1], W. F. P. Neves-Junior[3], C. M. K. Haddad[3], C. C. Bueno[1,2]
[1]Instituto de Pesquisas Energeticas e Nucleares, Brazil; [2]Pontificia Universidade Catolica de So Paulo, Brazil; [3]Hospital Sirio Libanes, Brazil

NP1.M-37 Short-Term Repeatability of a Rad-Hard EPI Diode Applied in Electron Processing Dosimetry
T. C. dos Santos[1], J. A. C. Goncalves[1,2], I. Pintilie[3,4], C. C. Bueno[1,2]
[1]Instituto de Pesquisas Energeticas e Nucleares, Brazil; [2]Pontificia Universidade Catolica de Sao Paulo, Brazil; [3]Institute for Experimental Physics, Germany; [4]National Institute for Materials Physics, Romania

NP1.M-39 Doped and Undoped Lead Borate Glass-Ceramics as Thermoluminescent Detectors
L. Fornaro, *Centro Universitario de la Regin Este (CURE), Uruguay*; M. Rodriguez, I. Galain, A. Cardenas, *Facultad de Qumica,*

Uruguay; E. Castiglioni, *Facultad de Ciencias, Uruguay*

NP1.M-41 Optimization of Yttrium-90 Processing on a Clinical PET/CT System
Y. H. Kao[1], J. Steinberg[2], J. Yan[2], D. W. Townsend[2], S. Satchithanantham[1], Y. S. Tay[1], K. Y. Lim[1], P. K. Chow[1], E. H. Tan[1], C. E. Ng[1], S. W. Goh[1]
[1]Singapore General Hospital, Singapore; [2]Agency of Science, Technology and Research, Singapore

NP1.M-43 Dosimetric Study of Therapeutic Beams Using a Homogeneous Scintillating Fiber Layer
E. Lamanna, A. S. Fiorillo, A. Gallo, A. Trapasso, R. Caroleo, *Magna Graecia University Cz & INFN Gruppo Collegato Cs, Italy*; G. Barca, F. Castrovillari, S. Carnevale, *Cosenza Hospital, Italy*; R. Brancaccio, *University & INFN Bologna, Italy*

NP1.M-45 Influence of the Whole-Body Vibration on the Biodistribution of the Radiopharmaceutical 99mTc- Methylene Diphosphonate in Wistar Rats
S. D. Santos-filho[1], N. S. Pinto[2], M. O. Pereira[2], M. B. Monteiro[1], F. S. Carmo[1], C. S. Diniz[1], P. J. Marin[3], M. Bernardo-Filho[1,4]
[1]Universidade do Estado do Rio de Janeiro, Brasil; [2]Universidade Federal do Rio Grande do Norte, Brasil; [3]European University Miguel de Cervantes, Spain; [4]Instituto Nacional do Cancer, Brasil

NP1.M-47 Influence of Morphology on Nuclear Medicine Dosimetry Based on Patients Images
A. Desbree, L. Hadid, N. Grandgirard, *Institut de Radioprotection et de Surete Nucleaire, France*; N. Pierrat, *Institut Curie, France*

NP1.M-49 Small Dimension Plastic Dosimeter in High Dose Rate Brachytherapy with 192Ir Source
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NP1.M-51 Development of a High-Sensitivity Radiation Detector for Chromatography
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NP1.M-53 A Dedicated Processor for Monte Carlo Computation in Radiotherapy
S. Siddhanta[1,2], V. Fanti[1,2], G. Fois[1,2], R. Marzeddu[1,2], C. Pili[1,2], P. Randaccio[1,2], J. Spiga[1,2], A. Szostak[1,2]
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NP1.M-55 A Compact Probe for β^+-Emitting Radiotracer Detection in Surgery, Biopsy and Medical Diagnostics Based on Silion Photomultipliers
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NP1.M-57 The Channeler Ant Model Lung CAD as a Support for Large-Scale Screenings
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NP1.M-59 Characterisation of a Novel Diamond-Based Microdosimeter for Radioprotection Applications in Space Environments
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NP1.M-61 Skin Dosimetry of Thyroid Radioiodine with MOSkin Detector: a Phantom Study
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NP1.M-63 3D Dosimetry of Eye Brachytherapy Plaques Using Pixelated Silicon Detectors
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NP1.M-65 A Study of a Compact Multi-channel Beta-probe using Silicon Photomultiplier
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NP1.M-67 Scatter Correction in TOF PET Using Beam Stopper Device
C.-W. Shen, Y.-W. Tsaib, H.-H. Lin, K.-S. Chuang, *National Tsing Hua University, Taiwan*; M.-L. Jan, *Atomic Energy Council, Taiwan*

NP1.M-69 2-D Energy-Resolved Imaging of Gold Nanoparticle Distribution at Concentrations Relevant for in-Vitro Studies
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NP1.M-71 Narrowing Coincidence Timing Window Through Time-Walk Correction in Silicon Ring Enhanced PET Scanner
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NP1.M-73 Feasible Study on Energy Subtraction X-Ray CT Technique Using Comb-Shape Filtered X-Rays
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NP1.M-75 Development of PhytoPET: a Plant Imaging PET System
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NP1.M-77 BrachyView: an in-Body Imaging System for Prostate Brachytherapy
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NP1.M-79 Development of a Micro-Size Dosimeter Using an Optical Fiber Probe and a Photostimulable Storage Phosphor
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NP1.M-81 The Integration of Photon and Neutron Method for Contrabands Detection with a 7MeV LINAC
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NP1.M-83 Development of an Instrument for Non-Destructive Identification of Unexploded Ordnance Using Tagged Neutrons-a Proof of Concept Study
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NP1.M-85 Measurement of Xe-133 in Air by Absorption in Polycarbonates - Detection Limits and Potential Applications
S. B. Georgiev, K. K. Mitev, D. S. Pressyanov, T. A. Boshkova, I. S. Dimitrova
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NP1.M-87 Fast Neutron Resonance Radiography by Double Scatter Spectroscopy for Materials Identification
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NP1.M-89 An Imaging Neutron/Gamma-Ray Spectrometer
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NP1.M-91 IHEP (Protvino) 3x3 Sq.m Cosmic Ray Muon Tomograph
R. M. Fakhrutdinov, M. Y. Bogolyubskiy, N. I. Bojko, A. A. Borisov, A. N. Isaev, A. V. Kozelov, A. S. Kozhin, I. S. Plotnikov, V. A. Senko, N. A. Shalanda, M. M. Soldatov, V. I. Yakimchuk, O. P. Yushchenko
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NP1.M-93 A Dual X-Ray Backscatter System for Detecting Explosives: Image and Discrimination of a Suspicious Content
A.-S. Lalleman, G. Ferrand, B. Rosse, I. Thfoin, R. Wrobel, *CEA,DAM,DIF, France*; J. Tabary, N. Billon Pierron, F. Mougel, C. Paulus, L. Verger, *CEA-LETI, Minatec, FRANCE*

NP1.M-95 Time Response Characterization of Plastic Scintillation Block Detector to MeV Gammas based upon Generated Cherenkov and Scintillation Light
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NP1.M-97 Geant4 Modeling of the Response of Cherenkov Glass Detectors to Fast and Slow Neutrons
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NP1.M-99 The Merits and Demerits of Fast Neutron Detection for Passive Screening
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NP1.M-101 A Characterization of Photon-Induced Activities Generated by Bremsstrahlung in the Environment
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NP1.M-103 Nuclear Material Identification by Photoneutron and X-Ray Radiography
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NP1.M-105 Detection of High-Z Materials Using 7MeV X-Rays Scattering
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NP1.M-107 Dual High Energy X-Ray Imaging Using Flat Panel Detectors
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NP1.M-109 Compton Imaging with a Planar Semiconductor System
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NP1.M-111 Prospects of Reactor Monitoring with a Germanium Antineutrino Detection System
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NP1.M-113 Application of Advanced Image Reconstruction and Source Detection Methods to the Neutron Scatter Camera
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NP1.M-115 Including Pair-Production Events in the System Response Function for Energy-Imaging Integrated Deconvolution Algorithm
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University of Michigan, United States

NP1.M-117 Noncontact Sensors for Detection of Radioactive Materials
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NP1.M-119 A Small Muon Tomography Station with GEM Detectors
M. Hohlmann, B. Benson, W. Bittner, K. Gnanvo, L. Grasso, J. B. Locke, M. J. Staib, *Florida Institute of Technology, USA*; F. Costa, S. Martoiu, H. Muller, *CERN, Switzerland*; J. Toledo, *Universidad Politecnica de Valencia, Spain*

NP1.M-121 Stand-off Detection with an Active Interrogation Photon Beam
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NP1.M-123 Optimization of Energy Windowing Algorithms for PVT Portal Monitors
D. M. Pfund, K. D. Jarman, A. A. Kriss, C. A. LoPresti, S. K. Cooley, K. K. Anderson, A. Heredia-Langner
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NP1.M-125 Cross Country Background Measurements with High Purity Germanium
L. J. Mitchell, B. F. Phlips, E. A. Wulf, *Naval Research Laboratory, USA*; A. L. Hutcheson, *National Research Council, USA*; B. E. Leas, *SRA International, INC., USA*

NP1.M-127 Replacement of ^{3}He in Constrained-Volume Homeland Security Detectors
J. L. Lacy, A. Athanasiades, C. S. Martin, L. Sun, G. J. Vazquez-Flores, *Proportional Technologies, Inc., USA*; B. Moosman, *SPAWAR Systems Center Pacific, USA*

NP1.M-129 The Machine Vision Radiation Detection System
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NP1.M-131 Utilizing the Electron-Tracking Compton Imaging Experiment for Benchmarking of Physics Simulations and Design of Future Imagers
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NP1.M-133 Dose Calculations of Photo-Neutrons Emitted in a Medical Linear Accelerator
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NP1.M-135 Monte Carlo Analysis of Nondestructive Assay Techniques for Highly Enriched Uranium Oxide
S. D. Clarke, M. Flaska, S. A. Pozzi, *University of Michigan, USA*; R. B. Oberer, L. G. Chiang, *Y-12 National Security Complex, USA*

NP1.M-137 Pulse Mode Readout Techniques for Use with Non-Gridded Industrial Ionization Chambers.
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Thomas Jefferson National Accelerator Facility, USA

NP1.M-139 Portable Gamma Camera with a Rotated Coded Mask for the Remote Measurement of Radioactivity at Nuclear Installation
V. Stepanov, O. Ivanov, S. Smirnov, A. Danilovich, I. Semin
Kurchatov Institute, Russia

NP1.M-141 Thermal Neutron Imaging with PIN Photodiode Line Scanner and Eu-Doped LiCaAlF6 Scintillator
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NP1.M-143 Active Energy Compensation Method for CZT Based Dose Meters
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NP1.M-145 Neutron/Gamma Separation by Time-of-Flight and Pulse Shape Discrimination at PET-Cyclotron Beams and Radiotherapeutic Linacs
H. Simões[1], R. J. Ferreira[2], H. M. Saraiva[2], S. Ghithan[1], F. Alves[3,4], R. Ferreira Marques[1,3], F. Fraga[1,3], M. C. Lopes[5], K. Parodi[6], D. R. Schaart[7], P. Crespo[1,2]
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NP1.M-147 Additional Radiation-Induced Charge in Mosfet Dosimeters
I. R. Iatsunskyi, V. A. Smyntyna, O. A. Kulinich, I. A. Marchuk
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NP1.M-149 Effects of Gamma-Rays on Polymethylmethacrylate Plastic Optical Fiber under Low Dose-Rate Irradiation
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NP1.M-151 SPARTA: a Comprehensive Alpha, Beta and Gamma Particulate Radiation Measurement System for Environment Monitoring.
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NP1.M-153 Feasibility Study of a Gamma Camera for Nuclear Monitoring in PRIDE Facility
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NP1.M-155 A Short Interval Dynamic Neutron CT System Using a Neutron Image Intensifier for Visualizing Water Behavior in Stacked Fuel Cells
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Japan; K. Sugimoto, H. Murakawa, H. Asano, N. Takenaka, *Kobe University, Japan*

NP1.M-157 Simulated Response of Cherenkov Glass Detectors to 6 MeV Photons
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NP1.M-159 Testing Opportunities at the Y-12 Nuclear Detection and Sensor Testing Center
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NP1.M-161 Graphene-Based Neutron Detectors
M. Foxe[1], A. Majcher[1], C. Piotrowski[1], C. Roecker[2], J. Boguski[2], I. Childres[2,3], A. Patil[2], Y. P. Chen[2,3], I. Jovanovic[1]
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NP1.M-163 The Spectral and Angular Imaging of Nuclear Radiation with Semiconductor-Based Meander-Line Detectors
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NP1.M-165 Neutron Detector Designs for Detecting Fission Neutrons in Intense Pulsed Environments
S. B. Swanekamp[1], F. C. Young[2], S. L. Jackson[1]
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NP1.M-167 Neutron Time Projection Chamber Designs in Support of High Resolution Imaging and Mobile Applications
N. Bowden, G. Carosi, M. Heffner, *Lawrence Livermore National Laboratory, USA*; C. Roecker, *Purdue University, USA*; I. Jovanovic, *The Pennsylvania State University, USA*

NP1.M-169 Development of a High-Frame-Rate Camera for Pulsed Neutron Transmission Spectroscopic Radiography
M. Yamashita, K.-I. Mochiki, *Tokyo City University, Japan*; T. Kamiyama, Y. Kiyanagi, *Hokkaido University, Japan*

NP1.M-171 Parallel Optimization-Based Spectral Transformation for Detection and Classification of Buried Radioactive Materials
W. Wei, Q. Du, N. Younan, *Mississippi State University, USA*

NP1.M-173 Accelerator-Based Neutron Tomography Using Vacuum Tube Type Image Intensifier with Blanking Function
T. Kamiyama, Y. Kiyanagi, *Hokkaido University, Japan*

NP1.M-175 Study of Boron 10 Coated "Folding Fan" Detector for Neutron Scattering Experiments
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NP1.M-177 High Sensitive Standard Measurement to Determine Strength of an I-125 Brachytherapy Source
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NP1.M-179 Development of Wavelength-Shifting-Fiber Neutron Image Detector with a Fiber-Optic Taper with a High Spatial Resolution
T. Nakamura[1], R. Yasuda[1], M. Katagiri[2], K. Toh[1], K. Sakasai[1], A. Birumachi[1], M. Ebine[1], K. Soyama[1]
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NP1.M-181 Feasibility Study on Visualization of Transient Phenomena using High Resolution On-line Neutron Imaging System at J-PARC
M. Segawa, T. Kai, M. Ooi, M. Kureta
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NP1.M-183 Active Neutron Detection with Ultra-Thin 3D Silicon Detectors in Radiotherapy Linacs
C. Guardiola, C. Fleta, D. Quirion, J. Rodriguez, G. Pellegrini, J. P. Balbuena, M. Lozano, *Instituto de Microelectronica de Barcelona, IMB-CNM (CSIC), Spain*; F. Gomez, X. Gonzalez, D. Gonzalez, J. Pardo, *Universidad de Santiago de Compostela, Spain*; F. Garcia, *Helsinki Institute of Physics, University of Helsinki, Finland*

NP1.M-185 Design and Performance Evaluation of Neutron Monitor for Measurement of Cosmic-Ray and Observation of Solar Activity
D.-Y. Jang, J. S. Kang, Y. H. Kim, Y.-K. Kim
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NP1.M-187 A Compact Low Energy Gamma Ray Detector Working in High Magnetic Field
P. Legou, P. Perez, P. Debu, Y. Sacquin, L. Liszkay, X. Coppolani, J.-P. Bard, J.-P. Pansart, M. Combet
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NP1.M-189 Neutron Imaging Detector Based on the μPIC Micro-Pixel Gaseous Chamber
J. D. Parker[1], M. Harada[2], K. Hattori[1], S. Iwaki[1], S. Kabuki[1], Y. Kishimoto[1], H. Kubo[1], S. Kurosawa[1], K. Miuchi[1], H. Nishimura[1], T. Oku[2], T. Sawano[1], J.-I. Suzuki[2], T. Tanimori[1], K. Ueno[1]
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NP1.M-191 Fiber Optic-Coupled CCD Based Neutron Imaging Detector for High Resolution and Sensitivity
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NP1.M-193 Characterization and Calibration of Thermal Neutron Detectors for ESA Space Flight Applications
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NP1.M-194 FTIR and UV-Vis Studies of PVDF Homopolymers Applied to High Dose Dosimetry
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NP1.M-195 A Directional Neutron Detector with High Gamma Ray Rejection, High Neutron Efficiency and Hign Counting Rate
A. Suhami, *Suhami Associates, Israel*

NP1.M-196 A New GEM Based Neutron Diagnostic Concept for High Power Deuterium Beams
G. Croci[1], M. Rebai[2], M. Dalla Palma[3], G. Gervasini[1], G. Grosso[1], F. Murtas[4], R. Pasqualotto[3], E. Perelli Cippo[2], M. Tardocchi[1], M. Tollin[3], G. Gorini[2]
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NP1.M-197 Development of an Integrated CMOS Sensor for Efficient Neutron Counting
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NP1.M-198 Development of Thermal Neutron Flux Monitor Using Small Scintillator Array Coupled with Quartz Fibers for Boron Neutron Capture Therapy
H. Tanaka, Y. Sakurai, M. Suzuki, S. Masunaga, Y. Kinashi, N. Kondo, Y. Kawabata, T. Yagi, T. Misawa, K. Ono, A. Maruhashi
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NP1.M-199 Neutron Imaging Experiments Using Magnetic Scattering and Small Angle Scattering Signals
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[1]Korea Atomic Energy Research Institute, South Korea; [2]Korea Advanced Institute of Science and Technology, South Korea

NP1.M-200 Study on Neutron Image Detection Using New Crystal Scintillator
H. Kim, G. Cho, *KAIST, Korea*; H. Kim, *Kyungpook National University, Korea*; R. Gul, *Abdul Wali Khan University, Pakistan*

NP1.M-201 Pulse Shape Analysis of Cs2LiYCl6:Ce Scintillator Coupled to PSD-capable ASIC Readout System
D. Lee, L. C. Stonehill, A. V. Klimenko, J. R. Terry, S. Tornga
Los Alamos National Laboratory, USA

NP1.M-203 Fast Neutron Spectroscopy Using a Neutron Scatter Camera
J. Brennan, E. Brubaker, R. Cooper, M. Gerling, P. Marleau, N. Mascarenhas, S. Mrowka
Sandia National Laboratories, USA

NP1.M-204 $LaBr_3$-$LaCl_3$ Phoswich Scintillators for the Detection of High Energy Protons and Gamma-Rays
E. Nacher, J. Sanchez Del Rio, A. Perea, O. Tengblad
IEM (CSIC), Spain

NP1.M-205 Thermoluminescent Characterization of Micro and Nano-Sized α-Al2O3 Crystals Doped with Carbon for Gamma Photon Fields
E. C. Silva, C. C. Fontainha, *Universidade Federal de Minas Gerais, Brazil*; W. B. Ferraz, L. O. Faria, *Centro de Desenvolvimento da Tecnologia Nuclear - CDTN, Brazil*

NP1.M-206 A Next Generation Water Based Neutron Detector
S. A. Dazeley, A. Bernstein, M. Sweany
Lawrence Livermore National Laboratory, USA

NP1.M-207 Direct Imaging of Ionizing Radiation via the Pockels' Effect in Electro-Optic Crystals
A. A. Hoops, S. E. Bisson, L. E. Sadler, D. A. H. Shimizu, J. T. Steele, K. E. Strecker
Sandia National Laboratories, USA

NP1.M-208 A Lithium-Based Activation Detector for Thermal Neutrons
K. J. Riley[1], S. Palamakumbura[1], Z. W. Bell[2], V. V. Nagarkar[1]
[1]Radiation Monitoring Devices, Inc., USA; [2]Oak Ridge National Laboratory, USA

NP1.M-209 High Resolution Camera for Gamma-Ray Spectroscopy and Imaging in Nuclear Physics Research
P. Busca[1,2], R. Peloso[1,2], C. Fiorini[1,2], N. Blasi[2], F. Camera[2,3], B. Million[2], O. Wieland[2]
[1]Politecnico di Milano,Dipartimento di elettronica e informazione, Italy; [2]INFN, Sezione di Milano, Italy; [3]Universita' degli Studi di Milano, Dipartimento di Fisica, Italy

NP1.M-210 The BC-704 Scintillation Screen with Light Readout by Wavelength Shifting Fibers as a Highly Efficient Neutron Detector
J. Iwanowska, L. Swiderski, M. Moszynski, D. Wolski, *Soltan Institute for Nuclear Studies, Poland*; F. Kniest, *Saint-Gobain Crystals, The Netherlands*; G. Catto, *GC Technology GmbH, Germany*

NP1.M-211 Lead-Based Glasses for Selective, Efficient Detection of MeV Photons via the Cherenkov Effect
R. E. Johnson[1], J. P. Hayward[1,2], Z. W. Bell[2], L. A. Boatner[2], J. O. Ramey[2], G. E. Jellison[2], C. L. Hobbs[1], B. Ayaz-Maierhafer[1]
[1]UTK, USA; [2]ORNL, USA

NP1.M-212 Analysis of Neutron Induced Defects in Silver Doped Lithium Tetraborate
B. E. Kananen[1], A. T. Brant[2], D. A. Buchanan[1], J. W. McClory[1]
[1]Air Force Institute of Technology, USA; [2]West Virginia University, USA

NP1.M-213 Thermal Neutron Detection Using Alkali Halide Scintillators with Li-6 and Pulse Shape Discrimination
E. Brubaker, D. Dibble, P. Yang
Sandia National Laboratories, CA, USA

NP1.M-214 Software Realization of Real-Time N/γ Pulse Shape Discrimination Module for Radiation Portal Monitor Using CUDA Platform
V. A. Kolbasin, A. I. Ivanov, V. Y. Pedash
Institute for Scintillation Materials NAS of Ukraine, Ukraine

NP1.M-215 Initial Performance of Sealed Straw Modules for Large Area Neutron Science Detectors
J. L. Lacy, L. Sun, C. S. Martin, R. Nguyen, A. Athanasiades
Proportional Technologies, Inc., U.S.A.

NP1.M-216 Design and Characterization of a ^{227}Ac-^{13}C Neutron Source
Z. W. Bell, C. W. Alexander, *Oak Ridge National Laboratory, USA*

NP1.M-217 Neutron-Gamma Discrimination in a Ce:LiCaAlF$_6$ Scintillator Based on Pulse Shape Discrimination Using Digital Signal Processing
K. Watanabe[1], Y. Kondo[1], A. Yamazaki[1], A. Uritani[1], T. Iguchi[1], N. Kawaguchi[2], T. Yanagida[3], Y. Fujimoto[3], Y. Yokota[3], K. Kamada[3], K. Fukuda[2], T. Suyama[2], A. Yoshikawa[3]
[1]Nagoya University, Japan; [2]Tokuyama Corporation, Japan; [3]Tohoku University, Japan

NP1.M-218 Optimization of Pulse-Height Sharing in Long Rods of NaI(Tl) for Use below 150 keV
P. J. Boyle, D. S. Hann, A. M. MacLeod, *McGill Universtiy, Montreal, Canada, Canada*; P. R. Saull, *National Research Council, Canada*; H. C. Seyward, L. E. Sinclair, *National Resources Canada, Canada*

NP1.M-219 Development of a Compton Imager Based on Scintillator Bars
A. M. L. MacLeod, P. Boyle, D. S. Hanna, *McGill University, Canada*; P. R. B. Saull, *National Research Council, Canada*; H. C. J. Seywerd, L. E. Sinclair, *Natural Resources Canada, Canada*

NP1.M-220 On the Applicability of Compressed Sensing for Rotating Modulation Imagers
B. R. Kowash, R. W. Thomas, *Air Force Institute of Technology, USA*; D. K. Wehe, *University of Michigan, USA*

NP1.M-221 Stability of a Neutron Beam Monitor for NOVA at J-PARC
H. Ohshita[1], M. Shoji[2], T. Otomo[1], K. Ikeda[1], T. Uchida[1], S. Uno[1], N. Kaneko[1], T. Koike[3], K. Suzuya[4], T. Seya[1], M. Tsubota[1]
[1]HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION, KEK, Japan; [2]The Graduate University for Advanced Studies, Japan; [3]International University of Health and Welfare, Japan; [4]Japan Atomic Energy Agency, Japan

NP1.M-222 Design Considerations of a Coded Source Neutron Imaging System at the PULSTAR Reactor
Z. Xiao, A. I. Hawari, *North Carolina State University, USA*

NP1.M-223 Benchmarking the Position and Timing Response of Neutron Block Detectors for Imaging of Nuclear Materials
M. A. Laubach, X. Zhang, J. P. Hayward, J. E. Sparger, J. W. Cates
University of Tennessee, USA

NP1.M-224 Unattended Multi-Detector System for Unattended Uranium Enrichment Monitoring
A. Favalli, K. D. Ianakiev, M. Lombardi, C. Keller, D. W. MacArtur, C. McCluskey, C. E. Moss, M. T. Paffett
Los Alamos National Lab, USA

NP1.M-225 Graphene Field Effect Transistor as Radiation Sensor
A. Patil[1], I. Childress[1], M. Foxe[2], G. Lopez[1], C. Roecker[1], J. Boguski[1], J. J. Gu[1], M. L. Bolen[1], M. A. Capano[1], P. D. Ye[1], I. Jovanovic[2], Y. P. Chen[1]
[1]Purdue University, USA; [2]The Pennsylvania State University, USA

NP1.M-226 NeuSand, a Large-Area Neutron Detector Based on a Sandwiched Neutron Scintillator/Moderator-Light Pipe Structure to Replace He-3 in Portal Monitors
J. D. Valentine, R. M. Polichar, W. L. Hicks, B. P. Huntley, R. A. Sullivan, M. A. Peressini, L. G. Chavez, J. J. Martinez-Millan, J. Baltgavis
SAIC, USA

NP1.M-227 Characterization of Multielement Monolithic Germanium Detectors for X-Ray Fluorescence
N. Tartoni, G. Dennis, S. Diaz-Moreno, I. C. Horswell, *Diamond Light Source ltd., UK*; J. J. Headspith, W. I. Helsby, S. R. Burge, G. E. Derbyshire, *STFC, UK*

NP1.M-228 Characterization of HPGe- and Si(Li)-Detectors Structured with a 1D-Fine Pitch Strip-Structure
T. Krings, C. Ross, D. Protic
SEMIKON Detector GmbH, Germany

NP1.M-229 Antiproton Beam Profile Measurements Using Gas Electron Multipliers
G. Tranquille, P. Carriere, S. Duarte Pinto, J. Spanggaard
CERN, Switzerland

NP1.M-230 Strategy for Calibrating the Non-Linear Pixel Characteristic of the DSSC Detector for XFEL
G. Weidenspointner[1,2], R. Andritschke[1,2], S. Granato[1,2], M. Porro[1,2], C. Sandow[1,2], L. Strueder[1,2], K. Hansen[3], P. Fischer[4], T. Sant[5], S. Aschauer[6], P. Lechner[6], G. Lutz[6]
[1]MPI Halbleiterlabor, Germany; [2]Max-Planck-Institut fuer extraterrestrische Physik, Germany; [3]DESY, Germany; [4]Universitaet Heidelberg, Germany; [5]Universitaet Siegen, Germany; [6]PNSensor GmbH, Germany

NP1.M-231 The ATLAS Diamond Beam Diagnostic Systems
A. Gorisek, *Jozef Stefan Institute, Slovenia*
On behalf of the The ATLAS BCM Group

NP1.M-232 Improved Count Rate Corrections for Highest Data Quality with PILATUS Detectors
P. Trueb[1], B. A. Sobott[2], R. Schnyder[1], T. Loeliger[1], M. Schneebeli[1]
[1]Dectris Ltd, Switzerland; [2]School of Physics, The University of Melbourne, Australia

NP1.M-233 Radiation Tolerance Investigation of XAMPS Detectors
G. A. Carini, A. Kuczewski, D. P. Siddons
Brookhaven National Laboratory, USA

NP1.M-234 Handling of the LHC Beam Loss Monitoring System Abort Thresholds
E. Nebot, E. B. Holzer, B. Dehning, M. Sapinski, A. Nordt, C. Zamantzas, M. Nemcic, C. Roderick, S. Jackson
CERN, SWITZERLAND

NP1.M-235 Portable Tracker Based on the ATLAS SCT Modules Controlled by USB-Based Readout Interface
P. Masek, *IEAP CTU in Prague, Czech Republic*

NP1.M-236 Evaluation of COTS Silicon Carbide Photodiodes for a Radiation-Hard, Low-Energy X-Ray Spectrometer
J. R. Terry, J. R. Distel, R. M. Kippen, R. Schirato, M. S. Wallace
Space Science and Applications - Los Alamos National Lab, USA

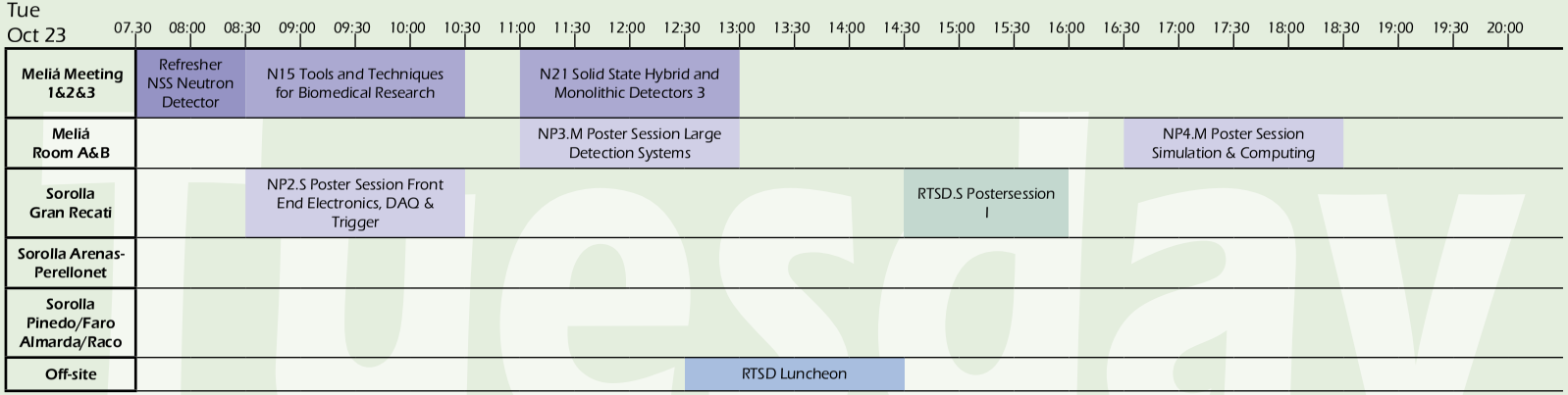
NP1.M-237 The Performance of the Beam Conditions and Radiation Monitoring System of CMS
A. E. Dabrowski, *CERN, Switzerland*
On behalf of the CMS Collaboration

NP1.M-238 A 256-Channel Correlator Design Based on an FPGA for X-Ray Photon Correlation Spectroscopy
Z. Y. A. Li, D. Misra, T. Tyson, *New Jersey Institute of Technology, USA*; A. Fluerasu, D. P. Siddons, *Brookhaven National Laboratory, USA*

Tue
Oct 23

	07:30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
VCC Auditorium 1			N10 High Energy Physics and Nuclear Physics Detectors: Vertex and Tracking Detectors I					N16 Analog and Digital Circuits 1							J1 MIC-NSS Joint Session				J2 MIC-RTSD Joint Session						
VCC Auditorium 2			N11 Homeland security 1					N17 Homeland Security 2							N22 High Energy Physics and Nuclear Physics Detectors: Muon Detection Sys.				N24 High Energy Physics and Nuclear Physics Detectors: Vertex and Tracking Detectors II							
VCC Auditorium 3 A&B			R05 CdTe I					R06 Alternative Materials I											R08 Crystal Growth and Characterization							
VCC Room1&2																	Exhibitors' Session									
VCC Room 3&4																										
VCC Multipurpose 1&2											Industrial Exhibit													Exhibitor Reception		
Meliá Valentia A			N12 Photodetectors 2					N18 Scintillators 2																		
Meliá Valentia B			N13 Solid State Hybrid and Monolithic Detectors 2					N19 Gaseous Detectors 2							N23 Gamma Ray and Neutron Detection 3				N25 Solid State Hybrid and Monolithic Detectors 4							
Meliá Valentia C			N14 Gamma Ray and Neutron Detection 1					N20 Gamma Ray and Neutron Detection 2																		

Tue
Oct 23



N10 High Energy Physics and Nuclear Physics Detectors : Vertex and Tracking Detectors I

Tuesday, Oct. 25 08:30-10:15 VCC, Auditorium 1

Session Chairs: **Marcel Demarteau**, Argonne National Laboratory, **Hwanbae Park**, Kyungpook National University, South Korea

N10-1 (08:30) Radiation Life of the CDF Run II Silicon Detector
I. Redondo Fernandez, *CIEMAT, Spain*
On behalf of the CDF Collaboration

N10-2 (08:45) The Silicon Vertex Detector of the Belle II Experiment
T. Bergauer, C. Irmler, M. Friedl, I. Gfall, M. Valentan
HEPHY Vienna, Austria

N10-3 (09:00) Performance of the LHCb Vertex Locator
M. Van Beuzekom, *NIKHEF, NL*
On behalf of the LHCb VELO

N10-4 (09:15) The ALICE ITS Upgrade
S. Rossegger, *CERN, Switzerland*
On behalf of the ALICE ITS upgrade collaboration

N10-5 (09:30) Simulations and Electrical Characterization of Double-Side Double Type Column 3D Detectors
A. Cristofoli[1], A. Dalla Costa[1], M. Boscardin[2], V. Cindro[3], G.-F. Dalla Betta[4], F. Driussi[1], G. Giacomini[2], M. P. Giordani[1], P. Palestri[1], M. Povoli[4], S. Ronchin[2], L. Selmi[1], E. Vianello[2]
[1]University of Udine, Italy; [2]Fondazione Bruno Kessler, Italy; [3]Instut Jozef Stefan, Slovenia; [4]University of Trento, Italy

N10-6 (09:45) Optimization of Double Side 3D Detector Technology for First Production at FBK
E. Vianello[1], A. Bagolini[1], P. Bellutti[1], M. Boscardin[1], G.-F. Dalla Betta[2], G. Giacomini[1], C. Piemonte[1], M. Povoli[2], N. Zorzi[1]
[1]Fondazione Bruno Kessler, Italy; [2]INFN Sezione di Padova e Univerita' di Trento, Italy

N10-7 (10:00) The New Forward Silicon Vertex Tracker for the PHENIX Experiment at RHIC
J. S. Kapustinsky, *Los Alamos National Laboratory, USA*
On behalf of the PHENIX Collaboration

N11 Homeland Security 1

Tuesday, Oct. 25 08:30-10:15 VCC, Auditorium 2

Session Chairs: **Peter E. Vanier**, Brookhaven National Laboratory, United States
Nathaniel Bowden, Lawrence Livermore National Laboratory, United States

N11-1 (08:30) System-Level Simulations for Dual Gamma Ray and Neutron Imaging and Spectroscopy
J. P. Hayward[1,2], M. A. Blackston[2], K. P. Ziock[2], P. A. Hausladen[2], B. Ayaz-Maierhafter[1], L. Fabis[2], M. Squillante[3]
[1]University of Tennessee, United States; [2]Oak Ridge National Laboratory, United States; [3]Radiation Monitoring Devices, United States

N11-2 (08:45) Gamma-Ray Mirror Notch-Filters for Direct Measurement of Spent Nuclear Fuel
M. J. Pivovaroff, *Lawrence Livermore National Laboratory, USA*; K. P. Ziock, M. J. Harrison, *Oak Ridge National Laboratory, USA*

N11-3 (09:00) Detection of Prompt Neutrons from Photofission Induced by a Single, Intense Bremsstrahlung Pulse
S. L. Jackson[1], R. J. Allen[1], J. P. Apruzese[1,2], R. J. Commisso[1], G. Cooperstein[1,2], D. D. Hinshelwood[1], D. Mosher[1,2], J. W. Schumer[1], S. B. Swanekamp[1], F. C. Young[1,2], J. C. Zier[1], A. W. Hunt[3], E. S. Cardenas[3]
[1]Naval Research Laboratory, DC; [2]Consultant through L-3 Services, VA; [3]Idaho State University, ID

N11-4 (09:15) Prompt Neutrons from Photofission (PNPF) and Its Use in Homeland Security Applications
A. Danagoulian, *Passport Systems, Inc., USA*
On behalf of the Passport Systems Inc.

N11-5 (09:30) Detection of Special Nuclear Material (SNM) by (γ-γ-n) Triple Coincidence
I. Dioszegi, C. Salwen, *Brookhaven National Laboratory, USA*; L. Forman, *Ion Focus Technology, USA*

N11-6 (09:45) Performance of a Straw-Based Portable Neutron Coincidence/Multiplicity Counter
J. L. Lacy, A. Athanasiades, L. Sun, C. S. Martin, G. J. Vazquez-Flores, *Proportional Technologies, Inc., USA*; S. Mukhopadhyay, *National Security Technologies, Inc., USA*

N11-7 (10:00) Neutron Detector Sensitivity Measurements and Their Variation
K. McKinny, T. Anderson, N. Johnson, *GE, USA*

N12 Photodetectors 2

Tuesday, Oct. 25 08:30-10:15 Meliá, Valentia A

Session Chairs: **Dennis R. Schaart**, Delft University of Technology, Netherlands
Marek Moszynski, Soltan Institute for Nuclear Studies, Poland

N12-1 (08:30) Enhanced Blue-Light Sensitivity P on N Silicon Photomultipliers
M. Mazzillo, S. Abbisso, G. Condorelli, D. Sanfilippo, G. Valvo, B. Carbone, A. Piana, G. Fallica, *STMicroelectronics, Italy*

N12-2 (08:45) SiPM with Significantly Better PDE than Classical PMTs
R. Mirzoyan[1], B. Dolgoshein[2], E. Popova[2], P. Buzhan[2], M. Teshima[1]
[1]Max-Planck-Institute for Physics, Germany; [2]Moscow Engineering and Physics Institute, Russia

N12-3 (09:00) Performance Measurements for a New Low Dark Count UV-SiPM
P. Berard, M. Couture, P. Deschamps, F. Laforce, H. Dautet
Excelitas Technologies, Canada

N12-4 (09:15) A CMOS Mini-SiPM Detector with in-Pixel Data Compression for PET Applications
L. H. C. Braga[1], L. Pancheri[1], L. Gasparini[1], M. Perenzoni[1], R. Walker[2], R. K. Henderson[2], D. Stoppa[1]
[1]Fondazione Bruno Kessler (FBK), Italy; [2]The University of Edinburgh (UEDIN), U.K.

N12-5 (09:30) SiPMs with Bulk Integrated Quench Resistors
J. Ninkovic[1], L. Andricek[1], C. Jendrysik[1], G. Liemann[1], G. Lutz[2], H. G. Moser[1], R. Richter[1]
[1]Max Planck Instite for Physics - Semiconductor Laboratory, Germany; [2]PNSensor, Germany

N12-6 (09:45) Detection Efficiency and Afterpulsing in Silicon Photomultipliers
A. Para, P. Rubinov, *Fermilab, USA*; I. Vasilas, *University of Cyprus, Cyprus*

N12-7 (10:00) Dead Time of SiPM Pixels
M. Grodzicka, M. Moszyński, T. Szczęśniak, M. Szawłowski, D. Wolski, K. Leśniewski, *Soltan Institute for Nuclear Studies, Poland*

N13 Solid State Hybrid and Monolithic Detectors 2

Tuesday, Oct. 25 08:30-10:00 Meliá, Valentia B

Session Chairs: **Marco Battaglia**, LBNL and UC Berkeley, United States
Giorgio Chiarelli, INFN Sez. di Pisa, Italy

N13-1 (08:30) DEPFET Active Pixel Sensor with Non-Linear Amplification
P. H. Lechner[1], L. Andricek[2], S. Aschauer[1], G. De Vita[3], G. Lutz[1], M. Porro[3], R. H. Richter[2], C. Sandow[1], H. Soltau[1], L. Strueder[3]
[1]PNSensor GmbH, Germany; [2]MPI fuer Physik, Germany; [3]MPI fuer extraterrestrische Physik, Germany

N13-2 (08:45) A Very Large Area (100 mm²) Silicon Drift Detector
S. Barkan, V. D. Saveliev, L. Feng, M. Takahashi, E. V. Damron, C. R. Tull
SII NanoTechnology USA, USA

N13-3 (09:00) Environmental Effects on Photomultiplication Propagation in Silicon
M. W. Fishburn, E. Charbon, *Delft University of Technology, Netherlands*

N13-4 (09:15) Longitudinal Profile of the Charge Cloud at High Charge Levels in Multi-Linear Silicon Drift Detectors for Position-Sensing Applications
A. Castoldi[1,2], C. Guazzoni[1,2], D. Mezza[1,2], G. Montemurro[1,2], R. Hartmann[3], L. Strueder[4,5,6], L. Carraresi[7,2], F. Taccetti[2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]PNSensor GmbH, Germany; [4]Max-Planck Institut, Germany; [5]Max-Planck Institut fur extraterrestrische Physik, Germany; [6]Universitat Siegen, Germany; [7]Universita' degli Studi di Firenze, Italy

N13-5 (09:30) Enhanced Energy Range Thermoelectrically Cooled Silicon X-Ray Detectors
R. H. Redus, A. C. Huber, J. Pantazis, T. Pantazis, *Amptek, Inc., 01730*

N13-6 (09:45) Radiation-Hard Imaging Detectors Based on Diamond Electronics
M. Girolami[1], A. Galbiati[2], S. Salvatori[1]
[1]Roma TRE University, Italy; [2]Solaris Photonics, United Kingdom

N14 Gamma Ray and Neutron Detection 1

Tuesday, Oct. 25 08:30-10:15 Meliá, Valentia C

Session Chairs: **Michael Squillante**, RMD Inc., United States
Karl Zeitelhack, TU Munich, Germany

N14-1 (08:30) Time Encoded Neutron/Gamma Imager for Large Stand-off SNM Detection
P. A. Marleau, J. Brennan, E. Brubaker, J. Steele
Sandia National Laboratories, USA

N14-2 (08:45) A High-Speed Neutron Radiography System to Visualize Grease Dynamics in a Rolling Bearing
H. Nose, A. Ito, T. Takano, *IHI Corporation, Japan*; K.-I. Mochiki, *Tokyo City University, Japan*

N14-3 (09:00) Implementation and Performance of the Electronics and Computing System for the Gamma Ray Energy Tracking in-Beam Nuclear Array (GRETINA)
S. Zimmermann[1], D. Doering[1], J. T. Anderson[2], J. M. Joseph[1], C. A. Lionberger[1], T. Stezelberger[1], H. Yaver[1]
[1]Lawrence Berkeley National Laboratory, USA; [2]Argonne National Laboratory, USA

N14-4 (09:15) Real-Time, Digital Imaging of Neutrons and Gamma Rays with a Fast Liquid Scintillation Detector
M. J. Joyce, K. A. A. Gamage
Lancaster University, United Kingdom

N14-5 (09:30) Pulse Shape Discrimination in CLYC Using Pole Zero Crossover Correction Method
S. Mukhopadhyay, J. Glodo, K. S. Shah
Radiation Monitoring Devices, United States

N14-6 (09:45) Fission Spectrum Measurements at LANSCE Using Liquid Organic Scintillators
A. Enqvist, M. Flaska, S. A. Pozzi, *University of Michigan, USA*; R. C. Haight, *Los Alamos National Laboratory, USA*; H. Y. Lee, C. Y. Wu, *Lawrence Livermore National Laboratory,, USA*

N14-7 (10:00) Neutron-Senstive Anger Camera Development for SNS Protein Crystal Neutron Diffractometry Instrument (MaNDi)
J. D. Richards, C. Donahue, V. Theodore, L. G. Clonts
SNS/ORNL, USA

N15 Tools and Techniques for Biomedical Research

Tuesday, Oct. 25 08:30-10:00 Meliá, Meeting 1&2&3

Session Chairs: **Stan Majewski**, West Virginia University, United States
Youngho Seo, University of California, San Francisco, United States

N15-1 (08:30) Performance Characterization of High-Purity Germanium Detector for Small-Animal SPECT Imaging
L. C. Johnson, D. L. Campbell, T. E. Peterson,
Vanderbilt University, USA

N15-2 (08:45) Signal Shape of a PET Detector Based on LSO:Ce,Ca Crystals and SiPM
G. De Luca[1], M. G. Bisogni[1], G. Collazuol[2], A. Argentieri[3], F. Corsi[3], C. Marzocca[3], C. Piemonte[4], A. del Guerra[1]
[1]University and INFN of Pisa, Italy; [2]University and INFN of Padova, Italy; [3]DEE-Politecnico di Bari, Italy; [4]ITC-IRST, Italy

N15-3 (09:00) Readout Technologies for the BNL-UPenn MRI-Compatible PET Scanner for Rodents
M. L. Purschke[1], J. Fried[1], E. Gualtieri[2], J. S. Karp[2], P. O'Connor[1], D. Schlyer[1], P. Vaska[1], C. Woody[1]
[1]Brookhaven National Lab, USA; [2]University of Pennsylvania, USA

N15-4 (09:15) Charaterization and Test of a Data Acquisition System for PET
M. Morrocchi[1,2], S. Marcatili[1,2], N. Belcari[1,2], M. G. Bisogni[1,2], G. Collazuol[3,4], G. Ambrosi[5], F. Corsi[6,7], M. Foresta[6,7], C. Marzocca[6,7], G. Matarrese[6,7], G. Sportelli[8,9], P. Guerra[9], A. Santos[8,9], A. del Guerra[1,2]
[1]INFN Pisa, Italy; [2]University of Pisa, Italy; [3]INFN Padova, Italy; [4]University of Padova, Italy; [5]INFN Perugia, Italy; [6]Politecnico di Bari, Italy; [7]INFN Bari, Italy; [8]Universidad Politecnica de Madrid, Spain; [9]CIBER-BBN, Spain

N15-5 (09:30) Comparison of Epitaxial and SOI Based Large Area Microdosimeters
J. Livingstone[1], D. A. Prokopovich[2], M. Petasecca[1], M. L. F. Lerch[1], M. I. Reinhard[2], A. S. Dzurak[3], D. N. Jamieson[4], V. L. Perevertaylo[5], A. Kryukov[5], V. L. Pisacane[6], M. Zaider[7], J. F. Dicello[8], A. B. Rosenfeld[1]
[1]University of Wollongong, Australia; [2]Australian Nuclear Science and Technology Organisation, Australia; [3]University of New South Wales, Australia; [4]University of Melbourne, Australia; [5]SPA BIT, Ukraine; [6]United States Naval Academy, USA; [7]Memorial Sloan-Kettering Cancer Center, USA; [8]Loma Linda University Medical Center, USA

N15-6 (09:45) High Resolution Measurements of Mass Attenuation Coefficients for Photon Energies of 40 keV to 1.4 MeV
C. Crewson, C. C. Rangacharyulu
University of Saskatchewan, Canada

N16 Analog and Digital Circuits 1

Tuesday, Oct. 25 11:00-12:45 VCC, Auditorium 1

Session Chairs: **Yasuo Arai**, KEK, Japan
Angelo Rivetti, Istituto Nazionale di Fisica Nucleare - INFN - Sezione di Torino, Italy

N16-1 (11:00) PXD18k - Fast Single Photon Counting Chip with Energy Window for Hybrid Pixel Detector
R. Szczygiel, P. Grybos, P. Maj, M. Zoladz
AGH University of Science and Technology, Poland

N16-2 (11:15) ToPiX : a CMOS 0.13 M Silicon Pixel Readout ASIC for the PANDA Experiment
G. Mazza[1], S. Bonacini[2], D. Calvo[1], P. De Remigis[1], T. Kugathasan[1,3], M. Mignone[1], A. Rivetti[1], L. Toscano[1], R. Wheadon[1]
[1]INFN, Italy; [2]CERN, Switzerland; [3]Universita` di Torino, Italy

N16-3 (11:30) Characterisation of a Low Power Hybrid Pixel Detector ASIC with Real-Time Energy Binning
W. S. Wong[1], G. Anton[2], R. Ballabriga[1], M. Boehnel[2], M. Campbell[1], T. Gabor[2], H. Erik[1], L. Xavier[1], M. Thilo[2], I. Ritter[2], T. Poikela[1], P. Sievers[2], P. Valerio[1]
[1]CERN, Switzerland; [2]University of Erlangen-Nuremberg, Germany

N16-4 (11:45) High Throughput Multichannel Design for the Integrated Analog Readout of SDDs
L. Bombelli[1,2,3], R. Alberti[3], C. Fiorini[1,2], S. Moser[3], R. Quaglia[1,2], A. Tocchio[1]
[1]Politecnico di Milano Dip. Elettronica e Informazione, Italy; [2]INFN Sezione di Milano, Italy; [3]XGLab SRL, Italy

N16-5 (12:00) VERITAS: a 128-Channel ASIC for the Readout pnCCDs and DEPFET Arrays for X-Ray Imaging, Spectroscopy and X-Ray FEL Applications. Experimental Results and New Designs
M. Porro[1,2], D. Bianchi[1,2], G. De Vita[1,2], S. Herrmann[1,2], A. Wassatsch[2,3], R. Hartmann[4], G. Hauser[1,2], L. Strueder[1,2]
[1]Max Planck Institut fuer Extraterrestrische Physik, Germany; [2]MPI Halbeleiterlabor, Germany; [3]Max Planck Institut fuer Physik, Germany; [4]PNSensor GmbH, Germany

N16-7 (12:30) Analog Front-End for the XFEL AGIPD Detector
X. Shi[1], H. Graafsma[2], D. Greiffenberg[1], B. Henrich[1], H. Krueger[3], A. Marras[2], A. Mozzanica[1], B. Schmitt[1], U. Trunk[2]
[1]Paul Scherrer Institut, Switzerland; [2]Deutsches Elektronensynchrotron, Germany; [3]University of Bonn, Germany

N17 Homeland Security 2

Tuesday, Oct. 25 11:00-12:45 VCC, Auditorium 2

Session Chairs: **Michael C. Wright**, Oak Ridge National Laboratory, United States
Belkis Cabrera-Palmer, Sandia National Laboratories, United States

N17-1 (11:00) Prototype Testing and Algorithm Development for the Cosmic Ray Inspection and Passive Tomography (CRIPT) Project
V. Anghel[1], J. Armitage[2], K. Boudjemline[2], D. Bryman[3], J. Bueno[3], E. Charles[4], T. Cousins[5], P.-L. Drouin[6], A. Erlandson[2], G. Gallant[4], C. Jewett[1], G. Jonkmans[1], Z. Liu[3], S. Noel[5], G. Oakham[2], D. Ong[7], T. Stocki[7], M. Thompson[1], D. Waller[6]
[1]Atomic Energy of Canada Limited, Canada; [2]Carleton University, Canada; [3]Advanced Applied Physics Solutions, Canada; [4]Canadian Border Services Agency, Canada; [5]International Safety Research, Canada; [6]Defence Research and Development Canada, Canada; [7]Health Canada, Canada

N17-2 (11:15) Parametric Evaluation of Active Neutron Interrogation for the Detection of Shielded Highly Enriched Uranium
D. L. Chichester, E. H. Seabury, S. J. Thompson, R. R. C. Clement
Idaho National Laboratory, USA

N17-3 (11:30) Minimal Detectable Fissionable Masses from Active Interrogation Using Delayed Neutron, Delayed Gamma Ray and Prompt Neutron Signatures
A. W. Hunt[1], E. S. Cardenas[1], E. T. E. Reedy[1], H. A. Seipel[1], B. H. Failor[2]
[1]Idaho State University, USA; [2]L-3 Communications, USA

N17-4 (11:45) Cherenkov Counters for the Detection of Gamma Rays from Active Interrogation
A. N. Erickson, R. C. Lanza, *Massachusetts Institute of Technology, USA*; M. V. Hynes, B. W. Blackburn, *Raytheon Corporation, USA*; A. Bernstein, S. Dazeley, *Lawrence Livermore National Laboratory, USA*

N17-5 (12:00) Machine Vision Assisted Volumetric Gamma-Ray Imaging
L. Mihailescu[1], P. Mordohai[2], X. Hu[2], J. Maltz[1], D. Gunter[1], T. Aucott[3], C. Bates[1], A. Haefner[3], R. Barnowski[3], M. Amman[1], J. Wallig[1], T. Loew[1], K. Vetter[1,3]
[1]Lawrence Berkeley National Laboratory, USA; [2]Stevens Institute of Technology, USA; [3]UC Berkeley, USA

N17-6 (12:15) 3D Compton Image Reconstruction Using a Moving 3D-Position-Sensitive Room-Temperature CdZnTe Detector Array
J. M. Jaworski, Z. He, *University of Michigan, USA*

N17-7 (12:30) Timing Resolution Study of an Associated Particle Detector for Fast Neutron Imaging
J. W. Cates[1], J. P. Hayward[1], X. Zhang[1], P. Hausladen[2], B. Dabbs[1]
[1]University of Tennessee, USA; [2]Oak Ridge National Laboratory, USA

N18 Scintillators 2

Tuesday, Oct. 25 11:00-12:45 Meliá, Valentia A

Session Chairs: **John D. Valentine**, SAIC, United States
Edith D. Bourret-Courchesne, Lawrence Berkeley National Laboratory, United States

N18-1 (11:00) Effect of Host and Activator on Nonproportionality of Scintillators
S. A. Payne, B. Sturm, S. Hunter, N. Cherepy, L. Ahle, S. Sheets, *LLNL, USA*; W. Moses, W.-S. Choong, G. Bizarri, *LBNL, USA*

N18-2 (11:15) Nonproportionality and Scintillation Studies of SrI2(Eu) from 9 K to 300 K
S. Lam, R. M. Gaume, M. Gascon, R. S. Feigelson, *Stanford University, USA*; R. Hawrami, K. Shah, *Radiation Monitoring Devices, Inc., USA*

N18-3 (11:30) The Study of Scintillator Nonproportionality Through the Application of High Isostatic Pressure
M. Gascon, R. M. Gaume, S. Lam, R. S. Feigelson, *Stanford University, USA*; W. Setyawan, S. Curtarolo, *Duke University, USA*

N18-4 (11:45) Gamma-ray and Electron Response in Doped Alkali Halide Scintillators
L. Swiderski, M. Moszynski, W. Czarnacki, M. Szawlowski, T. Szczesniak, *Soltan Institute for Nuclear Studies, Poland*; G. Pausch, C. Plettner, K. Roemer, *FLIR Radiation GmbH, Germany*; P. Schotanus, *Scionix Holland B.V., The Netherlands*

N18-5 (12:00) Subpoisson Statistics and Estimation of Fano Factor in Inorganic Scintillators
V. Bora, H. H. Barrett, *University of Arizona, USA*; K. S. Shah, J. Glodo, *Radiation Monitoring Devices, Inc., USA*

N18-6 (12:15) Interaction of Ionizing Radiation with Nanoparticles: How Much Energy Is Deposited Within the Particle?
A. Vasil'ev, *Lomonosov Moscow State University, Russia*; A. Belsky, A.-L. Bulin, C. Dujardin, *University Lyon1, France*

N18-7 (12:30) Effects of Photonic Crystals on the Light Output of Heavy Inorganic Scintillators
A. Knapitsch[1,2], E. Auffray[2], C. W. Fabjan[1,2], J.-L. Leclercq[3], P. Lecoq[2], X. Letartre[3], C. Seassal[3]
[1]Institute of Atomic and Subatomic Physics, Vienna University of Technology, Austria; [2]CERN, Switzerland; [3]Universite de Lyon, Institut des Nanotechnologies de Lyon-INL, France

N19 Gaseous Detectors 2

Tuesday, Oct. 25 11:00-12:45 Meliá, Valentia B

Session Chairs: **Maxim Titov**, CEA Saclay, France
Chilo Garabatos, GSI, Germany

N19-1 (11:00) Design and Construction of a Cylindrical GEM Detector as Inner Tracker Device at KLOE-2
D. Domenici, *LNF - INFN, Italy*
On behalf of the KLOE-2 Inner Tracker sub-group

N19-2 (11:15) Design, Construction and Test of a Precursor GEM-TPC for PANDA
R. Arora, *GSI Helmholtzzentrum fuer Schwerionenforschung GmbH, Germany*
On behalf of the GEM-TPC Collaboration

N19-3 (11:30) Calibration of the GEM-TPC Prototype for PANDA with 83m Kr
D. Kaiser, *HISKP University Bonn, Germany*
On behalf of the GEM-TPC Collaboration

N19-4 (11:45) Time Projection Chamber with Triple GEM and Highly Granular Readout
C. Brezina[1], K. Desch[1], J. Kaminski[1], M. Killenberg[2], T. Krautscheid[1], M. Schultens[1], R. Ulman[1], S. Zimmermann[1]
[1]University of Bonn, Germany; [2]CERN, Switzerland

N19-5 (12:00) Performance of ALICE TPC Readout Electronics
A. U. Rehman, *CERN, Switzerland*
On behalf of the ALICE TPC Collaboration

N19-6 (12:15) A Compact TPC GEM for High Intensity Beam Diagnostics
F. Murtas, A. Balla, G. Claps, G. Corradi, C. Paglia, *Laboratori Nazionali di Frascati INFN, Italy*; D. Tagnani, *Sezione Roma 1 INFN, Italy*; P. Valente, *Sezione Roma 3 INFN, Italy*

N19-7 (12:30) Test Beam Results of the GE1/1 Prototype for CMS High-Eta Muon System Future Upgrade
S. Colafranceschi, *CERN, SWISS*

N20 Gamma Ray and Neutron Detection 2

Tuesday, Oct. 25 11:00-12:45 Meliá, Valentia C

Session Chairs: **Edith Bourret-Courchesne**, LBL, United States
Bruno Guerard, ILL, France

N20-1 (11:00) Revolutionizing Beta-Delayed Neutron Spectroscopy Using Trapped Radioactive Ions
R. M. Yee[1,2], N. D. Scielzo[2], P. F. Bertone[3], F. Buchinger[4], S. Caldwell[3,5], J. A. Clark[3], C. M. Deibel[3], J. Fallis[6], G. Li[3,4], S. Gulick[4], D. Lascar[3,7], A. F. Levand[3], E. B. Norman[1], M. Pedretti[2], G. Savard[3,5], R. E. Segel[7], K. S. Sharma[6], M. G. Sternberg[3,5], T. Sun[3], J. Van Schelt[3,5], B. J. Zabransky[3]
[1]UC Berkeley, USA; [2]Lawrence Livermore National Laboratory, USA; [3]Argonne National Laboratory, USA; [4]McGill University, CAN; [5]University of Chicago, USA; [6]University of Manitoba, CAN; [7]Northwestern University, USA

N20-2 (11:15) Investigation of Aerogel, Saturated Foam, and Foil for Thermal Neutron Detection
K. A. Nelson, S. L. Bellinger, J. L. Neihart, T. A. Riedel, D. S. McGregor
Kansas State University, USA

N20-3 (11:30) Results from Above Ground Water Cherenkov Antineutrino Detector Deployment for Reactor Safeguards
G. Keefer, A. Bernstein, N. Bowden, S. Dazeley, *Lawrence Livermore National Laboratory (LLNL), U.S.A.*; D. Reyna, B. Cabrera-Palmer, S. Kiff, J. Lund, *Sandia National Laboratory (SNL), U.S.A.*

N20-4 (11:45) A Survey of Neutron Capture Correlation Signals, Backgrounds, and Detectors
N. Bowden, S. Dazeley, M. Sweany
Lawrence Livermore National Laboratory, USA

N20-5 (12:00) Conceptual Design and Modeling for Online Uranium Enrichment Monitoring
L. E. Smith, A. R. Lebrun, *International Atomic Energy Agency, Austria*

N20-6 (12:15) Detection of Actinides with an Electron Accelerator by Active Photoneutron Interrogation Measurements
A. Sari[1], F. Carrel[1], M. Gmar[1], F. Laine[1], A. Lyoussi[2], S. Normand[1]
[1]CEA, LIST, France; [2]CEA, DEN, DER, SPEX, France

N20-7 (12:30) Liquid Scintillator Neutron Detection for Real-Time Nuclear Material Assay
A. Lavietes, M. Pickrell, R. Plenteda, N. Mascarenhas, C. Liguori, *International Atomic Energy Agency, Austria*; M. Aspinall, *Hybrid Instruments, Inc., United Kingdom*; M. Joyce, *University of Lancaster, United Kingdom*

N21 Solid State Hybrid and Monolithic Detectors 3

Tuesday, Oct. 25 11:00-12:30 Meliá, Meeting 1&2&3

Session Chairs: **Marco Battaglia**, LBNL and UC Berkeley, United States
Marcel Demarteau, Argonne National Laboratory, United States

N21-1 (11:00) Development of FD-SOI Monolithic Pixel Devices for High-Energy Charged Particle Detection
K. Hara, K. Shinsho, *University of Tsukuba, Japan*; Y. Arai, T. Miyoshi, Y. Ikemoto, R. Ichimiya, T. Tsuboyama, T. Kohriki, Y. Yasu, *High Energy Accelerator Research Organization (KEK), Japan*; Y. Onuki, H. Katsurayama, *Tohoku University, Japan*; A. Takeda, *The Graduate University for Advanced Studies, Japan*; K. Hanagaki, *Osaka University, Japan*

N21-2 (11:15) Monolithic SOI Pixel Detector for x-Ray Imaging Applications with high Dynamic Range and MHz Frame-Rate
I. Peric, F. Mandl, *University of Heidelberg, Germany*

N21-3 (11:30) Test Results of X-Ray Imaging Sensor with SOI CMOS Technology
A. Takeda, *the Graduate University for Advanced Studies (SOKENDAI), Japan*; Y. Arai, T. Miyoshi, R. Ichimiya, Y. Ikemoto, *KEK / IPNS, Japan*; S. G. Ryu, T. G. Tsuru, S. Nakashima, *Kyoto Univ., Japan*

N21-4 (11:45) Characterisation of a Thin Fully-Depleted SOI Pixel Sensor with Soft X-Ray Radiation
M. Battaglia[1], D. Bisello[2], D. Contarato[3], P. Denes[3], S. Mattiazzo[2], C. Tindall[3]
[1]LBNL and UC Santa Cruz, USA; [2]INFN and Universita', Italy; [3]LBNL, USA

N21-5 (12:00) Hole Based CMOS Actvie Pixel Sensor for Medical X-Ray Imaging
H. Jang, S. E. Park, S. J. Hwang, C. H. Choi, J. Hwang
Dongbu Hitek Co.,Ltd, Korea

N21-6 (12:15) The CCD-Strip Detector: High-Resolution Tracking of Compton Electrons
D. H. Chivers[1], B. Plimley[1], A. Coffer[1], A. Haefner[1], A. Karcher[2], P. Barton[2], C. Tindall[2], K. Vetter[1,2]
[1]University of California, Berkeley, U.S.A.; [2]Lawrence Berkeley National Laboratory, U.S.A.

N22 High Energy Physics and Nuclear Physics Detectors: Muon Detection System

Tuesday, Oct. 25 14:30-15:45 VCC, Auditorium 2

Session Chairs: **Hiroyuki Iwasaki**, KEK, Japan
Yong-Kyun Kim, Hanyang University, South Korea

N22-1 (14:30) Performance of the Trigger Detectors of the ALICE Muon Spectrometer During the First Year of Data Taking at LHC
A. Piccotti, *Istituto Nazionale di Fisica Nucleare, ITALY*
On behalf of the ALICE Collaboration

N22-2 (14:45) Study of the Performance of the ATLAS Muon Spectrometer
C. Bini, *Sapienza Universita' and INFN Roma, Italy*
On behalf of the ATLAS Collaboration

N22-3 (15:00) Calibration and Performance of the Precision Chambers of the ATLAS Muon Spectrometer
C. Bini, *Sapienza Universita' and INFN Roma, Italy*
On behalf of the ATLAS Collaboration

N22-4 (15:15) CMS Drift Tubes System During LHC 2010 Operation
C. F. Bedoya, *CIEMAT, Spain* - On behalf of the CMS Collaboration

N22-5 (15:30) Test Beam Results of the SuperB Muon Detector Prototype
G. Cibinetto, *Ferrara University - INFN, Italy*
On behalf of the SuperB IFR group

N23 Gamma Ray and Neutron Detection 3

Tuesday, Oct. 25 14:30-15:45 Meliá, Valentia B

Session Chairs: **Klaus Ziock**, ORNL, United States
Nolan E. Hertel, Georgia Institute of Technology, United States

N23-1 (14:30) Arrayed 6x6-Device High Efficiency Dual-Integrated Microstructured Semiconductor Neutron Detectors
R. G. Fronk, S. L. Bellinger, D. S. McGregor, *Kansas State University - S.M.A.R.T. Laboratory, USA*; T. J. Sobering, *Kansas State University - Electronics Design Laboratory, USA*

N23-2 (14:45) Neutron Imaging with Micrometric Spatial Resolution
D. Vavrik, *Institute of Theoretical and Applied Mechanics, Czech Republic*; J. Jakubek, S. Pospisil, *Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic*; J. Vacik, *Nuclear Physics Institute AS CR, & Research Center Rez, Czech Republic*

N23-3 (15:00) Overview of the High Efficiency Multimode Imager
M. L. Galloway[1], M. Amman[2], A. Zoglauer[1], S. E. Boggs[1], P. N. Luke[2], J. S. Lee[2], V. Negut[2], A. Priest[2], L. Mihailescu[2], K. Vetter[2], H. Chen[3], P. Marthandam[3], S. Awadalla[3], S. Taherion[3], G. Bindley[3]
[1]University of California at Berkeley, U.S.; [2]Lawrence Berkeley National Laboratory, U.S; [3]Redlen Technologies, Canada

N23-4 (15:15) Multi-Source Third Generation Computed Tomography for Industrial Multiphase Flows Applications
C. H. de Mesquita, P. A. S. Vasquez, M. M. Hamada,
IPEN/CNEN-SP, Brazil

N23-5 (15:30) Background Characterization with the Mobile Imaging and Spectroscopic Threat Identification (MISTI) System
T. Aucott[1], D. Chivers[1], K. Vetter[1,2]
[1]University of California, Berkeley, US; [2]Lawrence Berkeley National Lab, US

N24 High Energy Physics and Nuclear Physics Detectors : Vertex and Tracking Detectors II

Tuesday, Oct. 25 16:30-18:15 VCC, Auditorium 2

Session Chairs: **Massimo L. Caccia**, Università dell'Insubria, Italy
Marco Battaglia, LBNL and UC Berkeley, United States

N24-1 (16:30) Silicon Strip Detectors for the ATLAS sLHC Upgrade
Y. Unno, *KEK, Tsukuba, Japan,* On behalf of the ATLAS Collaboration

N24-2 (16:45) Upgrade of the CMS Tracker for the High Luminosity LHC
M. Dragicevic, *HEPHY, Austria*
On behalf of the CMS Tracker Collaboration

N24-3 (17:00) Hybrid Silicon µstrip and GEM Tracker for JLab HallA High Luminosity Experiments
P. Musico[1], V. Bellini[2], M. Capogni[3], E. Cisbani[4], S. Colilli[4], R. De Leo[5],

R. De Oliveira[6], F. De Persio[7], V. De Smet[8,2], R. Fratoni[4], S. Frullani[4], F. Giuliani[4], M. Gricia[4], F. Librizzi[2], M. Lucentini[4], F. Mammoliti[2], F. Meddi[7], S. Minutoli[1], F. Noto[2], R. Perrino[9], F. Santavenere[4], C. Sutera[2], G. M. Urcioli[7]
[1]INFN Genova, Italy; [2]INFN Catania and Catania University, Italy; [3]ENEA Casaccia and INFN Roma Sanita' group, Italy; [4]INFN Roma Sanita' group and Italian National Institute of Health, Italy; [5]INFN Bari and University of Bari, Italy; [6]CERN, Switzerland; [7]INFN Roma and Sapienza Roma University, Italy; [8]Haute Ecole Paul Henri Spaak, Belgium; [9]INFN Lecce, Italy

N24-4 (17:15) Upgrade of the Novel 2D Position-Sensitive Microstrip Detector.
D. Bassignana, M. Lozano, G. Pellegrini, D. Quirion, *IMB-CNM (CSIC), Spain*; M. Fernandez, R. Jaramillo, F. J. Munoz, I. Vila, *IFCA (CSIC-UC), Spain*

N24-5 (17:30) Performance of the LHCb Silicon Tracker at the LHC
V. Fave, *University of Santiago de Compostela, Spain*
On behalf of the LHCb Silicon Tracker Group

N24-6 (17:45) A Novel Alignment Procedure and Results for the LHCb Silicon Tracker Detector
F. Dupertuis, *LPHE, Ecole Federale de Lausanne (EPFL), Switzerland*
On behalf of the LHCb Silicon Tracker Group

N24-7 (18:00) Results from the First Prototype of Large 3D Active Edge Sensors
A. Kok[1], T.-E. Hansen[1], M. Boscardin[2], G.-F. Dalla Betta[3], C. Da Via'[4], G. Darbo[5], T. A. Hansen[1], J. Hasi[6], C. Kenney[6], N. Lietaer[1], S. I. Parker[7], G. Pellegrini[8], A. Summanwar[1]
[1]SINTEF, Norway; [2]Fondazione Bruno Kessler, Italy; [3]University of Trento, Italy; [4]University of Manchester, UK; [5]INFN Genova, Italy; [6]SLAC National Accelerator Laboratory, USA; [7]University of Hawaii, USA; [8]Centro National de Microelectronica, Spain

N25 Solid State Hybrid and Monolithic Detectors 4

Tuesday, Oct. 25 16:30-18:00 Meliá, Valentia B

Session Chairs: **Laci Andricek**, MPI Halbleiterlabor, Germany
Ingrid-Maria Gregor, DESY, Germany

N25-1 (16:30) SLID-ICV Vertical Integration Technology for the ALAS Pixel Upgrades
A. Macchiolo[1], L. Andricek[1,2], M. Beimforde[1], H.-G. Moser[1,2], R. Nisius[1], R. Rainer H.[1,2], P. Weigell[1]
[1]Max-Planck-Institut fuer Physik, Germany; [2]MPP Halbleiterlabor, Germany

N25-2 (16:45) 2D and 3D Thin Pixel Technologies for the Layer0 of the SuperB Silicon Vertex Tracker
G. Rizzo, *Universita' di Pisa & INFN, Italy*
On behalf of the SuperB SVT Group

N25-3 (17:00) Active-Edge Planar Silicon Sensors for Large-Area Pixel Detectors
M. Bosma[1], E. Heijne[2], J. Kalliopuska[3], J. Visser[1], E. Koffeman[1]
[1]Nikhef - National Institute for Subatomic Physics, The Netherlands; [2]CERN, Switzerland; [3]VTT, Finland

N25-4 (17:15) Development of Active and Slim Edge Terminations for 3D and Planar Detectors
G.-F. Dalla Betta[1], A. Bagolini[2], M. Boscardin[2], G. Giacomini[2], M. Povoli[1], E. Vianello[2], N. Zorzi[2]
[1]University of Trento and INFN, Italy; [2]Fondazione Bruno Kessler, Italy

N25-5 (17:30) Ultra-Thin Fully Depleted DEPFET Active Pixel Sensors
C. Koffmane[1,2,3], L. Andricek[1,2], C. Kiesling[2], H. G. Moser[1,2], J. Ninkovic[1,2], C. Oswald[4], R. H. Richter[1,2], A. Ritter[1,2], J. Scheirich[4]
[1]Max-Planck-Institut fr Physik, Germany; [2]MPI Halbleiterlabor, Germany; [3]TU Berlin, Germany; [4]Charles University, Czech Republic

N25-6 (17:45) Edge-on Detectors with Active Edge for X-Ray Photon Counting
D. T.-E. Hansen, N. Ahmed, *SINTEF ICT, Norway*; A. Ferber, G. Bouquet, *SINTEF ICT, Notway*

R05 CdTe I

Tuesday, Oct. 25 08:30-09:55 VCC, Auditorium 3 A & B

Session Chair: **Paul J. Sellin**, University of Surrey, United Kingdom

R05-1 (08:30, invited) Development of Spectroscopic Imaging Arrays Using Epitaxially Grown Thick Single Crystal CdTe Layers on Si Substrate
M. Niraula, K. Yasuda, N. Fujimura, T. Tachi, H. Inuzuka, S. Namba, T. Kondo, S. Muramatsu, Y. Agata
Nagoya Institute of Technology, Japan

R05-2 (08:50, invited) Te Inclusions in Large Size CdTe THM Crystals
A. Raulo, G. Hennard, M. Sowinska, *EURORAD, France*; R. B. James, *Brookhaven National Laboratory, USA*; A. Fauler, M. Fiederle, *Albert-Ludwigs-Universitat, Germany*

R05-3 (09:10) Measurement of the Electron-Hole Pair Generation Energy in Cadmium Telluride by X and Gamma Photons
G. Bertuccio[1,2], M. Bonanomi[1]
[1]Politecnico di Milano, Italy; [2]National Institute of Nuclear Physics, Italy

R05-4 (09:25) Theory of Deep Level Spectroscopy in Semi-Insulating CdTe
R. Grill, J. Franc, E. Belas, S. Uxa, M. Bugar, P. Moravec, P. Hoschl
Charles University, Institute of Physics, Czech Republic

R05-5 (09:40) High Energy and Position Resolution CdTe Diode Double-Sided Strip Detectors
S. Watanabe[1,2], S. Takeda[1,3], G. Sato[1], K. Hagino[1,2], T. Sato[1,2], Y. Ichinohe[1,2], S. Saito[1,2], T. Fukuyama[1,2], M. Ohta[1], H. Odaka[1], M. Kokubun[1], T. Takahashi[1,2]
[1]Japan Aerospace Exploration Agency, Japan; [2]University of Tokyo, Japan; [3]RIKEN, Japan

R06 Alternative Materials I

Tuesday, Oct. 25 11:00-12:10 VCC, Auditorium 3 A & B

Session Chair: **Arnold Burger**, Fisk University, United States

R06-1 (11:00, invited) Manufacturing by Bridgman Method of the 2-Inch-(Cd,Mn)Te Crystal Rods, and Their Characterization.
A. Mycielski, D. Kochanowska, M. Witkowska-Baran, A. Szadkowski, B. Witkowska, W. Kaliszek, A. Marciniak, R. Jakieła, W. Domukhowski, A. Suchocki, A. Dużyńska, *Institute of Physics, Polish Academy of Sciences, Poland*; M. Sowińska, *EURORAD, France*; P. Siffert, *E-MRS Headquarters, France*

R06-2 (11:20) Thermomigration of Te Inclusions in Cd(Mn,Zn)Te Crystals
P. Fochuk[1], R. Grill[2], O. Kopach[1], G. Yang[3], A. Bolotnikov[3], K. H. Kim[3], C. Giuseppe[3], A. Hossain[3], I. Nakonechnyi[1], R. Gul[3], O. Panchuk[1], R. James[3]
[1]Chernivtsi National University, Ukraine; [2]Charles University, Czech Republic; [3]Brookhaven National Laboratory, USA

R06-3 (11:35, invited) Heavy Metal Iodides for Radiation Detectors: from Bulk Crystals and Crystalline Layers to Nanostructures
L. Fornaro[1], I. Aguiar[2], A. L. Noguera[1], M. E. Prez[2], H. Bentos Pereira[1], N. Sasen[2]
[1]Centro Universitario de la Regin Este, Uruguay; [2]Facultad de Qumicia, Uruguay

R06-4 (11:55) Influence of Polar-Bond Containing Organics on the Growth of HgI2 Tetragonal Prismatic Crystals
E. Ariesanti, D. S. McGregor, *SMART Laboratory, USA*

R08 Crystal Growth and Characterization

Tuesday, Oct. 25 16:30-18:10 VCC, Auditorium 3 A & B

Session Chair: **Kelvin G. Lynn**, Washington State University, United States

R08-1 (16:30, invited) Crystal Growth of CZT Using SiC Pedestal and pBN Crucible
J. Crocco, H. Bensalah, Q. Zheng, E. Dieguez
University de Autonoma de Madrid, Spain

R08-2 (16:50, invited) Low-Temperature Photoluminescence, X-Ray Topography and Charge Transport Characteristics of CZT Grown by Traveling Heater Method (THM)
U. N. Roy, S. Weiler, J. Stein, *FLIR Radiation (Formerly known as ICx Radiation Inc.), USA*; A. Bolotnikov, G. Camarda, A. Hossain, G. Yang, R. Gul, R. James, *Brookhaven National Laboratory, USA*

R08-3 (17:10) Performance of Vapour Grown Pixelated (Cd,Zn)Te Radiation Detectors:
M. Ayoub, J. N. E. McGrath, F. Schirru, P. D. Scott, J. T. Mullins, S. Sakwe, I. Radley, *Kromek Ltd., U.K.*; A. Volkovskii, *NOVA R&D, U.S.A.*

R08-4 (17:25) Similarities in Properties Between as Grown Cd0.9Zn0.1Te Crystals with Low and High Te Secondary Phase Concentrations
A. Datta, S. K. Swain, S. Bhaladhare, K. G. Lynn
Washington State University, United States

R08-5 (17:40) Pulse Splitting in Photon Counting X-Ray Detectors
K. J. Engel, R. Steadman, C. Herrmann
Philips Research Laboratories, Germany

R08-6 (17:55) Multi-Material Decomposition Using Low-Current X-Ray and a Photon-Counting CZT Detector
S. Kim[1], A. Hernandez[1], F. Alhassen[1], R. G. Gould[1], M. Pivovaroff[2], H.-M. Cho[3], Y. Seo[1]
[1]University of California, San Francisco, USA; [2]Lawrence Livermore National Laboratory, USA; [3]Yonsei University, South Korea

NP2.S Poster Session Front End Electronics, DAQ & Trigger

Tuesday, Oct. 25 08:30-10:30 Sorolla, Gran Recati

Session Chairs: **Christian Bohm**, University of Stockholm, Department of physics, Sweden
Christophe de la Taille, LAL/ IN2P3/CNRS, France
Alberto Aloisio, University of Naples 'Federico II' and INFN, Italy
Jean-Francois C. Genat, CNRS/IN2P3/LPNHE, France

NP2.S-1 TOT02, a Time-over-Threshold Based Readout Chip in 180 nm CMOS Process for Long Silicon Strip Detectors
K. Kasinski, R. Szczygiel, P. Grybos
AGH University of Science and Technology, Poland

NP2.S-3 FSDR16 a Low Noise, Fast Silicon Strip Detector Readout IC with a 5th Order Complex Shaping Amplifier in 180 nm CMOS
R. Kleczek, P. Grybos
AGH - University of Science and Technology, Poland

NP2.S-5 Vertical Integration Approach to the Readout of Pixel Detectors for Vertexing Applications
A. Manazza[1,2], L. Gaioni[2], M. Manghisoni[2,3], L. Ratti[1,2], V. Re[2,3], G. Traversi[2,3], S. Zucca[1,2]
[1]University of Pavia, Italy; [2]INFN section of Pavia, Italy; [3]University of Bergamo, Italy

NP2.S-7 Characterisation of an ASIC Front-End Electronics Dedicated to the Silicon Drift Detectors
C. Labanti[1], G. Baldazzi[2,3], P. Malcovati[4], G. Bertuccio[5], M. Feroci[6,7], R. Campana[6,7], M. Grassi[4], L. Picolli[4], E. Del Monte[6,7], L. Pacciani[6,7], Y. Evangelista[6,7], F. Muleri[6], E. Costa[6], I. Donnarumma[6], F. Lazzarotto[6], F. M. Rapisarda[6,7,8], A. Rubini[6,7], P. Soffitta[6], M. Mastropietro[6], M. Marisaldi[1], E. Morelli[1], A. Vacchi[9], G. Zampa[9], W. Bonvicini[9], A. Rashevsky[9], N. Zampa[9], A. Battistella[10], M. Bello[10], C. Fontana[11], N. Uznov[10,12], F. Navarria[2,3], M. Zuffa[3], P. Rossi[11,13], G. Moschini[11,13]
[1]INAF/IASF-Bologna, Italy; [2]Universita' di bologna, Italy; [3]INFN Sezione di Bologna, Italy; [4]Universita' di Pavia, Italy; [5]Politecnico di Milano, Italy; [6]INAF/IASF Roma, Italy; [7]INFN - Sezione di Roma 2, Italy; [8]ENEA Frascati, Italy; [9]INFN - Sezione di Trieste, Italy; [10]INFN - Laboratori Nazionali di Legnaro, Italy; [11]Universita' di Padova, Italy; [12]Shumen University, Bulgaria; [13]INFN - Sezione di Padova, Italy

NP2.S-9 Ultra-Fast Compact Multi-Channel Readout System for SDDs
R. Alberti[1], L. Bombelli[2], C. Fiorini[2], T. Frizzi[1], S. Moser[1], R. Quaglia[2]
[1]XGLab S.R.L., Via Moretto da Brescia 23, I-20133, Italy; [2]Politecnico di Milano, Piazza Leonardo da Vinci 32, I-20133, Italy

NP2.S-11 Multi-Dimensional Optimization of Charge Preamplifier in 0.18µm CMOS Technology for Low Power CdTe Spectro-Imaging System
A. Michalowska, O. Gevin, O. Limousin, *CEA, France*

NP2.S-13 Low-Noise Front-End ASIC with A/D Conversion for Silicon and CdTe Detectors
G. Sato[1], T. Kishishita[1], H. Ikeda[1], S. Watanabe[1], T. Takahashi[1,2]
[1]ISAS/JAXA, Japan; [2]University of Tokyo, Japan

NP2.S-15 Analysis of Full Charge Reconstruction Algorithms for X-Ray Pixelated Detectors
G. Deptuch[1], A. Baumbaugh[1], G. Carini[2], P. Grybos[3], J. Hoff[1], P. Maj[3], P. Siddons[2], R. Szczygiel[3], M. Trimpl[1], R. Yarema[1]
[1]Fermilab, USA; [2]BNL, USA; [3]AGH-UST, Poland

NP2.S-17 8 Bit 5 MS/s per-Pixel ADC in an 8-by-8 Matrix
C. Reckleben, K. Hansen, P. Kalavakuru, I. Diehl
DESY, Germany

NP2.S-19 Tests of FPDR90 IC for Hybrid Detector Readout for High Frame Rate X-Ray Applications
R. Szczygiel, P. Grybos, P. Maj
AGH University of Science and Technology, Poland

NP2.S-21 Performance of a High Accuracy Injection Circuit for in-Pixel Calibration of a Large Sensor Matrix
E. Quartieri, *Universita di Pavia, Italy*; M. Manghisoni, *Universita di Bergamo, Italy*

NP2.S-23 Design Considerations for Electronics for Linear Position Sensitive Neutron Detectors Using Charge Division Method
T. Huang, H. Gong, B. Shao, *Tsinghua University, China*

NP2.S-25 A Tezzaron-Chartered 3D-IC Electronic for SLHC/ATLAS Hybrid Pixels Detector: Test Results and Irradiations Performance
P. Pangaud[1], D. Arutinov[2], M. Barbero[2], P. Breugnon[1], B. Chantepie[1], J.-C. Clemens[1], R. Fei[1], D. Fougeron[1], M. Garcia-Sciveres[3], S. Godiot[1], T. Hemperek[2], M. Karagounis[2], H. Kruger[2], A. Mekkaoui[3], L. Perrot[1], A. Rozanov[1], N. Wermes[2]
[1]CNRS/IN2P3, Universite de la Mediterranee, France; [2]Physikalisches Institut der Universitt Bonn, Germany; [3]Lawrence Berkeley National Laboratory, USA

NP2.S-27 Reliability of 130nm CMOS Transistors at 300 K and 77K
J. R. Hoff, G. W. Deptuch, R. J. Yarema
Fermi National Accelerator Laboratory, USA

NP2.S-29 Novel Readout Technique Based on Signal Modulation for X-Ray or Gamma-Ray Detection Systems
I.-I. Jung, Y.-W. Choi, *Chung Ang University, KOREA*

NP2.S-31 A Novel structure of Front-End ASIC for Micro-Pattern Gaseous Detectors
L. He, Z. Deng, Y. N. Liu, *Tsinghua University, China*

NP2.S-33 Readout Electronics for the Central Drift Chamber of the Belle II Detector
T. Uchida, M. Ikeno, Y. Iwasaki, M. Saito, S. Shimazaki, M. Tanaka, N. Taniguchi, S. Uno, *High Energy Accelerator Research Organization, Japan*

NP2.S-35 SPACIROC: a Front-End Readout ASIC for the JEM-EUSO Cosmic Ray Observatory.
S. Ahmad, P. Barrillon, S. Blin-Bondil, S. Dagoret-Campagne, C. de la Taille, F. Dulucq, G. Martin-Chassard, *Laboratoire de l Accelerateur Lineaire, FRANCE*; Y. Kawasaki, *RIKEN, Japan*; H. Ikeda, *ISAS/JAXA, Japan*; F. Kajino, *Konan University, Japan*

NP2.S-37 Evaluation of Front-End Electronics for Unattended Safeguards Instruments
L. E. Smith, T. Pochet, K. Buben, *International Atomic Energy Agency, Austria*

NP2.S-39 CAD: a Current-Mode Amplifier and Dsicriminator ASIC for MRPC-TOF Detectors
Z. Deng[1,2], Y. Wang[1,2], Y. Liu[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

NP2.S-41 Development of BELLEII-CDC Front-End ASIC
S. Shimazaki[1], T. Taniguchi[2], M. Tanaka[1], N. Taniguchi[1]
[1]High Energy Accelerator Research Organization, KEK, Japan; [2]Okayama University, Japan

NP2.S-43 A Radiation-Tolerant 5 Gb/s Laser Driver in CMOS 130 nm Technology
G. Mazza[1], P. Gui[2], P. Moreira[3], A. Rivetti[1], C. Soos[3], J. Troska[3], K. Wyllie[3]
[1]INFN, Italy; [2]Southern Methodist University, USA; [3]CERN, Switzerland

NP2.S-45 Application of Dynamic Time over Threshold Method to Germanium Detector
K. Shimazoe, T. Orita, Y. Wang, H. Takahashi, *The University of Tokyo, Japan*

NP2.S-47 Autoranging Readout Electronics for the Monitoring System of the TOP-IMPLART Proton Therapy Beam
E. Basile[1], A. Carloni[1,2], D. M. Castelluccio[3], E. Cisbani[1], S. Colilli[1], R. Fratoni[1], S. Frullani[1], F. Giuliani[1], M. Gricia[1], M. Lucentini[1], F. Santavenere[1], G. Vacca[1]
[1]Istituto Superiore di Sanita', Italy; [2]Universita' degli Studi La Sapienza, Italy; [3]ENEA, Italy

NP2.S-49 A Fast Low Noise CMOS Charge Sensitive Preamplifier for Column Parallel CCD Readout.
J.-P. Walder, P. Denes, C. Grace, H. von der Lippe, B. Zheng
Lawrence Berkeley National Lab, USA

NP2.S-51 Analog Circuit for Timing Measurements with Large Area SiPMs Coupled to LYSO Crystals
A. Gola, C. Piemonte, A. Tarolli
Fondazione Bruno Kessler, Italy

NP2.S-53 A CMOS ASIC Design for SiPM Arrays
F. W. Sun, W. C. J. Hunter, R. S. Miyaoka, B. P. Otis, D. J. Allstot, T. K. Lewellen
University of Washington, USA

NP2.S-55 VMM1 - an ASIC for Micropattern Gas Detectors
G. De Geronimo, S. Li, N. Nambiar, V. Polychronakos
Brookhaven National Laboratory, USA

NP2.S-57 Direct Meaurement of Noise Spectra at the 1 nV/sqrt(Hz) Level
W. K. Warburton, J. T. Harris, *XIA LLC, USA*

NP2.S-59 Pole-Zero Adjustment Based on Digitally Synthesized Multi-Peak Pulse Shapes
V. T. Jordanov, *Yantel, LLC, USA*

NP2.S-61 Ultra Linear Dynamic Time-over-Threshold with a Simple CR-RC Filtering
T. Orita, H. Takahashi, K. Shimazoe, T. Fujiwara
The University of Tokyo, Japan

NP2.S-63 A Low Area, Ultra-Low Power Baseline Holder for the APD-Based LabPET II Detector
S. Panier[1], K. Calliste Koua[1], L. Arpin[1], H. Bouziri[1], M. W. Ben Attouch[1], M. Abidi[1], C. Paulin[1], J.-F. Pratte[1], R. Lecomte[2], R. Fontaine[1]
[1]Department of Electrical and Computer Engineering, Canada; [2]Department of Nuclear Medicine and Radiobiology, Canada

NP2.S-65 AGET, the GET Front-End ASIC, for the Readout of the Time Projection Chambers Used in Nuclear Physic Experiments
P. Baron[1], S. Anvar[1], B. Blank[2], J. Chavas[1], E. Delagnes[1], F. Druillole[1], P. Hellmuth[2], L. Nalpas[1], J.-L. Pedroza[2], J. Pibernat[2], E. Pollacco[1], A. Rebii[2], N. Usher[3]
[1]CEA Saclay, France; [2]CENBG, France; [3]NSCL/MSU, United States

NP2.S-67 Wideband (500 MHz) 16 Bit Dynamic Range Current Mode Input Stage for Photodetector Readout
D. Gascon, A. Sanuy, J. M. Paredes, M. Rib, *ICC. Universitat de Barcelona, Spain*; J. Sieiro, *Universitat de Barcelona, Spain*

NP2.S-69 A Time over Threshold-Based 64-Channel Readout ASIC for the LabPET II APD Array Dedicated to Small Animal Imaging PET Scanner
R. Fontaine, K. Koua, H. Bouziri, L. Arpin, S. Panier, M. W. Ben Attouch, M. Abidi, C. Paulin, J.-F. Pratte, R. Lecomte
Universite de Sherbrooke, Canada

NP2.S-71 BeamCal Instrumentation IC: Design, Implementation and Test Results
A. Abusleme[1,2], A. Dragone[3], G. Haller[3], B. A. Wooley[2]
[1]Pontificia Universidad Catolica de Chile, Chile; [2]Stanford University, USA; [3]SLAC National Accelerator Laboratory, USA

NP2.S-73 A Cryogenic Ultra-Low Noise CMOS Preamplifier for Point-Contact HPGe Detectors
X. Zhu[1,2], Z. Deng[1,2], Y. Li[1,2], Y. Liu[1,2], Q. Yue[1,2], J. Li[1,2,3]
[1]Tsinghua University, China; [2]Ministry of Education, China; [3]Institute of High Energy Physics, China

NP2.S-75 A 6-Channel Fast Waveform Sampling ASIC Using 130nm CMOS Technology
E. Oberla, H. Grabas, *University of Chicago, USA*

NP2.S-77 High Voltage Regulation Circuits with Low Voltage Sensing and Inrush Current Limiting Functions for Solid-State Detectors in PET
N. Zhang, M. Loope, M. Schmand
Siemens Molecular Imaging, USA

NP2.S-79 A Time-to-Digital Converter Using Vernier Delay Line with Time Amplification Technique
M. H. Chung, H.-P. Chou
National Tsing Hua University, Taiwan

NP2.S-81 High Voltage Power Supply for Triple GEM Detectors
F. Murtas[1], G. Corradi[1], D. Tagnani[2], C. Paglia[1]
[1]Laboratori Nazionali di Frascati INFN, Italy; [2]Roma 3 INFN, Italy

NP2.S-83 Active Voltage Divider for Improved Estimation of Interacting Radiation Energy with Photomultiplier Tubes Coupled to High Light Yield Scintillators
S. Riboldi[1,2], F. Camera[1,2], N. Blasi[2], S. Brambilla[2], C. Boiano[2], F. C. L. Crespi[2], A. Giaz[1,2], B. Million[2], R. Nicolini[1,2], L. Pellegri[1,2], O. Weiland[2]
[1]Universita' degli Studi di Milano, Italy; [2]INFN, Italy

NP2.S-85 An Upgraded Front-End Switching Power Supply Design for the ATLAS TileCAL Detector of the LHC
G. Drake, *Argonne National Laboratory, USA*
On behalf of the ATLAS Tile Calorimeter group

NP2.S-87 Programmable Power Supply System for SiPM Bias
A. Gil, J. Rodriguez, V. Alvarez
Instituto de Fsica Corpuscular (CSIC-Universidad de Valencia), Spain

NP2.S-89 A Very Low Noise Ac/Dc Power Supply System for Large Arrays of Cryogenic Detectors
A. Claudio, B. Alessandro, G. Andrea, C. Gotti, M. Maino, A. Passerini, G. Pessina
INFN Istituto Nazionale di Fisica Nucleare di Milano Bicocca, Italy

NP2.S-91 Signal Processing Based on Direct Charge Conversion
K. D. Ianakiev, M. Iliev, M. C. Browne, R. B. Williams, R. F. Parker, H. Nguyen
Los Alamos National Lab, USA

NP2.S-93 A FPGA-Based Emulation of the Timing Trigger and Control Receiver for the LHC Experiments
V. Izzo[1], A. Aloisio[1,2], R. Giordano[1,2], M. Della Pietra[1,3], F. Ameli[4], V. Bocci[4]
[1]Istituto Nazionale di Fisica Nucleare, sezione di Napoli, Italy; [2]Universita' degli Studi di Napoli 'Federico II', Italy; [3]Universita' di Napoli 'Parthenope', Italy; [4]Istituto Nazionale di Fisica Nucleare, sezione di Roma 1, Italy

NP2.S-95 A General Purpose Ethernet Based Readout Data Acquisition System
B. Mindur, L. Jachymczyk
AGH University of Science and Technology, Poland

NP2.S-97 Data Acquisition System for the Readout of SiPM Matrix with the VATA64HDR16 Front-End ASIC
V. K. Stankova, C. Lacasta, C. Solaz, J. Barrio, G. Llosa
Inst. de Fisica Corpuscular (IFIC), Spain

NP2.S-99 Hardware Accelerated UDP/IP Module for High Speed Data Acquisition in Nuclear Detector Systems
F. Nagy, G. Hegyesi, I. Valastyan, J. Imrek, J. Molnar
Institute of Nuclear Research of the Hungarian Academy of Sciences, Hungary

NP2.S-101 Optimal Filtering Algorithm Implementation in FPGAs for the TileCal Read-Out Drivers
P. Moreno, *IFIC, Spain*
On behalf of the the ATLAS Tile Calorimeter group

NP2.S-103 Upgrade of the Second Level of the Readout Electronics for the CMS DT Subdetector
A. Navarro Tobar, *CIEMAT, Spain*
On behalf of the CMS DT group

NP2.S-105 TEL62: an Integrated Trigger and Data Acquisition Board
E. Pedreschi[1], B. Angelucci[2], S. Gallorini[3], G. Lamanna[4], M. Sozzi[2], F. Spinella[1], S. Venditti[2]
[1]INFN, Italy; [2]University of Pisa, Italy; [3]Scuola Normale Superiore di Pisa, Italy; [4]CERN, Switzerland

NP2.S-107 A Linux-Based DAQ System with CAMAC Serial Highway System
Y. Nagasaka, *Hiroshima Institute of Technology, Japan*; M. Sato, *Japan Atomic Energy Agency, Ibaraki*

NP2.S-109 Event Processing, Coincidence Determination for Fully Digital Time-Mark PET
G. Gong, *Tsinghua Univ. Beijing, P.R.China*; T. Xue, ,

NP2.S-111 Design and Development of Data Acquisition System in China JinPing Deep Underground Laboratory
Q. Du, J. Li, T. Xue, H. Yu, K. Kang
Tsinghua University, China

NP2.S-113 Automation of the ERNA Line at 3MV Pelletron Tandem Accelerator at CIRCE Laboratory
F. Toglia[1,2], R. de Asmundis[1], A. Di Leva[1], L. Gialanella[2,1], D. Schurmann[3], F. Strieder[3], F. Terrasi[2,1]
[1]Istituto Nazionale di Fisica Nucleare, Italy; [2]Seconda Universita' degli Studi di Napoli, Italy; [3]Ruhr Universitaet of Bochum, Germany

NP2.S-115 A Physics uTCA Solution for the EuXFEL Clock and Control System
E. Motuk, M. Postranecky, M. Warren, M. Wing
University College London, UK

NP2.S-117 An Early Slice Prototype for the Upgraded Readout Electronics of TileCal
S. L. Muschter, *Stockholm University, Sweden*
On behalf of the ATLAS Tile Calorimeter group

NP2.S-119 Characterization and Performance of a DAQ System for the Read-out of Silicon Pixel Detectors
V. Stankova[1], E. Chesi[2], V. Cindro[3], N. Clinthorne[4], E. Cochran[2], A. Gil[1], B. Grosičar[3], K. Honscheid[2], H. Kagan[2], C. Lacasta[1], V. Linhart[1], G. Llosa[1], M. Mikuz[3], C. Solaz[1], A. Studen[3], P. Weilhammer[2], D. Zontar[3]
[1]Inst. de Fisica Corpuscular (IFIC), Spain; [2]Ohio State University, USA; [3]Jozef Stefan Institute, Slovenia; [4]University of Michigan Ann Arbor, USA

NP2.S-121 A Test System for Characterisation of ASIC and CdTe Hybrid Pixel Detectors
A. Mohan[1], R. Veljanovski[1], G. Panjkovic[1], C. Farmer[2], D. Fitrio[1]
[1]Monash University, Australia; [2]CPE Systems, Australia

NP2.S-123 GANDALF - Pulse Shape Analysis with a Multifunctional Electronic Readout Framework
F. Herrmann, M. Buechele, H. Fischer, K. Koenigsmann, C. Schill, S. Schopferer, *University of Freiburg, Germany*

NP2.S-125 Digital Pulse-Shape Analysis for Ge Compton Camera
T. Fukuchi[1], S. Motomura[1], S. Takeda[1], M. Hiromura[1], A. Fukunaka[1], H. Haba[1], Y. Watanabe[1], S. Enomoto[1,2]
[1]RIKEN, Japan; [2]Okayama University, Japan

NP2.S-127 Real Time Pulse Pile-up Recovery for High Throughput Digital Pulse Processing
P. A. B. Scoullar[1], R. J. Evans[2], C. C. Mclean[1]
[1]Southern Innovation, Australia; [2]The University of Melbure, Australia

NP2.S-129 CMD-3 Liquid Xenon Calorimeters Signals Processing for Timing Measurements.
L. Epshteyn, Y. Yudin, *Budker Institute of Nuclear Physics, Russia*

NP2.S-131 A Digital Pulse Processor for High-Rate High-Resolution X and Gamma-Ray Spectroscopy
R. Alberti, T. Frizzi, S. Moser, *XGLAB srl - Spinoff del Politecnico di Milano, Italia*; A. Abba, A. Geraci, F. Caponio, P. Baruzzi, G. Ripamonti, *Politecnico di Milano, Italia*

NP2.S-133 Experimental Implementation of LMS Synthesis of Optimum FIR Filters with Arbitrary Time and Frequency Constraints and Noises
F. Caponio, A. Abba, A. Geraci, G. Ripamonti
Politecnico di Milano University, Italy

NP2.S-135 A High Performance, Versatile Digital Pulse Processing System
P. Grudberg, J. Harris, *XIA LLC, USA*; P. Scoullar, C. Mclean, D. Scoullar, *Southern Innovation, Australia*

NP2.S-137 Adaptive Spectroscopy Digital Filters for Enhanced Rate and Gaussian Peaks Preservation
G. Ripamonti, A. Abba, F. Caponio, A. Geraci
Politecnico di Milano University, Italy

NP2.S-139 Electronic Pulse Processing in Transient Current Technique: Application for Si, CdTe and (CdZn)Te X-Ray and Gamma-Ray Detectors
P. Praus, E. Belas, R. Grill, S. Uxa, J. Franc, P. Hoschl
Charles University in Prague, Czech Republic

NP2.S-141 Digital Adaptive Filtering for Resolution and Live-Time Maximization
A. Abba, A. Geraci, G. Ripamonti
Politecnico di Milano University, Italy

NP2.S-143 Digital anti-Coincidence Counting Method with Emulated Live-Time of the Extending Dead-Time: Ga-67 Standardization
K. B. Lee, J. M. Lee, T. S. Park, S. H. Lee, *KRISS, Korea*

NP2.S-145 Development of Data Acquisition System for Nearby Supernova Bursts at Super-Kamiokande
T. Yokozawa[1], Y. Hayato[1], M. Ikeno[2], M. Nakahata[1], S. Nakayama[1], Y. Obayashi[1], K. Okumura[3], M. Shiozawa[1], T. Tomura[1], T. Uchida[2], S. Yamada[4]
[1]Kamioka Observatory, Japan; [2]KEK, High Energy Accelerator Research Organization, Japan; [3]Institute for Cosmic Ray Research, Japan; [4]Research Center for Neutrino Science, Japan

NP2.S-147 A Multichannel High-Resolution (5 ps RMS between two channels) Time-to-Digital Converter (TDC) Implemented in a Field Programmable Gate Array (FPGA)
E. Bayer[1], M. Traxler[2], P. Zipf[1]
[1]University Kassel, Germany; [2]GSI Helmholtz Centre for Heavy Ion Research, Germany

NP2.S-149 Interfacing Low-Noise Charge-Sensitive Preamplifiers to High-Resolution Flash ADCs
A. Pullia[1,2], *[1]University of Milano, Italia; [2]INFN, Italia*
On behalf of the AGATA Collaboration

NP2.S-151 VHDL Impementation of a SPI Controller for PANDA Digital Signal Processing
M. Greco, M. P. Bussa, L. Ferrero, M. Maggiora, A. Verna
University and INFN- Torino, Italy

NP2.S-153 Design and Test Equipment of Digital Processors for Output Analysis from Radiation Detectors
A. Geraci, A. Abba, F. Caponio, G. Ripamonti
Politecnico di Milano, Italy

NP2.S-155 Electronics and data acquisition for a PET with parallel detector readout
X. Sun[1], K. Lan[1], C. Bircher[1], Z. Deng[2,3], X. Zhu[2,3], Y. Liu[2,3], Y. Shao[1]
[1]UT MD Anderson Cancer Center, USA; [2]Tsinghua University, China; [3]Ministry of Education, China

NP2.S-157 Timing optimization with position information for TransPET
M. Niu[1,2], J. Zhu[1,2], A. Long[1,2], D. Xi[1,2], P. Xiao[1,2], Q. Xie[1,2]
[1]Huazhong University of Science and Technology, China; [2]Wuhan National Laboratory for Optoelectronics, China

NP2.S-159 An investigation of coincidence detection methods for TransPET
A. Long[1,2], P. Xiao[1,2], W. Liu[2,1], Z. Wu[1,2], X. Chen[2,1], Q. Xie[1,2]
[1]Huazhong University of Science and Technology, China; [2]Wuhan National Laboratory for Optoelectronics, China

NP2.S-161 The NA62 Liquid Krypton Electromagnetic Calorimeter Level 0 Trigger
A. Salamon[1], V. Bonaiuto[2], A. Fucci[1], G. Paoluzzi[1], G. Salina[1], E. Santovetti[2], F. Sargeni[2], V. M. Scarfi'[2]
[1]INFN Sezione di Roma Tor Vergata, Italia; [2]Universita' degli Studi di Roma Tor Vergata, Italia

NP2.S-163 Performance Study of GPU in Real-Time Applications for HEP Experiments
S. Amerio[1], D. Bastieri[2], M. Bauce[2], W. Ketchum[3], Y.-K. Kim[4], T. Liu[5], D. Lucchesi[2], G. Urso[6]
[1]INFN Padova, Italy; [2]University of Padova & INFN, Italy; [3]University of Chicago, USA; [4]University of Chicago & Fermilab, USA; [5]FERMILAB, USA; [6]Orma Software, Italy

NP2.S-165 A Measurement of the ATLAS Di-Muon Trigger Efficiency in Proton-Proton Collisions at = 7 TeV.
F. A. Conventi, ,
On behalf of the ATLAS Collaboration

NP2.S-167 A Prototype of High-Level Trigger System for the PANDA EMC Detector Based on an FPGA-Based Compute Node
Q. Wang, Z. A. Liu, H. Xu, D. H. Sun, *Institute of High Energy Physics, Chinese Academy of Sciences, China*; W. Kuehn, S. Lange, M. Liu, *Physics Institute II, Giessen University, Germany*

NP2.S-169 Design of the Trigger Test Board for the Daya Bay Reactor Neutrino Experiment
X. Wang[1,2], H. Gong[1], G. H. Gong[1], T. Xue[1], S. M. Chen[1], B. B. Shao[1]
[1]Tsinghua University, China; [2]National University of Defense Technology, China

NP2.S-171 An All-Digital Coincidence-Selection and Coincidence-Trigger Generation for a Small RPC-PET Camera
F. M. C. Clemencio, *Escola Superior de Tecnologia da Sade do Porto/IPP, Portugal*; C. F. M. Loureiro, J. Landeck, *Universidade de Coimbra, Portugal*

NP2.S-173 A Asynchronous Trigger Using UDP
M. T. Rissi, K. E. Hines, E. Bolle, O. Rhoene
Universitetet i Oslo, Oslo, Norway, Norway

NP2.S-175 Global Trigger Processing and System Design for Jefferson Labs 12GeV Experimental Physics Program
S. Kaneta, C. Cuevas, B. Raydo, W. Gu, E. Jastrzembski
Thomas Jefferson National Accelerator Facility (Jefferson Lab), USA

NP2.S-177 Results on Damage Induced by High-Energy Protons in LYSO:Ce Calorimeter Crystals
F. Nessi-Tedaldi, G. Dissertori, D. Luckey, F. Pauss, R. Wallny, *ETH Zurich, Switzerland*; M. Glaser, *CERN, Swizterland*

NP2.S-179 Effects on Electronics of Neutrons Generated by a High-Energy Linear Accelerator
H. R. Snyder, P. C. Berry, G. E. Dale, W. L. Myers
Los Alamos National Laboratory, USA

NP2.S-181 A Versatile Readout and Control System for Silicon Photomultipliers
G. Balbi[1], M. Boldini[1], V. Cafaro[1], I. D'Antone[1], A. Ferri[2], V. Giordano[1], F. Fabbri[1], I. Lax[1], A. Montanari[1], R. Travaglini[1], G. Torromeo[1], N. Tosi[2]
[1]INFN, Italy; [2]University, Italy

NP2.S-183 Evaluation of Transimpedance Amplifiers for Readout of a PSAPD
A. A. Dooraghi[1], R. W. Silverman[1], D. L. Prout[1], R. Taschereau[1], N. T. Vu[2], A. F. Chatziioannou[1]
[1]UCLA School of Medicine, USA; [2]Sofie Biosciences, USA

NP2.S-185 Delivering Phase Controlled Jitter Attenuated Clock Signals to Data Acquisition System
N. Nganga
Thomas Jefferson National Accelerator Falicity, USA

NP2.S-187 Babar Vs Superb: Possible Strategies for Trigger Implmentations.
P. Branchini, V. Bocci, *INFN, Italy*; A. Aloisio, *Universita' Federico II, Italy*

NP2.S-189 Conditioned Solid-State Photomultiplier Pixels for Use in Harsh Environments
C. J. Stapels[1], E. B. Johnson[1], X. J. Chen[1], E. C. Chapman[1], G. Alberghinni[1], C. Whitney[1], R. Rines[1], F. L. Augustine[2], J. F. Christian[1]
[1]Radiaiton Monitoring Devices, USA; [2]Augustine Engineering, USA

NP3.M Poster Session Large Detection Systems

Tuesday, Oct. 25 11:00-13:00 Meliá, Room A&B

Session Chairs: **Mark Pearce**, Kungl Tekniska Högskolan, KTH, Sweden
Douglas Wright, Lawrence Livermore National Laboratory, United States

NP3.M-2 Development of low-noise radiation hard sensors and thin readout cables for the CBM Silicon Tracking System
S. Chatterji[1], M. Singla[2], A. Lymanets[2], W. F. J. Mueller[1], M. Merkin[3], J. M. Heuser[1]
[1]GSI, Germany; [2]FIAS, University of Frankfurt, Germany; [3]SINP, Moscow State University, Russia

NP3.M-4 ATLAS Silicon Microstrip Tracker Operation and Performance
M. Moreno Llacer, *LBNL, USA,* On behalf of the ATLAS Collaboration

NP3.M-6 The Punch-Through Effect in Silicon Strip Detectors
C. Betancourt, H. Sadrozinski, V. Fadeyev, C. Parker, N. Ptak, J. Wright, Z. Butko, A. Bielecki
University of California Santa Cruz, USA

NP3.M-8 Prototype Development of an AC-Coupled Pad Matrix Sensor
H. J. Hyun[1], J. B. Bae[1], D. H. Kah[2], H. J. Kim[1], H. O. Kim[1], H. Park[1]
[1]Kyungpook National University, South Korea; [2]Electronics and Telecommunications Research Institute, South Korea

NP3.M-10 TimePix Silicon Pixel Telescope for Double Electron Capture Experiment TGV
J. M. Jose, P. Čermak, I. Stekl, J. Čermak, E. Rukhadze, *Institute of Experimental and Applied Physics , CTU in Prague, Czech Republic*; N. I. Rukhadze, V. B. Brudanin, A. A. Klimenko, A. Kovalik, Y. A. Shitov, *Joint Institute for Nuclear Research, Russia*; P. Loaiza, *Laboratoire Souterrain de Modane, France*

NP3.M-12 Dopant Profiles of Planar Pixel Sensors for the Upgrade of the ATLAS Inner Detector
N. Dinu[1], A. Lounis[1], M. Benoit[1], G. Calderini[2], J. Idarraga[1], F. Jomard[3], G. Marchiori[2]
[1]LAL/IN2P3/CNRS, France; [2]LPNHE/IN2P3/CNRS, France; [3]GEMaC/IN2P3/CNRS, France

NP3.M-14 Performance of the CMS Pixel Detector for the Phase I Upgrade at HL-LHC
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

NP3.M-16 Hybrid Pixel Detectors in the Search for Rare Decays: Low Background Studies with a Timepix Detector
J. Durst[1], T. Michel[1], M. Schwenke[2], K. Zuber[2], G. Anton[1]
[1]Erlangen Centre for Astroparticle Physics (ECAP), Germany; [2]Institut fuer Kern- und Teilchenphysik, Technische Universitaet Dresden, Germany

NP3.M-18 Track based alignmnet of the ATLAS Inner Detector tracking system
S. Marti-Garcia, *Instituto de Fisica Corpuscular (IFIC), Spain*
On behalf of the ATLAS Collaboration

NP3.M-20 Specification and Design of a Radial Vane Silicon Tracker for a New Measurement of the Muon Anomalous Magnetic Moment g-2 and Electric Dipole Moment at J-PARC
K. Ueno[1], H. Iinuma[2], M. Iwasaki[1], T. Kakurai[2], T. Kohriki[2], T. Mibe[2], O. Sasaki[2], N. Saito[2]
[1]RIKEN, Japan; [2]KEK, Japan

NP3.M-22 Performance of the CMS Silicon Tracker at LHC
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

NP3.M-24 Evaluation of VTT's Edgeless Detectors for Construction of Large Area Coverage
X. Wu[1], J. Kalliopuska[1], M. Bosma[2], J. Jakůbek[3], S. Eranen[1], T. Virolainen[1]
[1]VTT, Finland; [2]NIKHEF, Netherlands; [3]IEAP-CTU, Czech Republic

NP3.M-26 Electrode Response of 3D-Architecture Silicon Sensors
J. Hasi[1], E. Brown[2], C. J. Kenney[1], S. I. Parker[3], A. Thompson[4], E. Westbrook[4], C. Da' Via[5], S. Watts[5], A. Kok[6], T. T-E. Hasen[6], J. Morse[7]
[1]SLAC, USA; [2]Reed College, USA; [3]University of Hawaii, USA; [4]Molecular Biology Consortium, USA; [5]University of Manchester, UK; [6]SINTEF, Norway; [7]European Synchrotron Research Facility, France

NP3.M-28 New 3D Stripixel Detectors
D. Bassignana, C. Fleta, M. Lozano, G. Pellegrini, D. Quirion, *IMB-CNM (CSIC), Spain*; Z. Li, *BNL, USA*

NP3.M-30 Studies of the Effects of Oxygen and CO2 Contamination of the Neon Gas Radiator on the Performance of the NA62 RICH Detector
E. M. Gersabeck, *INFN, Perugia, Italy*
On behalf of the NA62 RICH WG

NP3.M-32 Characterization Studies of Silica Aerogel for Cherenkov Radiator
M. Tabata[1,2], Y. Hatakeyama[2], I. Adachi[3], H. Kawai[2], M. Kubo[2], T. Sato[2]
[1]Japan Aerospace Exploration Agency (JAXA), Japan; [2]Chiba University, Japan; [3]High Energy Accelerator Research Organization (KEK), Japan

NP3.M-34 Development of the New Silica Aerogel Cherenkov Counter Using WLSF and MPPC
M. Kubo[1], H. Kawai[1], Y. Kishi[1], K. Mase[1], T. Nakano[2], H. Nakayama[1], M. Ono[1], T. Sato[1], M. Tabata[1,3], M. Yosoi[2]
[1]Graduate School of Science, Chiba University, Japan; [2]RCNP, Osaka University, Japan; [3]Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA), Japan

NP3.M-36 A Focussing Disc DIRC for PANDA
E. N. Cowie, *University of Glasgow, United Kingdom*
On behalf of the PANDA Cherenkov Group

NP3.M-38 Detection of Internally Reflected Cherenkov Photons in the Barrel DIRC of the PANDA Detector
C. Schwarz, *GSI Helmholtzzentrum, Germany*
On behalf of the PANDA Cherenkov Group

NP3.M-40 First Results from Online Radiation Dose Monitoring System in ATLAS Experiment
I. Mandić[1], V. Cindro[1], M. Deliyergiyev[1], A. Goriek[1], G. Kramberger[1], M. Miku[1,2], J. Harter[3], S. Franz[4], I. Dawson[5], L. Nicolas[5]
[1]Joef Stefan Institute, Slovenia; [2]University of Ljubljana, Slovenia; [3]Physikalisches Institut Universitaet Freiburg, Germany; [4]CERN, Switzerland; [5]University of Shefild, UK

NP3.M-42 Alignment of CMS Structures Using Silicon Photo-Detectors
G. Gomez, *Instituto de Fisica de Cantabria, Spain*
On behalf of the CMS Collaboration

NP3.M-44 Prompt Reconstruction of ATLAS Data in 2010 and 2011
M. Limper, *University of Iowa, USA*
On behalf of the ATLAS Collaboration

NP3.M-46 Front-End Control and Monitoring System for the Resistive Plate Chambers at the CMS Experiment
F. Thyssen, *Ghent University, Belgium*
On behalf of the CMS RPC Collaboration

NP3.M-48 DEAP, Dark Matter Experiment with Liquid Argon Pulse Shape Discrimination
F. Retiere, *TRIUMF, Canada*
On behalf of the DEAP

NP3.M-50 First Radiation Background Studies for the TOTEM Roman Pot and T2 Detectors
F. Ravotti, *CERN, Switzerland*
On behalf of the TOTEM Collaboration

NP3.M-52 The Meta-Crystals Calorimeter Concept. Overview, R&D Studies and Challenges.
G. Mavromanolakis, E. Auffray, P. Lecoq, K. Pauwels, *European Organization for Nuclear Research, CERN, Switzerland*; R. Chipaux, *CEA, France*

NP3.M-54 Construction of a Large Scale Prototype of a SiW Electromagnetic Calorimeter for a Future Lepton Collider - EUDET Module
R. Poeschl, *CNRS/IN2P3, France,* On behalf of the CALICE Collaboration

NP3.M-56 Calibration of the CMS Electromagnetic Calorimeter with √s = 7 TeV LHC Collisions Data
L. Di Matteo, *University & INFN of Milano Bicocca, Italy*
On behalf of the CMS Collaboration

NP3.M-58 Performance of the Prototype of the PANDA-EMC
D. A. Bremer, *II. Physikalisches Institut, University Giessen, Germany*
On behalf of the PANDA Collaboration

NP3.M-60 Experimental characterization of novel microfluidic scintillation detectors
A. Mapelli[1], B. Gorini[1], M. Haguenauer[2], S. Jiguet[3], G. Lehmann Miotto[1], P. Renaud[4], N. Vico Trivino[4]
[1]CERN, Switzerland; [2]Ecole Polytechnique, France; [3]Gersteltec Sarl, Switzerland; [4]EPFL, Switzerland

NP3.M-62 Upgrade of the CMD-3 BGO Endcap Calorimeter
D. N. Grigoriev, R. R. Akhmetshin, V. F. Kazanin, Y. V. Yudin
Budker Institute of Nuclear Physics, Russia

NP3.M-64 Response of AGATA Segmented HPGe Detectors to Gamma-Rays up to 15.1 MeV
F. C. L. Crespi[1], R. Avigo[1], F. Camera[1], G. Benzoni[2], N. Blasi[2], S. Bottoni[1], A. Bracco[1], S. Brambilla[2], P. Casati[1], F. Coniglio[1], A. Corsi[1], A. Giaz[1], S. Leoni[1], B. Million[2], R. Nicolini[1], L. Pellegri[1], V. Vandone[1], O. Wieland[2], S. Akkoyum[3], A. Atac[3], D. Bazzacco[4], M. Bellato[4], D. Bortolato[4], E. Calore[5], M. Ciemala[6], E. Farnea[4], A. Gadea[7], A. Gottardo[8], M. Kmiecik[6], A. Maj[6], D. Mengoni[8], C. Michelagnoli[8], D. Montanari[8], D. R. Napoli[5], J. Nyberg[9], F. Recchia[5], E. Sahin[5], P.-A. Soderstrom[9], C. Ur[5], J. J. Valiente Dobon[5]
[1]Universit di Milano / INFN, Italy; [2]INFN Milano, ITALY; [3]Ankara University, Turkey; [4]INFN Padova, Italy; [5]INFN, Laboratori Nazionali di Legnaro, Italy; [6]The Niewodniczanski Institute of Nuclear Physics, PAN, Poland; [7]IFIC, Spain; [8]Universit di Padova / INFN, Italy; [9]Uppsala University, Sweden

NP3.M-66 The Pixel Luminosity Telescope: a Dedicated Luminosity Monitor for CMS
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

NP3.M-68 Experimental Studies of Scintillation and Cherenkov Light Yield of Scintillating Crystals with SiPM Readout
F. Ptochos, I. Vasilas, *University of Cyprus, Cyprus*; A. Para, P. Rubinov, H. Wenzel, *Fermilab, USA*; B. Bilki, *University of Iowa, USA*

NP3.M-70 Monte Carlo Simulations and Experimental Study of a Symmetric AGATA Detector
K. K. Mitev[1], A. Korichi[2], T. M. H. Ha[3], A. P. Minkova[1]
[1]Sofia University, Bulgaria; [2]CSNSM, France; [3],

NP3.M-72 The Large-Angle Photon Veto System for the NA62 Experiment at CERN
M. Moulson, *INFN - Laboratori Nazionali di Frascati, Italy*
On behalf of the NA62 Collaboration

NP3.M-74 Development of a Detector with Two Photo-Strip Sensors and a Crystal Scintillator Between Sensors
J. B. Bae[1], H. J. Hyun[1], D. H. Kah[2], H. J. Kim[1], H. O. Kim[1], H. Park[1]
[1]Kyungpook National University, South Korea; [2]Electronics and Telecommunications Research Institute, South Korea

NP3.M-76 Towards a Full Scale Prototype of the CALICE Tile Hadron Calorimeter
M. Reinecke, *DESY, Germany,* On behalf of the CALICE Collaboration

NP3.M-78 Very High Resolution Hadron Calorimetry
A. Para, *Fermilab, USA*

NP3.M-80 Calibration System with Optical Fibres for Calorimeters at Future Linear Collider Experiments
J. Zalesak, *Institute of Physics of the ASCR, Czech Republic*
On behalf of the CALICE Collaboration

NP3.M-82 Identification of Pile-up Using the Quality Factor of Pulse Shapes in the ATLAS Tile Calorimeter
P. Klimek, *Stockholm University, Sweden*
On behalf of the ATLAS Tile Calorimeter group

NP3.M-84 CALIFA: a High Performance Calorimeter for the R3B Experiment at the New FAIR Facility
D. Cortina-Gil, *Universidad de Santiago de Compostela, Spain*
On behalf of the R3B collaboration

NP3.M-86 Compton Scattering X-Ray Polarimeter at the Focus of Hard X-Ray Optics: Study of Possible Configurations by Monte Carlo Simulations
S. V. Vadawale, *Physical Research Laboratory, India*

NP3.M-88 An Activation Experiment with Laser-Accelerated High-Energy Protons to Optimize the Graded-Z Shield Design for Future X-ray Satellite Missions
S. Neff[1], S. Hauf[1], P. Lang[1], J. Ling[1], M. Roth[1], M. Guenther[1], O. Deppert[1], D. H. H. Hoffmann[1], M. Kuster[1,2], M. G. Pia[3], Z. W. Bell[4]
[1]TU Darmstadt, Germany; [2]European XFEL GmbH, Germany; [3]INFN Sezione de Genova, Italia; [4]Oakridge National Laboratory, USA

NP3.M-90 Design and Development of Trigger-Driven Readout with X-Ray SOI Pixel Sensor
S. G. Ryu, S. Nakashima, T. G. Tsuru, *Kyoto University, Japan*; A. Takeda, Y. Ikemoto, Y. Arai, *High Energy Accelerator Research Org., KEK, Japan*; T. Imamura, T. Ohmoto, A. Iwata, *A-R-Tec Corp., Japan*

NP3.M-92 Development of a Built-in Analog-to-Digital Converter for an X-Ray Astronomy Detector Using the SOI CMOS Technology
S. Nakashima, R. G. Syukyo, T. G. Tsuru, *Kyoto University, Japan*; Y. Arai, A. Takeda, *Institute of Particle and Nuclear Studies, High Energy Accelerator Research Org, KEK, Japan*; H. Nakajima, H. Tsunemi, *Osaka University, Japan*; J. P. Doty, *Noqsi Aerospace Ltd., USA*; T. Imamura, T. Ohmoto, T. Maeda, A. Iwata, *A-R-Tec Corp., Japan*

NP3.M-94 Application of an EMCCD Camera for Calibration of Hard X-Ray Telescopes
J. K. Vogel, M. J. Pivovaroff, *Lawrence Livermore National Laboratory (LLNL), USA*; V. V. Nagarkar, H. Kudrolli, *Radiation Monitoring Devices, USA*; K. Kruse Madsen, *Caltech, USA*; J. E. Koglin, *Columbia University, USA*; F. E. Christensen, N. F. Brejnholt, *Danish Technical University Space Center, Denmark*

NP3.M-96 APXS and MIMOS IIA: Planetary and Terrestrial Applications.
G. Klingelhoefer[1], J. Girones Lopez[1], J. Brueckner[2], L. Duston[3], D. Schmanke[1], M. Blumers[1], B. Bernhard[4], P. Lechner[5,6]
[1]Johannes Gutenberg Universitaet Mainz, Institut fr Anorganische und Analytische Chemie, Germany; [2]Max-Planck-Institut fuer Chemie, Germany; [3]Centre dEtude Spatiale des Rayonnements, France; [4]Von Hoerner&Sulger GmbH, Germany; [5]PNSensor, Germany; [6]MPI Halbleiterlabor, Germany

NP3.M-98 Balloon-Flight Test of a Lanthanum Bromide Gamma-Ray Detector with Silicon Photo-Multiplier Readout
P. F. Bloser, J. S. Legere, L. F. Jablonski, C. M. Bancroft, M. L. McConnell, J. M. Ryan
University of New Hampshire, USA

NP3.M-100 Simulation Study for the Higher Sensitivity of an Electron Tracking Compton Camera at over 1 MeV
A. Takada[1], T. Tanimori[1], H. Kubo[1], K. Miuchi[1], S. Kabuki[2], J. D. Parker[1], Y. Kishimoto[3], T. Mizumoto[1], K. Ueno[4], S. Kurosawa[5], S. Iwaki[1], T. Sawano[1], K. Taniue[1], K. Nakamura[1], N. Higashi[1], Y. Matsuoka[1], S. Komura[1], Y. Sato[1]
[1]Kyoto University, Japan; [2]Toukai University, Japan; [3]High Energy Accelerator Research Organization, Japan; [4]RIKEN, Japan; [5]Touhoku University, Japan

NP3.M-102 Micromachined Tantalum Collimators for Space Applications
B. F. Phlips, M. Christophersen, *U.S. Naval Research Laboratory, USA*; L. A. Jackson, *Praxis, Inc., USA*

NP3.M-104 The HERMES Readout ASIC for a Low Energy Electron Spectrometer
B. Krieger, D. Gnani, *Lawrence Berkeley National Lab, USA*; Y. Saito, *Japan Aerospace Exploration Agency, Japan*

NP3.M-106 Position Reconstruction in ZEPLIN III Dark Matter Detector
V. Solovov, *LIP - Coimbra, Portugal*
On behalf of the ZEPLIN III collaboration

NP3.M-108 Development of the Probing in-Situ with Neutron and Gamma Rays (PING) Instrument for Planetary Science Applications
A. M. Parsons[1], J. G. Bodnarik[1,2], D. Burger[2], L. Evans[1,3], S. Floyd[1], L. Lim[1], T. McClanahan[1], M. Namkung[1], S. Nowicki[1,4], J. Schweitzer[5], R. Starr[1,6], J. Trombka[1,7]
[1]NASA/ Goddard Space Flight Center, USA; [2]Vanderbilt University, USA; [3]Computer Sciences Corporation, USA; [4]University of Michigan, USA; [5]University of Connecticut, USA; [6]Catholic University of America, USA; [7]University of Maryland, USA

NP3.M-110 Background Models for the IXO Wide Field Imager and the ATHENA Wide Field Imager
S. Hauf[1], M. Kuster[2], D. H. H. Hoffmann[1], S. Neff[1], A. Stefanescu[3,4], L. Strueder[3,4], M. G. Pia[5]
[1]TU Darmstadt, Germany; [2]European XFEL GmbH, Germany; [3]Max Planck Institut, Germany; [4]Max Planck Institut fuer extraterresitrische Physik, Germany; [5]INFN Sezione de Genova, Italy

NP3.M-112 ADC System with on-Board Demodulation for QUIET-II Experiment
K. Ishidoshiro, M. Nagai, T. Higuchi, M. Ikeno, M. Hasegawa, M. Hazumi, O. Tajima, T. Uchida, *KEK, Japan*

NP3.M-114 Front-End Electronics and Data Acquisition System for the MIDAS Experiment
M. Bogdan, M. Bohacova, P. Facal, J.-F. Genat, M. Monasor, P. Privitera, L. Reyes, C. Williams
The University of Chicago, USA

NP3.M-116 Data Correction from Reciprocal Contamination Between Electrons and Protons in the Radiation Belts: Akebono Observation and Geant4 Simulation
K. T. Asai[1], T. Takashima[2], T. Koi[3], T. Nagai[1]
[1]Tokyo Institute of Technology, Japan; [2]JAXA, Japan; [3]SLAC, Japan

NP3.M-118 Measurements of I-131, Cs-134 and Cs-137 in Environmental Samples in Bulgaria after the Fukushima Accident.
K. K. Mitev[1], R. H. Tsibranski[2], V. G. Avramov[2], B. K. Stoenelova[2], I. S. Dimitrova[1], T. A. Boshkova[1], S. B. Georgiev[1]
[1]Sofia University, Bulgaria; [2]"Kozloduy" NPP, Bulgaria

NP3.M-120 Non-Destructive Measurement of High-Enriched Fuel Burnup
J. Navarro, *Idaho National Laboratory/USRA, USA*; R. Aryaeinejad, D. W. Nigg, *Idaho National Laboratory, USA*

NP3.M-122 Measurements of Charge Transfer Inefficiencies in Highly Irradiated CCDs with High-Speed Column Parallel Readout
A. Sopczak, *Bochum University, Germany*; S. Aoulmit, K. Bekhouche, L. Dehimi, D. Djendaoui, N. Sengouga, *Biskra University, Algeria*

NP4.M Poster Session Simulation & Computing

Tuesday, Oct. 25 16:30-18:30 Meliá, Room A&B

Session Chairs: **Pedro Rato Mendes**, CIEMAT, Spain
Dimitry Ginzburg, Radiation Detection Department, Rotem Industries Ltd, Israel

NP4.M-126 Multivariate Optimization of a 3He-Based Radiation Portal Monitor
M. R. Williamson, *Y-12 National Security Complex, USA*; L. F. Miller, *University of Tennessee, USA*

NP4.M-128 PGNAA in Large Sample Using 241Am-Be Neutron Source: Simulation with Monte Carlo Code
R. Khelifi, *Universit Saad Dahlab Blida, Algeria*; P. Bode, *TU Delft, The Netherlands*

NP4.M-130 Realta - a Real-Time Analyzer for Gamma-Ray Detectors Based on MEGAlib
A. Zoglauer[1], M. Galloway[1], M. Amman[2], S. E. Boggs[1]
[1]University of California at Berkeley, USA; [2]Lawrence Berkeley National Laboratory, USA

NP4.M-132 Simulation Studies of PC-HPGe Detector
Y. Li[1], Z. Lv[1], J. Li[1], Q. Yue[1], H. Wong[2], Y. Li[1]
[1]Tsinghua University, China; [2]Academia Sinica, Taiwan

NP4.M-134 A Complete and Multi Purpose Software Tool for Modeling Energy Dispersive X-Ray Diffraction
B. Ghammraoui, J. Tabary, C. Paulus, V. Moulin, L. Verger, *CEA-Leti, MINATEC Campus, FRANCE*; P. Duvauchelle, *CNDRI-Insa Lyon, FRANCE*

NP4.M-136 Study of the Merit of Energy Resolution for Detection at Standoff Using Large Area Arrays
J. P. Hayward, *University of Tennessee Department of Nuclear Engineering, United States*; M. A. Blackston, K. P. Ziock, L. Fabris, *Oak Ridge National Laboratory, United States*

NP4.M-138 Preliminary Study of Rotary Motion Blur in a Novel ICT Imaging System
M. Chang[1,2], Y. Xiao[1,2], Z. Chen[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

NP4.M-140 Improvements in the Monte Carlo Code for Simulating 4-Pi-Beta-Gamma Coincidence System
M. S. Dias, M. N. Takeda, M. O. Tongu, M. F. Koskinas
IPEN-CNEN/SP, Brazil

NP4.M-142 MCNP-PoliMi Simulation of a Small Form Factor Neutron Scatter Camera Backpack
M. D. Gerling, S. Kiff, N. Mascarenhas
Sandia National Laboratories, USA

NP4.M-144 Mask Plane Simulations for a Compact, Dual Neutron/ Gamma Imager
B. Ayaz-Maierhafer, J. P. Hayward, *University of Tennessee, USA*; M. A. Blackston, K. P. Ziock, L. Fabris, *Oak Ridge National Laboratory, USA*

NP4.M-146 Active Interrogation Source Based on Deuteron Reactions
M. A. Norsworthy[1], S. D. Clarke[1], S. A. Pozzi[1], T. A. Antaya[2]
[1]University of Michigan, USA; [2]Massachusetts Institute of Technology, USA

NP4.M-148 Angular Resolution Study for a Gamma-Ray Coded Aperture Imager
B. Ayaz-Maierhafer, J. P. Hayward, *University of Tennessee, USA*; M. A. Blackston, K. P. Ziock, L. Fabris, *Oak Ridge National Laboratory, USA*

NP4.M-150 ANTS: a Simulation Package for Gas Scintillation Anger Camera in Thermal Neutron Imaging
A. Morozov, *LIP-Coimbra, Portugal*
On behalf of the NMI3 FP7 Project 226507 collaboration

NP4.M-152 Comprehensive New Approach to Gamma Spectrum Analysis Algorithms
A. Osovizky, V. Bronfenmakher, V. Pushkarsky, D. Ginzburg, B. Sarussi, *Rotem Industries Ltd, Israel*; S. Mark, D. Khankin, G. Shilon, *Shamoon College of Engineering, Israel*; U. Wengrowicz, Y. Ifargan, S. Levinson, T. Mazor, Y. Cohen, *Nuclear Research Center - Negev, Israel*

NP4.M-154 A Numerical Study of Digital Tomosynthesis for a Fuel Cell Imaging
J. Kim[1], H. Youn[2], S. W. Lee[1], H. K. Kim[2]
[1]Korea Atomic Energy Research Institute, Republic of Korea; [2]Busan National University, Republic of Korea

NP4.M-156 Image Evaluation for CZT Compton PET Using Backprojection and MLEM Method

C. Yoon, W. Lee, *Korea Univ., Korea*

NP4.M-158 Simulation Studies of Optical Photons in Monolithic Block Scintillators
M. Streun[1], R. Al-Kaddoum[2], C. Parl[1], K. Ziemons[2], S. van Waasen[1], U. Pietrzyk[1]
[1]Research Center Juelich, Germany; [2]Aachen University of Applied Sciences, Germany

NP4.M-160 MCNP Simulation of the Photoneutron Dose Contribution in Linac Radiotherapy Treatments with Multileaf Collimation Systems
B. Juste, *B. Juste, spain*; R. Mir, *R. Mir, spain*; G. Verd, *G. Verd, spain*; S. Dez, *S. Dez, spain*; J. M. Campayo, *J.M. Campayo, spain*

NP4.M-162 MULECS: the Monash University Low Energy Compton Scattering Package
J. M. C. Brown[1], M. R. Dimmock[1], J. E. Gillam[2], D. M. Paganin[1]
[1]Monash University, Australia; [2]Universitat de Valencia, Spain

NP4.M-164 Photon Dose Kernels Dataset for Nuclear Medicine Dosimetry, Using GATE Monte Carlo Toolkit
P. Papadimitroulas[1,2], G. Loudos[2], P. Georgoulias[3], G. Kagkadis[1]
[1]Medical School, University of Patras, Greece; [2]Technological Educational Institute of Athens, Greece; [3]Medical School, University of Thessaly, Greece

NP4.M-166 Validation of MCNP5 Linac Multileaf Collimator Calculations Coupled with Planning System PLUNC
V. Abella, R. Mir, B. Juste, G. Verd
Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM), spain

NP4.M-168 Average Statistical Distribution of Electronic Excitation under Thermalization of High-Energy Electron in Semiconductor Detectors
A. Sofiienko, V. Degoda, *Ukratominstruments Corporation, Ukraine*

NP4.M-170 Simulations of Charge Multiplication Effect in 3D-DDTC Silicon Strip Detectors
J. P. Balbuena[1], G. Pellegrini[1], R. Bates[2], M. Breindl[3], P. Martinez-Fernandez[1], C. Fleta[1], S. Hidalgo[1], M. Koehler[3], M. Lozano[1], U. Parzefall[3], M. Ullan[1]
[1]Instituto de Microelectronica de Barcelona IMB-CNM (CSIC), Spain; [2]University of Glasgow, United Kingdom; [3]Universitt Freiburg, Germany

NP4.M-172 Advantages of Neural Networks for Deriving an Electrons Spectrum from Depth-Charge Curve
O. U. Baiev, V. T. Lazurik,
V.N. Karazin Kharkiv National University, Ukraine

NP4.M-174 Simulation of Low- and Medium-Energy Neutrons: Comparison of MCNPX to Geant4
A. V. Klimenko, L. C. Stonehill, J. R. Terry, D. W. Lee
Los Alamos National Laboratory, USA

NP4.M-176 On the Criticality Conditions of Oklo Natural Reactors in Gabon: Realistic Model of the Reaction Zone 9.
S. Bentridi, *Laboratoire de l'Energie et des Systmes Intelligents, Algeria*; B. Gall, *Institut Pluridisciplinaire Hubert Curien, France*; F. Gauthier-lafaye, *Laboratoire d'Hydrologie et de Gochimie de Strasbourg, France*; A. Seghour, *Centre de Recherches Nuclaires d'Alger, Algeria*

NP4.M-178 Study of the D-T Generator Associated Alpha-Particle Detector with Geant4
X. Zhang[1], J. P. Hayward[1,2], J. W. Cates[1], P. A. Hausladen[2,1], M. A. Laubach[1], J. E. Sparger[1], S. B. Donnald[1]
[1]Tennessee University, USA; [2]Oak Ridge National Lab, USA

NP4.M-180 Nucleonica: Web-Based Software Tools for Simulation and Analysis
J. Magill, R. Dreher, *Nucleonica GmbH, Germany*; Z. Soti, *Institute for Transuranium Elements, Germany*; G. P. Lasche, *Sandia National Laboratories, USA*

NP4.M-182 New Edition of the Karlsruhe Nuclide Chart
Z. Soti, *Joint Research Centrum of European Commission, Germany*; J. Magill, R. Dreher, *Nucleonica GmbH, Germany*

NP4.M-184 Comparison Between Geant4 and EGSnrc of Dosimetric Quantities and Spectra Simulation for Electrons Beams
V. F. Cassola, *Universidade Federal de Pernambuco, Brazil*; G. Hoff, *Pontifcia Universidade Catlica do Rio Grande do Sul, Brazil*

NP4.M-186 Computation of Alignment and Calibration Constants in CMS
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

NP4.M-188 Experience Using Databases in CMS in the First Year of Data-Taking and Prospect for the Future
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

NP4.M-190 Rejection of Multi-Jet Background in an Hadron Collider Environment Through a SVM Classifier
F. Sforza[1], V. Lippi[2], G. Chiarelli[1], S. Leone[1]
[1]INFN Sez. di Pisa, Italy; [2]Scuola Superiore S.Anna, Italy

J1 MIC-NSS Joint Session

Tuesday, Oct. 25 14:30-16:00 VCC, Auditorium 1

Session Chairs: **Patrick J. Le Du**, IPNL,IN2P3, France
Tom K. Lewellen, University of Washington, United States

J1-1 (14:30) Performance and Applications of Transparent Ceramic Scintillators
N. J. Cherepy, S. A. Payne, Z. M. Seeley, J. D. Kuntz, O. B. Drury, B. W. Sturm, T. A. Hurst, P. A. Thelin, S. E. Fisher, *Lawrence Livermore National Laboratory, USA*; K. S. Shah, R. Farrell, *Radiation Monitoring Devices, USA*

J1-2 (14:45) Time-of-Flight PET with Cherenkov Photons
R. Pestotnik[1], R. Dolenec[1], S. Korpar[2,1], P. Krizan[3,1], A. Stanovnik[3,1]
[1]Jozef Stefan Institute, Slovenia; [2]University of Maribor, Slovenia; [3]University of Ljubljana, Slovenia

J1-3 (15:00) Investigation of a Sub-Millimeter Resolution PET Detector with Depth of Interaction Encoding Using Digital SiPM Single Sided Readout
P. M. Dueppenbecker[1], S. Lodomez[1], P. K. Marsden[2], V. Schulz[1,3]
[1]Philips Research Europe, DE; [2]King's College London, UK; [3]RWTH Aachen University, DE

J1-4 (15:15) First Measurement of Scintillation Photon Arrival Statistics Using a High-Granularity Solid-State Photosensor Enabling Time-Stamping of up to 20,480 Single Photons
J. R. Meijlink[1], C. Veerappan[1], S. Seifert[1], D. Stoppa[2], R. Henderson[3], E. Charbon[1], D. R. Schaart[1]
[1]Delft University of Technology, The Netherlands; [2]Fondazione Bruno Kessler - IRST, Italy; [3]University of Edinburgh, United Kingdom

J1-5 (15:30) All-Optical Encoding of PET Detector Signals
A. M. Grant, P. D. Olcott, C. S. Levin
Stanford University, USA

J1-6 (15:45) Novel Analog Memory Based PET Detector Approach with Real-Time Digital Processing
D. Stricker-Shaver[1], A. Kolb[1], S. Ritt[2], E. Breeding[3], J. Camp[3], C. Wilson[3], J. Young[3], N. Zhang[3], M. Schmand[3], B. Pichler[1]
[1]University of Tuebingen, Germany; [2]Paul Scherrer Institute, Switzerland; [3]Siemens Molecular Imaging, USA

J2 MIC-RTSD Joint Session

Tuesday, Oct. 25 16:30-18:30 VCC, Auditorium 1

Session Chairs: **Katia Parodi**, Heidelberger Ionen Therapie, Heidelberg, Germany
Kenichi Watanabe, Nagoya University, Division of Quantum Science and Energy Engineering, Japan

J2-1 (16:30) The Use of Prompt Gamma-Rays for in-vivo Dosimetry at Therapeutic Proton and Ion Beams
F. Fiedler[1], U. Dersch[2], C. Golnik[2], T. Kormoll[2], A. Mller[2], H. Rohling[2], S. Schne[1], W. Enghardt[1,2]
[1]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [2]OncoRay, TU Dresden, Germany

J2-2 (16:45) Detector Development for Proton Computed Tomography
V. Rykalin[1], G. Coutrakon[1], V. Zutshi[1], A. Dyshkant[1], F. Hurley[2], R. Schulte[2], V. Bashkirov[2], H. Sadrozinski[3], S. Penfold[4], P. Rubinov[5], K. Schubert[6], B. Erdelyi[1]

[1]Norther Illinois University, USA; [2]Loma Linda University Medical Center, USA; [3]UC Santa Cruz, USA; [4]University of Wollongong, Australia; [5]FERMILAB, USA; [6]California State University, San Bernardino, USA

J2-3 (17:00) Achieving Sub-Mm PET Resolution Using DOI Modules Based on Double-Sided SiPM Readout

A. V. Stolin[1], S. Majewski[1], E. Delfino[1], R. R. Raylman[1], J. Proffitt[2], P. Martone[1]
[1]West Virginia University, USA; [2]Adaptive I/O Technologies, USA

J2-4 (17:15) Small Animal Optical Multispectral Cerenkov Tomography

A. E. Spinelli[1], C. Kuo[2], B. W. Rice[2], R. Calandrino[1], P. Marzola[3], A. Sbarbati[3], F. Boschi[3]
[1]San Raffaele Scientific Institute, Italy; [2]Caliper Life Sciences, USA; [3]University of Verona, Italy

J2-5 (17:30) SiPM Based Preclinical PET/MR Insert for a Human 3T MR: First Imaging Experiments

V. Schulz[1,2], B. Weissler[1], T. Solf[1], C. W. Lerche[1], P. Fischer[3], M. Ritzert[3], V. Mlotok[3], C. Piemonte[4], B. Goldschmidt[2], S. Vandenberghe[5], A. Salomon[6], P. Gebhardt[6], T. Schaeffter[6], P. K. Marsden[6]
[1]Philips Research Europe - Aachen, Germany; [2]RWTH-University, Germany; [3]University of Heidelberg, Germany; [4]Foundation Bruno Kessler Trento, Italy; [5]University of Ghent, Belgium; [6]King's College London, United Kingdom

J2-6 (17:45) Pre-Clinical Tests of a Compact CZT-Based Gamma Camera for Prostate Cancer Imaging

Y. Cui[1], T. Lall[2], G. Mahler[1], P. Vaska[1], G. De Geronimo[1], P. O'Connor[1], G. Meinken[1], G. Camarda[1], A. Hossain[1], K. H. Kim[1], G. Yang[1], R. Gul[1], J. Yu[3], B. Tsui[3], M. Pomper[3], S. Cho[3], Y. Seo[4], J. Joyal[5], J. Barrett[5], J. Babich[5], N. LaFrance[5], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]Hybridyne Imaging Technologies, INc., Canada; [3]Johns Hopkins Medical Institutions, USA; [4]Univeristy of California at San Francisco, USA; [5]Molecular Insight Pharmaceuticals, USA

J2-7 (18:00) Feasibility Study of Sub-500um Resolution PET Imaging Using Pixellated CdZnTe Detectors

S. A. Komarov[1], Y. Yin[1,2], H. Wu[1], J. Wen[1], H. Krawczynski[1], L.-J. Meng[3], Y.-C. Tai[1]
[1]Washington University in St. Louis, USA; [2]Lanzhou University, PRC; [3]University of Illinois at Urbana-Champaign, USA

J2-8 (18:15) First Results on Patients and Phantoms of a Fully Integrated Clinical Whole-Body PET/MRI

H. Schmidt[1], N. Schwenzer[1], I. Bezrukov[1,2], A. Kolb[1], F. Mantlik[1,2], J. Kupferschlaeger[1], C. Lois[3], A. Sauter[1], C. Brendle[1], C. Pfannenberg[1], B. J. Pichler[1]
[1]University of Tuebingen, Germany; [2]Max Planck Institute for Intelligent Systems, Germany; [3]University of Santiago de Compostela, Spain

RTSD.S Poster Session I

Tuesday, Oct. 25 14:30-16:00 Sorolla, Gran Recati

Session Chair: **Krishna C. Mandal**, University of South Carolina, United States

RTSD.S-231 Development of Temperature Stable X-Ray Detectors and Gamma-Radiation Detectors Based on Wide-Gap Semiconductor ZnSe
A. Sofiienko, V. Degoda
Ukratominstruments Corporation, Ukraine

RTSD.S-232 Characterization of Thallium Bromide Chloride Crystals for Radiation Detectors
T. Onodera[1], K. Hitomi[2], C. Onodera[3], T. Shoji[1], K. Mochizuki[4]
[1]Tohoku Institute of technology, Japan; [2]Tohoku University, Japan; [3]Towada Technical Senior High School, Japan; [4]Ishinomaki Senshu University, Japan

RTSD.S-233 Development of AlGaAs Avalanche Diodes for Soft X-Ray Photon Counting
J. E. Lees, A. M. Barnett, D. J. Bassford, *University of Leicester, UK*; J. S. Ng, C. H. Tan, N. Babazadeh, R. B. Gomes, P. Vines, *University of Sheffield, UK*; R. D. McKeag, D. Boe, *Centronic Limited, UK*

RTSD.S-234 Operating Monitoring of the Activity in the First Coolant Circuit of the VVER Reactor
A. A. Zakharchenko, D. V. Kutniy, A. V. Rybka, V. E. Kutny
National Science Center Kharkov Institute of Physics and Technology (NSC KIPT), Ukraine

RTSD.S-235 Self-Compensation Limited Conductivity in Semi-Insulating Induim-Doped Cd0.9Zn0.1Te Crystals
L. A. Kosyachenko[1], O. L. Maslyanchuk[1], O. V. Sklyarchuk[1], V. M. Sklyarchuk[1], M. Fiederle[2], H. Lambropoulos[3], E. V. Grushko[1]
[1]Chernivtsi National University, Ukraine; [2]Freiburger Materialforschungszentrum, Albert Ludwigs University, Germany; [3]Technological Educational Institute of Chalkida, Greece

RTSD.S-236 ELECTRICAL PROPERTIES of Cd0.95Mn0.05Te:In SINGLE CRYSTALS
P. Fochuk[1], O. Parfeniuk[1], K. H. Kim[2], R. Grill[3], I. Nakonechnyi[1], A. Bolotnikov[2], C. Giuseppe[2], A. Hossain[2], R. Gul[2], G. Yang[2], O. Kopach[1], O. Panchuk[1], R. James[2]
[1]Chernivtsi National University, Ukraine; [2]Brookhaven National Laboratory, USA; [3]Charles University, Czech Republic

RTSD.S-237 Lithium Containing Chalcopyrites Semiconductors: Synthesis, Properties, and Potential for Radiaiton Detection
A. C. Stowe, *B&W Y-12 National Security Enterprise, USA*
On behalf of the sayed hossein masoumi

RTSD.S-238 Spectroscopy and Imaging Results from 20x20x15 Mm3 Pixelated Cadmium Zinc Telluride Semiconductor Detectors
Y. A. Boucher, J. M. Jaworski, Z. He
University of Michigan, USA

RTSD.S-239 Measurements of Gamma Rays above 3 MeV Using 3D Position-Sensitive 20x20x15 mm3 Cadmium Zinc Telluride Semiconductor Detectors
Y. A. Boucher, F. Zhang, W. Kaye, Z. He, *University of Michigan, USA*

RTSD.S-240 Segregation and Interface Shape Control During EDG Growth of CZT Crystals
J. J. Derby, N. Zhang, A. Yeckel, *University of Minnesota, U.S.A.*

RTSD.S-241 TCAD Simulations of the Charge Transport and Electrical Properties of CdZnTe Detectors
S. J. Bell[1,2], P. Seller[1], M. C. Veale[1], M. D. Wilson[1], P. J. Sellin[2], M. Baker[2], S. Babar[2]
[1]Rutherford Appleton Laboratory, UK; [2]University of Surrey, UK

RTSD.S-242 Influence of Composition Irregularities on Dielectric Properties of CdZnTe Crystals and on Performance of Gamma-Ray Detectors
V. K. Komar, S. V. Sulima, A. A. Poluboyarov, A. S. Gerasimenko, *Institute for Single Crystals, NAS of Ukraine, Ukraine*; O. N. Chugai, S. V. Oleynik, D. P. Zherebiatjev, Y. A. Yatsyna, *Zhukovsky National Aerospace University, Ukraine*

RTSD.S-243 Novel Organic Semiconductors for Fast-Neutron Detection
E. V. van Loef, A. Kargar, L. Cirignano, K. S. Shah
Radiation Monitoring Devices, Inc., United States

RTSD.S-244 Electgrical Properties of Cd(Zn)Te Single Crystals Grown by the HPB Method
P. M. Fochuk[1], I. Nakonechnyi[1], R. Grill[2], O. Kopach[1], Y. Verzhak[1], O. Panchuk[1], I. Terzin[3], V. Komar[3], A. Rybka[4], V. Kutnij[4], A. Bolotnikov[5], R. James[5]
[1]Chernivtsi National University, Ukraine; [2]Charles University, Czech Republic; [3]Institute for Single Crystals of NAS of Ukraine, Ukraine; [4]National Science Centre,, Ukraine; [5]Brookhaven National Laboratory, USA

RTSD.S-245 Interpolation in Pixelated Gamma-Radiation Detectors
D. Meier, M. Gjetanger, C. Gheorghe, T. M. Johansen, G. Maehlum
Gamma Medica - Ideas (Norway) AS, Norway

RTSD.S-246 Improving the Performance of CdZnTe Detectors Using Infrared Stimulation
V. Ivanov, P. Dorogov, A. Loutchanski, *ZRF RITEC SIA, Latvia*; L. Grigorjeva, D. Millers, *Institute of Solid State Physics, Latvia*

RTSD.S-247 Investigation of the Influence of Light Illumination on the Characteristics of CdZnTe Detectors
V. Ivanov, P. Dorogov, A. Loutchanski, L. Aleksejeva, *ZRF RITEC SIA, Latvia*; L. Grigorjeva, D. Millers, *Institute of Solid Sate Physics, Latvia*

RTSD.S-248 Preliminary Results of Characterization of CdZnTe Crystals Grown by DAVIDOV-MARKOV Method
A. A. Davidov, D. V. Kapkin, N. V. Zhavoronkov, *RIMST, Russia*; V. I. Ivanov, *Ritec, Latvia*; A. A. Bulycheva, V. V. Gostilo, *Baltic Scientific Instruments, Latvia*

RTSD.S-249 Analysis of the Causes of Degradation of CdZnTe Detectors and Development of Methods for Its Suppression
V. K. Komar, Y. A. Zagoruiko, V. A. Khristyan, N. O. Kovalenko, A. A. Poluboyarov, A. S. Gerasimenko, *Institute for Single Crystals, Ukraine*

RTSD.S-250 CZT Focal Plane Polarimetric Performances for Laue Lens Photons' Distributions
J. B. de Campos[1], R. M. Curado da Silva[1], C. P. Gloster[1], A. Pisa[2], E. Caroli[3], J. B. Stephen[3], F. Frontera[2]
[1]Laboratrio de Instrumentao e Fsica Experimental de Partculas, Portugal; [2]Universit di Ferrara, Italy; [3]INAF/IASF-Bologna, Italy

RTSD.S-251 Extensive Simulation Studies on the Imaging Resolution of a Position Sensitive Radiation Detector Based on Pixelated Cd(Zn)Te Crystals
K. D. Zachariadou[1], K. Karafasoulis[1], I. Kaissas[1], S. Seferlis[1], C. Lambropoulos[2], D. Loukas[3], K. Potiriadis[1]
[1]Greek Atomic Energy Commission, Greece; [2]Technological Educational Institute of Chalkida, Greece; [3]National Center for Scientific Research Demokritos, Greece

RTSD.S-252 Novel Semiconductors for Thermal Neutron Detection
J. Tower, A. Kargar, H. Hong, L. Cirignano, W. Higgins, H. Kim, K. Shah
Radiation Monitoring Devices, Inc., USA

RTSD.S-253 Chessboard-Pixel-Anode Detector Measurements to Study Electric Field Non-Uniformities of CZT Radiation Detectors
G. S. Camarda[1], A. E. Bolotnikov[1], Y. Cui[1], R. Gul[1], A. Hossain[1], K. Kim[1], B. Raghothamachar[2], G. Yang[1], R. B. James[1]
[1]Brookhaven National Lab, USA; [2]Stony Brook University, USA

RTSD.S-254 Comprehensive Study of Semi-Insulated $Cd_{1-x}Zn_xTe$ Grown by the Bridgman Method
V. Babentsov, *Institute of Semiconductor Physics, Ukraine*; J. Franc, *Charles University in Prague, Czech Republic*; E. Dieguez, *Universidad Autonoma de Madrid, Spain*; M. V. Sochinskyi, *Consorzio CREO, Italy*; R. B. James, *Brookhaven National Laboratory, USA*

RTSD.S-255 Characterization of CdZnTe after Argon Ion Beam Bombardment
H. Bensalah[1], J. L. Plaza[1], V. Hortelano[2], O. Martnez[2], J. Crocco[1], Q. Zheng[1], V. Carcelen[1], E. Dieguez[1]
[1]Universidad Autonoma de Madrid, spain; [2]Universidad de Valladolid, spain

RTSD.S-256 Effect of Different Superheating Temperature on Te Inclusions of Cd0.9Zn0.1Te:In Crystals Grown by Vertical Gradient Freezing
H. Bensalah, J. Crocco, J. L. Plaza, Q. Zheng, E. Dieguez
Universidad Autonoma de Madrid, spain

RTSD.S-257 Investigation of Optoelectronic and Radiation Detection Properties of CdTe and $Cd_{0.9}Zn_{0.1}Te$ Crystals Grown from a Low Temperature Solution Process
K. C. Mandal, R. M. Krishna, P. G. Muzykov, T. C. Hayes, S. Ma
University of South Carolina, USA

RTSD.S-258 Fabrication and Characterization of High Barrier $Cd_{0.9}Zn_{0.1}Te$ Schottky Diodes for High Resolution Nuclear Radiation Detectors
K. C. Mandal, P. G. Muzykov, R. M. Krishna, T. C. Hayes, S. Das, S. Patel, J. Williams
University of South Carolina, USA

RTSD.S-259 Investigation of Generated Defects Due to Processes of Metallisation on CdZnTe Detectors
Q. Zheng[1], F. Dierre[1], J. Franc[2], J. Crocco[1], H. Bensalah[1], V. Corregidor[3], E. Alves[3], E. Ruiz[1], O. Vela[4], J. M. Perez[4], E. Dieguez[1]
[1]Universidad Autonoma de Madrid, Spain; [2]Charles University, Czech Republic; [3]Unidade de Fisica e Aceleradores, Portugal; [4]CIEMAT, Spain

RTSD.S-260 Spectral Characterization of CdZnTe Detectors with a Planar, Hemispherical, or Single Pixel Geometry
Q. Zheng[1], F. Dierre[1], J. Crocco[1], H. Bensalah[1], O. Vela[2], J. M. Perez[2], E. Dieguez[1]
[1]Universidad Autonoma de Madrid, Spain; [2]CIEMAT, Spain

RTSD.S-261 Indium Iodide (InI) a Potential Next-Generation Room-Temperature Radiation Detector
A. Hossain, A. E. Bolotnikov, G. S. Camarda, Y. Cui, R. Gul, K. Kim, G. Yang, R. B. James
Brookhaven National Laboratory, USA

RTSD.S-262 Minimization of the Surface Leakage Current and Passivation of the Surface of the (Cd,Mn)Te Crystal Plates for Radiation Detectors
M. Witkowska-Baran, A. Mycielski, D. M. Kochanowska, A. Szadkowski, B. Witkowska
Institute of Physics Polish Academy of Sciences, Poland

RTSD.S-263 Electric Field in Semiinsulating CdTe and (CdZn)Te under Laser and X-Ray Irradiation
V. Dědič[1], J. Franc[1], P. J. Sellin[2], R. Grill[1], P. Veeramani[2]
[1]Charles University, Czech Republic; [2]University of Surrey, Great Britain

RTSD.S-264 A Simulation Tool for Designing and Characterizing CdZnTe γ-Ray Detectors
J. C. Oller, J. Castilla, A. Munoz, O. Vela, P. Arce, L. Romero, J. M. Perez
CIEMAT, Spain

RTSD.S-265 Evaluation of a Statistical Reconstruction Algorithm for a Medipix3-CT
J. Luebke[1], S. Procz[2], A. Fauler[2], A. Zwerger[2], M. Fiederle[2], M. Mix[1]
[1]University Hospital of Freiburg, Germany; [2]FMF - Freiburger Materialforschungszentrum, Germany

RTSD.S-266 Current Mode ASIC with Single Discriminator for Photon Counting Imaging Applications
J. Luo, Z. Deng, Y. N. Liu, *Tsinghua University, China*; L. Zhang, *Nuctech Company Limited, China*

RTSD.S-267 Vacuum Carbon Coating of Quartz and pBN Crucibles Applied to VGF Growth of Cadmium Zinc Telluride
J. D. Crocco, H. Bensalah, Q. Zheng, I. Gallardo, E. Dieguez
University de Autonoma de Madrid, Spain

RTSD.S-268 Photon Counting and Charge Sharing Studies on a 200um Hexagonal Pixel CdTe Detector Medical Imaging System
M. Ruat, A. Lynch, M. Dimmock, G. Panjkovic
Monash University, Australia

RTSD.S-269 Pockels effect imaging of polarisation and its temporal evolution in CdTe detector with Al Schottky contacts
M. Ruat, *Monash University, Australia*; D. Prokopovich, M. Reinhard, *ANSTO, Australia*

RTSD.S-270 Coincidence Measurements and long-term Stability Analysis with Stacked (Cd,Zn)Te Coplanar Grid Detectors
C. Disch[1], A. Zwerger[1], A. Fauler[1], M. Dambacher[1], W. Eickhoff[2], U. Stoehlker[3], M. Fiederle[1]
[1]Freiburger Materialforschungszentrum, Germany; [2]Bundesamt fuer Strahlenschutz, Germany; [3]CTBTO, Austria

RTSD.S-271 Design and Preliminary Performance of a Readout ASIC for CZT Based High Resolution PET
M. Voelker[1], J. Carrascal[2], A. Soriano-Asensi[3], J. M. Cela[2], F. Sanchez[3], J. M. Perez[2], J. Hauer[1], J. M. Benlloch[3]
[1]Fraunhofer Institute for Integrated Circuits IIS, Germany; [2]CIEMAT, Spain; [3]I3M, Centro mixto CSIC-UPV-CIEMAT, Spain

RTSD.S-272 IBIC Micron scale study of charge sharing in a rear illuminated CdTe pixel detector
M. Ruat, *Monash University, Australia*; D. Prokopovich, M. Reinhard, *ANSTO, Australia*

RTSD.S-273 Statistical Characteristics of Pulse-Height Spectra of Gamma-Radiation Detectors Based on the Mercuric Compounds
A. A. Zakharchenko[1], I. M. Prokhorenko[2], M. A. Khazhmuradov[1]
[1]National Science Center Kharkov Institute of Physics and Technology (NSC KIPT), Ukraine; [2]Institute of Electrophysics and Radiation Technologies of NASU, Ukraine

RTSD.S-274 Study of the Physical Factors Influencing the Spatial Resolution of CZT Detectors
S. Lux[1], G. Montémont[1], O. Rossetto[2], L. Verger[1]
[1]CEA-Leti, MINATEC Campus, FRANCE; [2]LPSC, UJF, CNRS/IN2P3, INPG, FRANCE

RTSD.S-275 Characterization of CdTe Detector for Use in PET
G. Arino[1], M. Chmeissani[1], C. Puigdengoles[1], G. De Lorenzo[1], R. Diener[2], Y. Calderon[1], J. Macias[1], E. Mikhaylova[1], I. Ozahin[1], D. Uzun[1], P. Arce[3], M. Canadas[3], R. Martinez[4], E. Cabruja[4]
[1]Institut de Fisica d'Altes Energies, Spain; [2]DESY, Germany; [3]CIEMAT, Spain; [4]Centro Nacional de Mictroelectronica, Spain

RTSD.S-276 Current Transients by Variable Wavelength Optical Pulses in CdTe/CZT Nuclear Detectors
A. Cola, I. Farella, *CNR, Italy*; M. Anni, *University of Salento, Italy*

RTSD.S-277 CdTe/CdZnTe Pixel Detector for Gamma-Ray Spectrometry with Imaging and Polarimetry Capability in Astrophysics
J. M. Alvarez, J. L. Galvez, M. Hernanz, J. Isern, *Institut de Ciencies de l'Espai (CSIC-IEEC), Spain*; M. Lozano, G. Pellegrini, *Centro Nacional de Microelectronica (IMB-CNM(CSIC)), Spain*; M. Chmeissani, *Institut de Fisica d'Altes Energies (IFAE), Spain*; E. Caroli, *Istituto di Astrofisica Spaziale e Fisica Cosmica (INAF/IASF-BO), Italy*; R. Da Silva, *Universidade De Coimbra, Portugal*

RTSD.S-278 Performance of Front-End Electronics for CdTe Pixelated Detectors for Spectro-Imaging in the MeV Range
J. L. Galvez, J. M. Alvarez, M. Hernandez, J. Isern, *Institut de Ciencies de l'Espai (CSIC-IEEC), Spain*; M. Chmeissani, C. Puigdengoles, *Institut de Fsica d'Altes Energies (IFAE), Spain*; M. Lozano, G. Pellegrini, R. Martinez, *Centro Nacional de Microelectrnica (IMB-CNM (CSIC)), Spain*

RTSD.S-279 Detection Performance Prediction for CdZnTe Array
D. J. Lingenfelter, J. A. Fessler, C. D. Scott, Z. He
University of Michigan, USA

RTSD.S-280 Annealing Effects in (Cd,Mn)Te Crystals
D. M. Kochanowska, A. Mycielski, M. Witkowska-Baran, B. Kowalski, A. Reszka, A. Suchocki, P. Lach, K. Izdebska, R. Jakiela
Institute of Physics Polish Academy of Sciences, Poland

RTSD.S-281 Preliminary Results of Neutron Source Identification from a Solid State Position Sensitive Moderating Type Neutron Spectrometer
T. M. Oakes[1], S. L. Bellinger[2], S. Karki[3], W. H. Miller[1], T. J. Sobering[2], P. R. Scott[3], D. S. McGregor[2], J. K. Shultis[2], A. N. Caruso[3]
[1]University of Missouri - Columbia, USA; [2]Kansas State University, USA; [3]University of Missouri - Kansas City, USA

RTSD.S-282 MCSAD: Monte Carlo Simulation of Atom Displacements Induced by Fast Electrons in Solids.
C. M. Cruz[1], I. Pinera[1], C. Correa[2], Y. Abreu[1], A. Leyva[1]
[1]Center of Technological Applications and Nuclear Developments (CEADEN), Cuba; [2]High Institute of Technologies and Applied Sciences (InSTEC), Cuba

RTSD.S-283 Correction of Properties of Crystals CdZnTe for Gamma Radiation Dose Rate Probe
O. V. Maslov, M. V. Maksimov, R. U. Kharchenko, L. L. Kalnev
Odessa National Polytechnic University, Ukraine

RTSD.S-284 Radiation Detection Materials Characterization at NSLS to Achieve Better Detectors
G. S. Camarda[1], A. E. Bolotnikov[1], Y. Cui[1], R. Gul[1], A. Hossain[1], K. Kim[1], B. Raghothamachar[2], R. Tappero[1], G. Yang[1], R. B. James[1]
[1]Brookhaven National Lab, USA; [2]Stony Brook University, USA

RTSD.S-285 Performance Improvements in the Polaris Gamma-Ray Imaging Spectrometer
F. Zhang, Z. He, *The University of Michigan, USA*

RTSD.S-286 Li6X(BO3)3:Ce3+ (X=Lu, Y) Scintillators for Neutron Detectors
Y. Heng, *Institute of High Energy Physics, China*; R. Jia, *Central China Normal University, China*; Z. Fu, *Nanjing University, China*; G. Ren, S. Pan, *Shanghai Institute of Ceramics, China*

RTSD.S-287 Atomic and Electronic Structure of a Dislocation in CdTe
V. Lordi, E. Cho, *Lawrence Livermore National Lab, USA*; D. Trinkle, *University of Illinois, USA*

RTSD.S-288 Effects of Doping on Ionic Mobility in TlBr
C. R. Leao, V. Lordi, *Lawrence Livermore National Lab, USA*

RTSD.S-289 Energy Weighting with a CdTe Spectrometric Detector
J. Rousseau, *Universit Joseph Fourier, France*; P. Radisson, C. Boudou, *Thales Electron Devices, France*

RTSD.S-290 The Investigation of a Connection Between AHP Crystal Growth Conditions and Properties of CZT Crystals
V. D. Golyshev, *Crystals Nord Technology Oy, Finland*; S. V. Bykova, *Granit A Ltd, Russia*

RTSD.S-291 Characterization of Al Schottky CdTe Detectors
L. Abbene, G. Gerardi, G. Raso, A. A. Turturici, F. Principato, *Dipartimento di Fisica , Universita' di Palermo, Italy*; S. Del Sordo, *INAF/IASF Palermo, Italy*

RTSD.S-292 Twin Shaping Filter Technique for Signals Compensation in CZT Detectors Grown by the Vertical Bridgman Method
N. Auricchio, E. Caroli, F. Schiavone, S. Silvestri, *INAF, Italy*; L. Marchini, A. Zappettini, *CNR, Italy*

RTSD.S-293 Development of GaAs Pixel Detectors for Application with Synchrotron Radiation
M. Fiederle[1,2], A. Fauler[1], M. Pichotka[1], E. Hamann[2]
[1]Freiburger Materialforschungszentrum, Germany; [2]Karlsruher Institut fr Technologie, Germany

RTSD.S-294 Achieving Material Information Through Energy Resolved X-Ray Imaging
M. Fiederle, A. Fauler, M. Pichotka, S. Procz
Freiburger Materialforschungszentrum, Germany

RTSD.S-295 A Balloon-Borne 3D CZT Scattering Polarimeter for Hard X-Ray Astrophysics
E. Caroli[1], J. M. Alvarez Pastor[2], N. Auricchio[1], C. Budtz-Jorgensen[3], R. M. Curado da Silva[4], S. Del Sordo[5], J. L. Galvez[2], M. Hernanz[2], J. Isern[2], I. Kuvvetli[3], J. M. Maia Pereira[6], J. B. Stephen[1], A. Zappettini[7]
[1]INAF/IASF-Bologna, Italy; [2]Institut de Cincies de l'Espai, Spain; [3]DTU Space, Denmark; [4]LIP, Portugal; [5]INAF/IASF-Palermo, Italy; [6]University of Breira Inerior, Portugal; [7]IMEM/CNR, Italy

RTSD.S-296 Standardized Pixel Detector Characterization and Comparison of Different Readout Systems for Medipix Detectors
E. Hamann[1], A. Cecilia[1], J. Butzer[1], T. dos Santos Rolo[1], S. Procz[2], A. Zwerger[2], A. Fauler[2], M. Fiederle[1,2], T. Baumbach[1,3]
[1]Karlsruhe Institute of Technology (KIT) ISS/ANKA, Germany; [2]Karlsruhe Institute of Technology (KIT), Germany; [3]Freiburger Materialforschungszentrum, Germany

RTSD.S-297 Spatial resolved determination of the weighting factor on CZT-CPG detectors
D. Gehre, *Dresden University of Technology, Germany*
On behalf of the COBRA collaboration

RTSD.S-298 X-Ray Imaging Using Directly Deposited CdTe Films
R. Sorgenfrei, A. Zwerger, S. Schuett, M. Fiederle
Freiburger Materialforschungszentrum der Albert-Ludwigs-Universität, Germany

RTSD.S-299 Determination of Electric Field Profile in CdTe and (CdZn) Te Detectors Using Transient-Current Technique
S. Uxa[1], E. Belas[1], R. Grill[1], P. Praus[1], J. Franc[1], V. Dedic[1], R. B. James[2], L. Sedivy[1], J. Pekarek[1], V. Bares[1]
[1]Institute of Physics, Charles University in Prague, Czech Republic; [2]Brookhaven National Laboratory, USA

RTSD.S-300 Optimization of a Lead Detection Instrument Using Monte Carlo Modeling
N. M. Rensing, T. C. Tiernan, M. R. Squillante
Radiation Monitoring Devices, Inc, USA

RTSD.S-301 Multiple-Source Detection and Identification Using 3D-Position-Sensitive Semiconductor Detectors
C. G. Wahl, Z. He, *University of Michigan, USA*

RTSD.S-302 Trial Electrode Topology of Low Energy X-Ray Detector Based on Semi-Insulating GaAs: Design, Modeling and Performance Testing
F. Dubecky[1], B. Zaťko[1], G. Vanko[1], E. Gombia[2], P. Pribytny[3], C. Ferrari[2], P. Boháček[1], D. Donoval[3]
[1]Inst. of Electrical Engineering, Slovak Academy of Sciences, Slovak Republic; [2]CNR-IMEM, Italy; [3]Inst. of Electronics and Photonics, Slovak University of Technology, Slovak Republic

RTSD.S-303 Effect of O2 Atmosphere Drying Method at Low Vacuum State in X-Ray Conversion Film Fabrication Process for Dark-Current Reduction and High Stability
J. N. Kim[1], K. M. Oh[1], S. H. Lee[1], J. Y. Lee[1], Y. K. Song[1], R. N. Lee[2], S. H. Nam[1]
[1]Inje University, Republic of Korea; [2]Ewha Womans University Mokdong Hospital, Republic of Korea

RTSD.S-304 Simulation and Characterization of the Material Properties of CdTe/(Cd,Zn)Te Grown by the Multi-Tube Physical Vapour Transport Method
M. Ayoub[1], D. Maneuski[2], T. S. Wright[1], V. O'Shea[2], I. Radley[1]
[1]Kromek Ltd., U.K.; [2]University of Glasgow, U.K.

RTSD.S-305 Effect of Interfacial Layers on CdTe/CdZnTe Detector Performance: Modelling and Electrical Characterisation
D. Maneuski[1], M. Ayoub[2], P. W. Hollis[2], V. O'Shea[1], I. Radley[2]
[1]University of Glasgow, U.K.; [2]Kromek Ltd., U.K.

RTSD.S-306 Materials Identification Results from a High Count Rate Photon Counting, Multispectral Linear Array
P. D. Scott, D. E. Joyce, M. Ayoub, F. Schirru, N. Laver, I. Radley
Kromek Ltd., U.K.

RTSD.S-307 Nuclear Radiation Responses Derived from Wide Band-Gap Nanocrystalline Semiconductor Assemblies Comprised of CdTe or PbSe
M. D. Hammig, G. Kim, D. Kondapalli
University of Michigan, USA

RTSD.S-308 Passive Algebraic Tomography of Nuclear Fuel When the CdZnTe-Detectors Are Situated on the Cooling Pond Walls
O. V. Maslov, M. V. Maksimov, S. N. Pelykh
Odessa National Polytechnic University, Ukraine

RTSD.S-309 Charge Correction in X and Gamma Ray Detectors Based on CZT
M. Zanichelli[1], M. Pavesi[2], A. Zappettini[1], E. Caroli[3]
[1]IMEM-CNR, Italy; [2]Universiy of Parma, Italy; [3]INAF-IASF, Italy

RTSD.S-310 Identification and Reconstruction of Multiple Interaction under Single Anode Pixel Events
H. Yang, J. C. Kim, Z. He, *University of Michigan, US*

RTSD.S-311 Luminescence Properties of CZT Crystals in the Presence of Tellurium Inclusions
N. Zambelli, N. Armani, L. Marchini, G. Benassi, D. Calestani, A. Zappettini
IMEM-CNR, Italy

RTSD.S-312 Electroless Ink-Jet Printing on CdZnTe
N. Zambelli, G. Benassi, L. Marchini, D. Calestani, A. Zappettini
IMEM-CNR, Italy

RTSD.S-313 A New Model to Derive the Transport Parameters in CZT Detectors with a Liner Decreasing Internal Electric Field
M. Zanichelli[1], L. Marchini[1], M. Pavesi[2], A. Zappettini[1]
[1]IMEM-CNR Parma, Italy; [2]University of Parma, Italy

RTSD.S-314 Improvement of CdZnTe Radiation Detectors Parameters by Laser Radiation
A. Mychko, A. Medvid', E. Dauksta, *Riga Technical University, Latvia*; V. Ivanov, L. Alekseeva, *ZRF RITEC SIA, Latvia*; E. Dieguzs, *Universidad Autonoma de Madrid, spain*

RTSD.S-315 Preliminary Results of KSU Frisch-Collar CZT Array
P. B. Ugorowski, A. Brooks, T. Sobering, D. Mcgregor
Kansas State University, USA

RTSD.S-316 Polarisation Performance of the CdTe/CZT Caliste Detector Modules
O. Limousin, P. Ferrando, C. Blondel, B. Horeau, A. Meuris, P. Laurent, R. Chipaux, *CEA, France*; E. Caroli, S. Del Sordo, J. Stephen, *INAF, Italy*; R. M. C. Da Silva, J. M. Maia Pereira, *University of Coimbra, Portugal*; V. Honkimaki, *ESRF, France*

RTSD.S-317 Growth and Characterization of $Ga_2(Se_xTe_{1-x})_3$ Semiconductors
N. M. Abdul-Jabbar[1,2], E. D. Bourret-Courchesne[2], B. D. Wirth[1,3]
[1]University of California, USA; [2]Lawrence Berkeley National Laboratory, USA; [3]Univesity of Tennessee, USA

RTSD.S-318 High-Flux Experiment and Simulation Results of Pulse-Mode 3D-Position-Sensitive CdZnTe Pixelated Detectors
M. L. Rodrigues, Z. He, *University of Michigan, USA*

RTSD.S-319 A Study of Coplanar and Pixilated CdZnTe Detectors for Neutrino Research
J. Miyamoto, T. Kutter, A. Leder
Lousiana State University, USA

RTSD.S-320 Detector Motion Compensated Coded Aperture Imaging Using Thick 3D-Position-Sensitive CdZnTe Detectors
S. Joshi Kaye, J. M. Jaworski, Z. He
University of Michigan, USA

RTSD.S-321 Digital Spectrometer Based on Detection Unit with PIN CdTe Detector, Equipped with the Suppression System of Detector Polarization
Y. Petukhov, *Center of Radiation and Nuclear Safety Technologies, Latvia*
On behalf of the RNIIRP

RTSD.S-322 Calculation and Application of System Response Function for Pixelated 3-D Position Sensitive CdZnTe Detectors with Digital Waveform Readout
Y. Zhu, Z. He, *University of Michigan, United States*

RTSD.S-323 6 MeV Energy Calibration and Reconstruction with Pixelated CZT Detectors Using Digital Methods
S. F. Nowicki[1,2], S. E. Anderson[3], A. M. Parsons[1]
[1]NASA Goddard Space FLight Center, USA; [2]University of Michigan, USA; [3]Los Alamos National Laboratory, USA

RTSD.S-324 Characteristics of Cd(Zn)Te Radiation Detectors Developed at KAERI
H. S. Kim, J. H. Ha, K. H. Lee
Korea Atomic Energy Research Institute, Republic of Korea

RTSD.S-325 A Low-Power 2-D ASIC for High-Resolution Gamma-Ray Spectroscopy
M. Clajus, S. Snyder, E. Tumer, T. Tumer, A. Volkovskii
NOVA R&D, Inc., USA

RTSD.S-326 Characterization of Indium-Doped CdZnTe(CZT) Crystals Grown by Bridgman Method
K. Lee, H. S. Kim, J. H. Ha
Korea Atomic Energy Research Institute, Republic of Korea

RTSD.S-327 Development of X-Ray Detector for Dynamic Image Using the Lead(II) Oxide
S. Jeon[1], J. Shin[1], K. Oh[1], G. Cho[2], Y. Lee[1], H. Park[1], J. Park[3], S. Nam[1]
[1]INJE University, Republic of Korea; [2]Ewha Womans University, Republic of Korea; [3]International University, Republic of Korea

RTSD.S-328 Informatic Models for Estimating Carrier Transport Properties of Semiconducting Materials
K. F. Ferris, *Pacific NW National Laboratory, usa*; D. M. Jones, *Proximate Technologies, LLC, usa*

RTSD.S-329 Pulsed X-Ray Induced Carrier Dynamics Within CdZnTe Crystals
Y. Xu, W. Jie, *Northwestern Polytechnical University, China*; X. Zhao, *Northwestern Institute of Nuclear Technology, China*

RTSD.S-330 Optoelectronic Properties of Mercuric Iodide Crystals
S. L. Sharma
Indian Institute of Technology, Kharagpur, India

RTSD.S-331 Polycrystalline HgI2 Film for Imaging
L. Zhang, *Nuctech Company Limited, China*

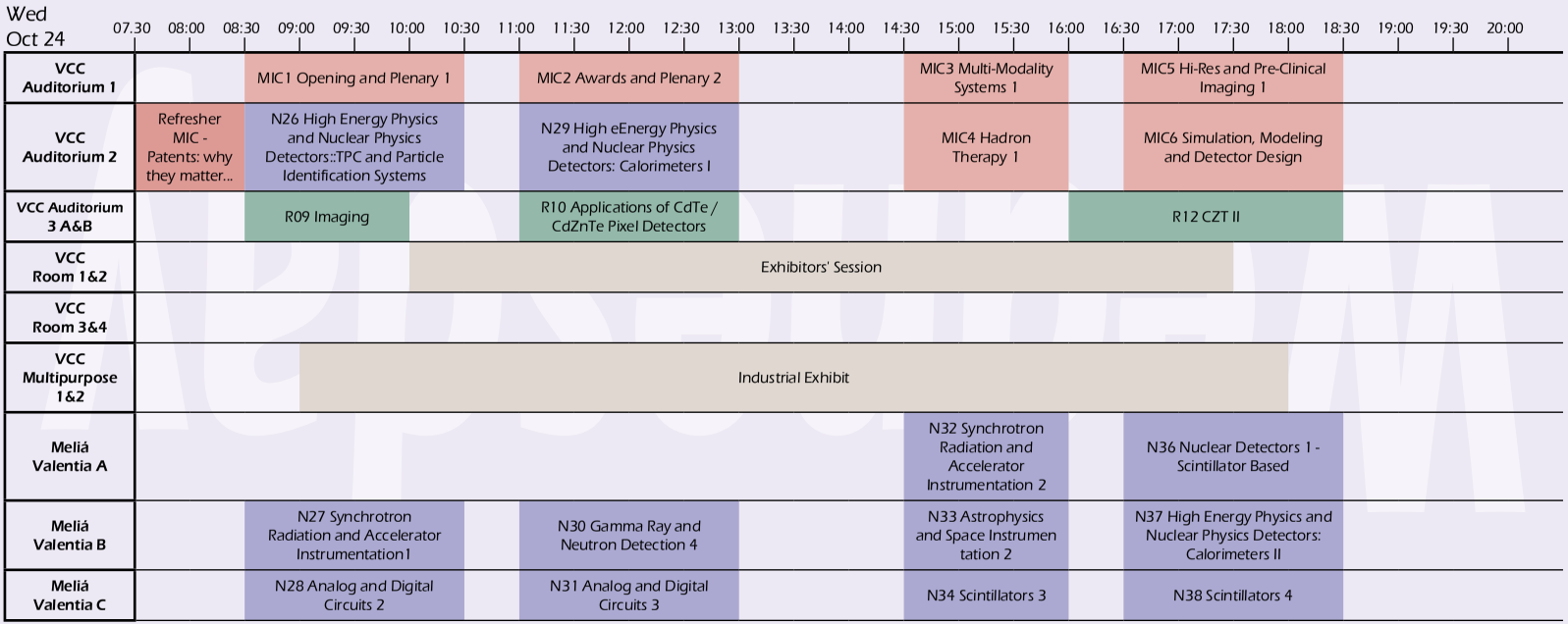
RTSD.S-332 Development of Large Area Micro-Channel Plates Photo-Detectors and Integrated Readout Electronics
H. Grabas[1], E. Oberla[1], K. Attenkaufer[2], M. Bogdan[1], H. J. Frisch[1], J.-F. C. Genat[3], R. Northrop[1], G. S. Varner[4]
[1]University of Chicago, USA; [2]Argonne National Laboratory, USA; [3]CNRS/IN2P3, France; [4]University of Hawaii, USA

RTSD.S-333 X-Ray Based Methods for 3D Characterization of Charge Collection and Homogeneity of Si, GaAs and CdTe Sensors with the Use of Timepix Chip
J. Zemlicka, J. Jakubek, S. Pospisil, Z. Vykydal, *Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic*; G. A. Chelkov, U. Kruchonak, V. Elkin, *Joint Institute for Nuclear Research, Russia*; M. Fiedrle, *Freiburger Materialforschungszentrum FMF, Germany*

RTSD.S-334 Characterization of Charge Collection in Various Sensor Materials Using Energetic Protons and Timepix Device
M. Platkevic[1], J. Jakubek[1], S. Pospisil[1], Z. Vykydal[1], G. A. Chelkov[2], M. Fiederle[3], C. Leroy[4], P. Allard[4], G. Bergeron[4], P. Cermak[1], A. Fauler[3], P. Soueid[4], I. Stekl[4], C. Teyssier[4], O. Tolbanov[5], A. Tyazhev[5], J. Vissers[6], R. Yapoudjian[4]
[1]Institute of Experimental and Applied Physics, Czech Technical University Prague, Czech Republic; [2]Joint Institute for Nuclear Research, Russia; [3]Freiburger Materialforschungszentrum FMF, Albert-Ludwigs-Universitt Freiburg, Germany; [4]Universite de Montreal, Canada; [5]Tomsk State University, Russia; [6]Nikhef, Netherlands

RTSD.S-335 Reach-Through APDs for X-Ray Detection
A. L. Gouvea, L. P. Fernandes, J. M. F. Santos
GIAN, Portugal

RTSD.S-336 CZT Breast Camera from CZT: Performance Assessment
I. M. Blevis, N. Wartski, Y. Grobstein, N. Bishara, R. Khamaisi, T. Rafaeli, O. Zak
General Electric Healthcare, Israel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VCC Auditorium 1
MIC1 Opening and Plenary 1
MIC2 Awards and Plenary 2
MIC3 Multi-Modality Systems 1
MIC5 Hi-Res and Pre-Clinical Imaging 1
VCC Auditorium 2
Refresher MIC - Patents: why they matter...
N26 High Energy Physics and Nuclear Physics Detectors::TPC and Particle Identification Systems
N29 High eEnergy Physics and Nuclear Physics Detectors: Calorimeters I
MIC4 Hadron Therapy 1
MIC6 Simulation, Modeling and Detector Design
VCC Auditorium 3 A&B
R09 Imaging
R10 Applications of CdTe / CdZnTe Pixel Detectors
R12 CZT II
VCC Room 1&2
Exhibitors' Session
VCC Room 3&4
VCC Multipurpose 1&2
Industrial Exhibit
Meliá Valentia A
N32 Synchrotron Radiation and Accelerator Instrumentation 2
N36 Nuclear Detectors 1 - Scintillator Based
Meliá Valentia B
N27 Synchrotron Radiation and Accelerator Instrumentation1
N30 Gamma Ray and Neutron Detection 4
N33 Astrophysics and Space Instrumen tation 2
N37 High Energy Physics and Nuclear Physics Detectors: Calorimeters II
Meliá Valentia C
N28 Analog and Digital Circuits 2
N31 Analog and Digital Circuits 3
N34 Scintillators 3
N38 Scintillators 4

Wed
Oct 24

	07:30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
Meliá Meeting 1&2&3	Refresher NSS - Geant4														N35 Gaseous Detectors 3				N39 Solid State Hybrid and Monolithic Detectors 5							
Meliá Room A&B																										
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Sorolla Arenas-Perellonet																										
Sorolla Pinedo/Faro Almarda/Raco																										
VCC																								Conference Reception		

Wednesday Notes

N26 High Energy Physics and Nuclear Physics Detectors : TPC and Particle Identification Systems

Wednesday, Oct. 26 08:30-10:15 VCC, Auditorium 2

Session Chairs: **Peter Krizan**, University of Ljubljana, Slovenia
Harry van der Graaf, NIKHEF, Netherlands

N26-1 (08:30) High-Pressure Xenon Gas TPC for Neutrino-Less Double-Beta Decay in 136Xe: Progress Toward the Goal of 1% FWHM Energy Resolution
D. R. Nygren, A. Goldschmidt, H. Spieler, J. Renner, *Lawrence Berkeley National Laboratory, USA*; J. White, *Texas A&M University, USA*

N26-2 (08:45) TPC Development by the LCTPC Collaboration for the ILD Detector at ILC
D. Peterson, *Cornell University, USA*
On behalf of the LCTPC collaboration

N26-3 (09:00) The TOTEM Experiment at LHC
J. Baechler, *CERN, Switzerland* - On behalf of the TOTEM Collaboration

N26-4 (09:15) TOTEM T2 Detector at LHC
V. Greco[1,2], M. Berretti[2], P. Brogi[2], F. Garcia Fuentes[3], J. Heino[3], T. Hilden[3], S. Lami[4], G. Latino[2,4], R. Lauhakangas[3], K. Oesterberg[3], E. Oliveri[2,4], F. Oljemark[3], N. Turini[2,4], J. S. Welti[4], L. Magaletti[5]
[1]CERN, Switzerland; [2]University of Siena, Pisa; [3]Helsinki Institute of Physics and University of Helsinki, Finland; [4]INFN Pisa, Italy; [5]INFN Bari, Italy

N26-5 (09:30) Laboratory Tests for a Diode-Laser based Calibration System for Fast Time-of-Flight Systems
R. Bertoni, M. Bonesini, *Sezione INFN Milano Bicocca, Italy*; A. de Bari, *Sezione INFN e Dipartimento di Fisica Nucleare e Teorica, Italy*

N26-6 (09:45) Study of Aging and Radiation Tolerance of a 144-channel HAPD for the Belle II Aerogel RICH Detector
S. Korpar[1,2], *[1]University of Maribor, Slovenia; [2]J. Stefan Institute, Slovenia*
On behalf of the Belle II Aerogel RICH group

N26-7 (10:00) The Focal Plane Detection System of S3 at SPIRAL2
R. L. Lozeva, *IPHC, CNRS, IN2P3, France*
On behalf of the S3-FPDETS collaboration

N27 Synchrotron Radiation and Accelerator Instrumentation 1

Wednesday, Oct. 26 08:30-10:15 Meliá, Valentia B

Session Chairs: **Niels van Bakel**, NIKHEF, The Netherlands
Peter Siddons, BNL, United States

N27-1 (08:30) Performance of the EIGER Single Photon Counting X-Ray Detector
R. Dinapoli[1], A. Bergamaschi[1], D. Greiffenberg[1], B. Henrich[1], R. Horisberger[1], I. Johnson[1], A. Mozzanica[1], V. Radicci[1,2], B. Schmitt[1], X. Shi[1]
[1]Paul Scherrer Institut, Switzerland; [2]ESRF, France

N27-2 (08:45) A New High-Speed pnCCD Camera for Full-Field Spectral Resolved X-Ray Imaging
S. Ihle, I. Ordavo, R. Hartmann, H. Soltau, *PNSensor GmbH, Germany*

N27-3 (09:00) Development of the DSSC: a Large Format X-Ray Imager with MHz Readout Capability for the European XFEL
M. Porro[1,2], *[1]Max Planck Institut fuer Extraterrestrische Physik, Germany; [2]MPI Halbeleiterlabor, Germany*
On behalf of the DSSC Consortium

N27-4 (09:15) A New Four Side Buttable Camera for X-Ray Imaging and

Spectroscopy with Large Dynamic Range for Present and Future FELs
L. W. J. Strueder[1], R. Hartmann[2], H. Soltau[2], R. Strecker[1], J. Ullrich[3]
[1]MPE, Germany; [2]PNSensor GmbH, Germany; [3]MPI fuer Kernphysik, Germany

N27-5 (09:30) Modelling the Response of a High Resolution Silicon Detector in a Synchrotron Therapeutic X-Ray Microbeam
A. Cullen[1], M. L. F. Lerch[1], M. Petasecca[1], S. Guatelli[1], H. Requardt[2], E. Braer-Krisch[2], A. Bravin[2], A. B. Rosenfeld[1]
[1]University of Wollongong, Australia; [2]European Synchrotron Radiation Facility, France

N27-6 (09:45) High Resolution Silicon Detectors Used for Real-Time Dosimetry in Microbeam Radiation Therapy
M. Lerch[1], M. Petasecca[1], A. Cullen[1], H. Requardt[2], E. Brauer-Krisch[2], A. Bravin[2], V. Pervertaylo[3], A. Kryukov[3], A. B. Rosenfeld[1]
[1]University of Wollongong, Australia; [2]European Synchrotron Radiation Facility, France; [3]SPA BIT, Ukraine

N27-7 (10:00) Status of LPD R&D Activities
M. D. Hart, M. J. French, M. L. Prydderch, P. Seller, J. A. Coughlan, R. N. Halsall, S. R. Burge, I. Henry, *STFC, United Kingdom*; V. O'Shea, A. J. Blue, *The University of Glasgow, United Kingdom*

N28 Analog and Digital Circuits 2

Wednesday, Oct. 26 08:30-10:15 Meliá, Valentia C

Session Chairs: **Marc M. Weber**, Karlsruhe Institute of Technology, Germany
Paul J. Barton, Lawrence Berkeley National Laboratory, United States

N28-1 (08:30) Low Power 12-Bit Current-Mode ADC for a Liquid Argon TPC
N. Nambiar, G. De Geronimo, J. Fried, E. Vernon
Brookhaven National Laboratory, USA

N28-2 (08:45) Multiplexed Oversampling Digitizer in 65nm CMOS for Column-Parallel CCD Readout
C. R. Grace, J.-P. Walder, H. von der Lippe
Lawrence Berkeley National Laboratory, USA

N28-3 (09:00) PARISROC, an Autonomous Front-End ASIC for Triggerless Acquisition in Next Generation Neutrinos Experiments
F. Dulucq[1], S. Conforti Di Lorenzo[1], C. de la Taille[1], S. Drouet[2], A. El Berni[1], G. Martin-Chassard[1]
[1]Laboratoire de l Accelerateur Lineaire, FRANCE; [2]Institut de Physique Nucleaire d Orsay, FRANCE

N28-4 (09:15) Low Noise Front End ASIC with Current Mode Active Cooled Termination for the Upgrade of the LHCb Calorimeter
D. Gascon[1], E. Picatoste[1], C. Abellan[2], O. Duarte[3], L. Garrido[1], E. Graugs[1], J. Lefranois[3], F. Machefert[3], X. Vilasis-Cardona[2]
[1]ICC. University of Barcelona, Spain; [2]LIFAELS, La Salle, Universitat Ramon Llull, Spain; [3]LAL, Universit Paris-Sud, CNRS/IN2P3, France

N28-5 (09:30) KLauS - a Charge Readout and Fast Discrimination Chip for Silicon Photomultipliers (SiPMs)
W. Shen, T. Harion, G. Sidlauskas, M. Dorn, M. Kolpin, H.-C. Schultz-Coulon, *University of Heidelberg, Germany*

N28-6 (09:45) NECTAr0, a New High Speed Digitizer ASIC for the Cherenkov Telescope Array
E. Delagnes[1], J. Bolmont[2], D. Dzahini[3], F. Feinstein[4], D. Gascon[5], J.-F. Glicenstein[1], F. Guilloux[1], C. L. Naumann[2], P. Nayman[2], A. Sanuy[5], F. Toussenel[2], P. Vincent[2], S. Vorobiov[4], J.-P. Tavernet[2], P. Corona[2], F. Rarbi[3]
[1]CEA/IRFU, France; [2]IN2P3/LPNHE, France; [3]IN2P3/LPSC, France; [4]IN2P3/LUPM, France; [5]ICC-UB, Spain

N28-7 (10:00) GeFRO, a New Front-End Approach for the Phase II of the GERDA Experiment
C. Cattadori[1], A. Giachero[1], C. Gotti[2,1], M. Maino[1], G. Pessina[1]
[1]INFN section of Milano Bicocca and University of Milano Bicocca, Italy; [2]University of Firenze, Italy

N29 High Energy Physics and Nuclear Physics Detectors : Calorimeters I

Wednesday, Oct. 26 11:00-12:45 VCC, Auditorium 2

Session Chairs: **Rainer W. Novotny**, 2nd Physics Institute, University Giessen, Germany
Jae Yu, Univ. of Texas Arlington, United States

N29-1 (11:00) Beam Test Performance of the CALICE Silicon Tungsten Electromagnetic Calorimeter Physics Prototype
R. Poeschl, *CNRS/IN2P3, France*
On behalf of the CALICE

N29-2 (11:15) Design Studies for a Compact Tungsten Scintillator Electromagnetic Calorimeter
C. L. Woody, E. Kistenev, A. Sickles, S. Stoll, A. Sukhanov
Brookhaven National Lab, USA

N29-3 (11:30) Performance of the CMS Electromagnetic Calorimeter at the LHC
G. Della Ricca, *Universita' di Trieste & INFN Sezione di Trieste, Italy*
On behalf of the CMS Collaboration

N29-4 (11:45) CMS ECAL Radiation Damage Effects
A. Singovski, *University of Minnesota, MN, USA, USA*
On behalf of the CMS ECAL group

N29-5 (12:00) Experimental Studies of Scintillation and Cherenkov Light Yield of Scintillating Crystals with SiPM Readout
B. Bilki[1], A. Para[2], F. Ptochos[3], P. Rubinov[2], I. Vasilas[3], H. Wenzel[2]
[1]University of Iowa, USA; [2]Fermilab, USA; [3]University of Cyprus, Cyprus

N29-6 (12:15) Optimization of Light Response Uniformity for SuperB Tapered LYSO Crystals with APD Readout
R. Mao, L. Zhang, R.-Y. Zhu
California Institute of Technology, USA

N29-7 (12:30) A SiPM Based Readout System for Shashlik Calorimeters: Status and Perspectives
A. Berra, *Universita' degli Studi dell'Insubria & INFN Milano Bicocca, Italy*
On behalf of the FACTOR/TWICE

N30 Gamma Ray and Neutron Detection 4

Wednesday, Oct. 26 11:00-12:45 Meliá, Valentia B

Session Chairs: **Carlos Lacasta**, IFIC, CSIC-UVEG, Valencia, Spain
Stephen A. Payne, LLNL, United States

N30-1 (11:00) A Fundamental Study of Recoil Electron Tracking Enhanced Compton Imaging
J. M. C. Brown[1], J. E. Gillam[2], M. R. Dimmock[1], D. M. Paganin[1]
[1]Monash University, Australia; [2]Universitat de Valencia, Spain

N30-2 (11:15) High Energy Resolution Gamma Ray Spectroscopy at MHz Count Rates with LaBr3 Scintillators
M. Tardocchi[1], M. Nocente[2], C. Cazzaniga[1], I. Chugonov[3], F. Ana[4], D. Gin[3], G. Grosso[1], V. Kiptily[5], A. Neto[4], A. Olariu[6], S. Olariu[6], R. C. Pereira[4], A. Shevelev[3], M. Silva[1], J. Sousa[3], G. Gorini[2]
[1]Istituto di Fisica del Plasma EURATOM-ENEA-CNR Association, Italy; [2]Universita' degli Studi di Milano-Bicocca,, Italy; [3]A.F.Ioffe Physico-Technical Institute, Russian Federation; [4]Associao EURATOM/IST Centro de Fusao Nuclear, Portugal; [5]EURATOM-UKAEA Association, UK; [6]National Institute of Physics and Nuclear Engineering, Romania

N30-3 (11:30) Dual Particle Imager for Standoff Detection of Special Nuclear Material
J. K. Polack, A. Poitrasson-Rivire, M. C. Hamel, K. L. McMillan, K. Ide, S. D. Clarke, M. Flaska, S. A. Pozzi
University of Michigan, United States

N30-4 (11:45) Electro-Optic Detection of Ionizing Radiation
K. E. Strecker, L. E. Sadler, S. Bisson, A. A. Hoops, J. Lund, J. Steele
Sandia National Laboratories, USA

N30-5 (12:00) High Resolution Neutron Resonance Absorption Imaging at a Pulsed Neutron Beamline
A. S. Tremsin, J. B. McPhate, J. V. Vallerga, O. H. W. Siegmund, *University of California, USA*; W. Kockelmann, E. M. Schooneveld, N. J. Rhodes, *STFC, Rutherford Appleton Laboratory, UK*; W. B. Feller, *NOVA Scientific, Inc, USA*

N30-6 (12:15) Characterization of Hyper-Pure Germanium Crystals for Use in the Advanced Gamma Tracking Array, AGATA
S. J. Colosimo[1], A. J. Boston[1], H. C. Boston[1], B. Bruyneel[2], J. R. Cresswell[1], F. Filmer[1], I. Lazarus[3], S. Moon[1], P. J. Nolan[1], J. Simpson[3], M. J. Slee[1], C. Unsworth[1]
[1]University of Liverpool, UK; [2]CEA Saclay, France; [3]STFC Daresbury Laboratory, UK

N30-7 (12:30) High Spatial Resolution Gamma Camera Devoted to Characterization of Electrical Response in HPGe Segmented Detectors
A. Hernandez-Prieto, B. Quintana, *University of Salamanca, Spain*; D. Barrientos, *University of Valencia, Spain*

N31 Analog and Digital circuits 3

Wednesday, Oct. 26 11:00-12:45 Meliá, Valentia C

Session Chairs: **Jean-Francois C. Genat**, CNRS/IN2P3/LPNHE, France
Chiara Guazzoni, Politecnico di Milano and INFN, Italy

N31-1 (11:00) A Time-Pickoff Method Using Automatic Gain Control for a Fast Count Rate
H. Lim, *Kwangwoon University, South Korea*

N31-2 (11:15) A Multi-Channel, 10ps Resolution, FPGA-Based TDC with 300MS/s Throughput for Open-Source PET Applications
L. H. Menninga[1], C. Favi[2], M. W. Fishburn[1], E. Charbon[1]
[1]Delft University of Technology, Netherlands; [2]Ecole Polytechnique Federale de Lausanne, Switzerland

N31-3 (11:30) 1 Gbit/s Serial Data Link Using Multi Level Signaling for Fast Readout Front End or 3D-IC Applications
H. Mathez, D. Contardo, E. Bechetoille, M. Lamouret, Y. Zoccarato
IPNL CNRS IN2P3 MICRHAU, FRANCE

N31-4 (11:45) Implementation of Constant-Fraction-Discriminators (CFD) in Sub-Micron CMOS Technology
S. Garbolino[1,2], S. Martoiu[3], A. Rivetti[1]
[1]INFN, Italy; [2]University of Turin, Italy; [3]CERN, Swizerland

N31-5 (12:00) DCDB and SWITCHERB, the Readout ASICs for Belle II DEPFET Pixel Detector
I. Peric, P. Fischer, J. Knopf, C. Kreidl
University of Heidelberg, Germany

N31-6 (12:15) Design and Performance of the GEMROC ASIC for 2-D Readout of Gas Electron Multiplier Detectors
W. Dąbrowski, T. Fiutowski, B. Mindur, P. Wiącek, A. Zielińska
AGH University of Science and Technology, Poland

N31-7 (12:30) Embedded Real Time Digital Signal Processing for a 64-channel Pet Detector Module in a 0.18 µm Cmos Asic
L. Arpin, K. Koua, S. Panier, H. Bouziri, M. Abidi, M. W. Ben Attouch, C. Paulin, R. Lecomte, J.-F. Pratte, R. Fontaine
Universite de Sherbrooke, Qc, Canada

N32 Synchrotron Radiation and Accelerator Instrumentation 2

Wednesday, Oct. 26 14:30-15:45 Meliá, Valentia A

Session Chair: **Peter Grudberg**, XIA LLC, United States

N32-1 (14:30) A Novel Digitization Scheme with FPGA-Based TDC for Beam Loss Monitors Operating at Cryogenic Temperature
J. Wu, A. A. Warner, *Fermilab, USA*

N32-2 (14:45) Detector Development for the European XFEL: Requirements and Status
M. Kuster, *European XFEL GmbH, Germany*; H. Graafsma, *Deutsches Elektronen-Synchrotron - DESY, Germany*

N32-3 (15:00) The MICE Beamline Instrumentation for Precise Emittance Measurements
M. Bonesini, *Sezione INFN Milano Bicocca, Italy*
On behalf of the MICE Collaboration

N32-4 (15:15) High Speed, Direct Detection 1k Frame-Store CCD Sensor for Synchrotron Radiation
D. Doering[1], N. C. Andresen[1], D. Contarato[1], P. Denes[1], J. M. Joseph[1], P. J. McVittie[1], J.-P. Walder[1], J. Weizeorick[2], B. Y. Zheng[1]
[1]Lawrence Berkeley National Laboratory, USA; [2]Argonne National Laboratory, USA

N32-5 (15:30) Fast, Low-Noise, Low-Power Electronics for the Analog Readout of Non-Linear DEPFET Pixels
S. Facchinetti[1,2], L. Bombelli[1,2], A. Castoldi[1,2], C. Fiorini[1,2], C. Guazzoni[1,2], D. Mezza[1,2], M. Porro[3,4], G. De Vita[3,4], F. Erdinger[5]
[1]Politecnico di Milano Dip. Elettronica e Informazione, Italy; [2]INFN Sez. Milano, Italy; [3]Max-Planck Institut fuer extraterrestrische Physik, Germany; [4]MPI Halbleiterlabor, Germany; [5]Institute for Computer Engineering, University of Heidelberg, Germany

N33 Astrophysics and Space Instrumentation 2

Wednesday, Oct. 26 14:30-15:45 Meliá, Valentia B

Session Chairs: **Klaus P. Ziock**, Oak Ridge National Laboratory, United States
Ingrid-Maria Gregor, DESY, Germany

N33-1 (14:30) The Time Calibration System for KM3NeT Neutrino Telescope
U. Emanuele, *IFIC - CSIC - University of Valencia, SPAIN*
On behalf of the KM3NeT Consortium

N33-2 (14:45) KM3NeT: a Cubic Kilometre-Scale Neutrino Telescope in the Mediterranean Sea
L. Thompson, *University of Sheffield, United Kingdom*
On behalf of the KM3NeT

N33-3 (15:00) FACT: A Novel Camera for Cherenkov Telescopes for Ground-Based Gamma-Ray Astronomy
Q. Weitzel, *ETH Zurich, Switzerland*
On behalf of the FACT Collaboration

N33-4 (15:15) Improvement of an Electron-Tracking Compton Camera for Observation of the Crab Nebula at Balloon Altitudes
T. Sawano[1], T. Tanimori[1], H. Kubo[1], K. Miuchi[1], S. Kabuki[2], J. D. Parker[1], A. Takada[1], Y. Kishimoto[3], T. Mizumoto[1], K. Ueno[4], S. Kurosawa[5], S. Iwaki[1], K. Taniue[1], K. Nakamura[1], N. Higashi[1], Y. Matsuoka[1], S. Komura[1], Y. Sato[1]
[1]Kyoto University, Japan; [2]Tokai University, Japan; [3]KEK, Japan; [4]RIKEN, Japan; [5]Tohoku University, Japan

N33-5 (15:30) PING Gamma Ray and Neutron Measurements of a Meter-Sized Carbonaceous Asteroid Analog
J. G. Bodnarik
NASA's Goddard Space Flight Center / Vanderbilt University, USA

N34 Scintillators 3

Wednesday, Oct. 26 14:30-15:30 Meliá, Valentia C

Session Chairs: **Craig L. Woody**, Brookhaven National Lab, United States
Hee-Joung Kim, Yonsei University, South Korea

N34-1 (14:30) Fast-Neutron Detection and Pulse Shape Discrimination with Diphenylanthracene and Tetraphenylbutadiene
E. V. van Loef[1], J. Glodo[1], S. Mukhopadhyay[1], N. Zaitseva[2], S. Payne[2], K. S. Shah[1]
[1]Radiation Monitoring Devices, Inc., United States; [2]Lawrence Livermore National Laboratory, United States

N34-2 (14:45) Single-Layer and Multilayer Composite Scintillators Based on Organic Molecular Crystalline Grains
N. Z. Galunov, B. V. Grinyov, N. L. Karavaeva, E. V. Martynenko, V. D. Panikarskaya, O. A. Tarasenko, S. V. Budakovsky
Institute for Scintillation Materials, National Ac.Science of Ukraine, Ukraine

N34-3 (15:00) Radiation Tolerance of LiCaAlF6 Neutron Scintillators
H. Takahashi, M. Yonetani, K. Hayashi, I. Park, T. Mizuno, Y. Fukazawa, *Hiroshima University, Japan*; T. Yanagida, Y. Fujimoto, Y. Yokota, A. Yoshikawa, *Tohoku University, Japan*; N. Kawaguchi, S. Ishizu, K. Fukuda, T. Suyama, *Tokuyama Corporation, Japan*

N34-4 (15:15) Capabilities of Plastic Scintillation Microspheres for Radionuclide Determination. a Review of Scintillators and Applications.
L. Santiago, H. Bagan, A. Tarancon, G. Rauret, J. F. Garcia
Universitat de Barcelona, Spain

N35 Gaseous Detectors 3

Wednesday, Oct. 26 14:30-15:45 Meliá, Meeting 1&2&3

Session Chair: **Marcel Demarteau**, Argonne National Laboratory, United States,
Serge Duarte Pinto, CERN, Switzerland

N35-1 (14:30) Tracks Reconstruction with Silicon Photomultipliers in NEXT1-EL
N. Yahlali, *IFIC, Spain*
On behalf of the NEXT Collaboration

N35-2 (14:45) Design, Characterization, and First Measurement with a Dual-Phase Argon Detector for Low-Energy Nuclear Recoils
A. Bernstein[1], J. Coleman[2], M. Foxe[3], C. Hagmann[1], T. H. Joshi[4,1], I. Jovanovic[3], K. Kazkaz[1], K. Mavrokoridis[2], S. V. Pereverzev[1], S. Sangiorgio[1]
[1]Lawrence Livermore National Laboratory, USA; [2]University of Liverpool, UK; [3]The Pennsylvania State University, USA; [4]University of California Berkeley, USA

N35-3 (15:00) Average Energy to Produce an Ion Pair in Gases for High Energy Heavy Ions
S. Sasaki, T. Sanami, K. Saito, *High Energy Accelerator Research Organization, Japan*; T. Murakami, *National Institute of Radiological Sciences, Japan*

N35-4 (15:15) Innovative Gas Mixtures for Resistive Plate Chambers Operated in Avalanche Mode
M. Abbrescia, *University of Bari and INFN, Italy*
On behalf of the RPC GAS-LAB Uniba and INFN Group

N35-5 (15:30) Development of a Plasma Panel Radiation Detector: Recent Progress and Key Issues
R. Ball[1], M. Ben Moshe[2], Y. Benhammou[2], J. W. Chapman[1], E. Etzion[2], C. Ferretti[1], P. Friedman[3], D. S. Levin[1], Y. Silver[2], D. Tiesheng[1], R. L. Varner[4], C. Weaverdyck[1], B. Zhou[1]
[1]University of Michigan, USA; [2]Tel Aviv University, Israel; [3]Integrated Sensors LLC, USA; [4]Oak Ridge National Laboratory, USA

N36 Nuclear Detectors 1 - Scintillator Based

Wednesday, Oct. 26 16:30-18:15 Meliá, Valentia A

Session Chairs: **Andrew G. Weisenberger**, Thomas Jefferson National Accelerator Facility, United States
Carl Zorn, Jefferson Laboratory, United States

N36-1 (16:30) A Segmented Scintillator Detector for Aboveground Detection of Reactor Antineutrinos
D. Reyna, S. Kiff, B. Cabrera-Palmer, *Sandia National Laboratories, USA*; N. Bowden, G. Keefer, *Lawrence Livermore National Laboratory, USA*

N36-2 (16:45) A Sensor for the Continuous Monitoring of Alpha and Beta Radionuclides in Prepotable Water
A. Tarancon[1], M. Pujadas[2], O. Novella[2], J. Cros[2], G. Rauret[1], J. F. Garca[1]
[1]Universitat de Barcelona, Spain; [2]Adasa Sistemas, Spain

N36-3 (17:00) A Symmetric Resistive Voltage Division Circuit for SiPM Array Readout
S. L. David[1], M. Georgiou[2], E. Fysikopoulos[3], N. Efthimiou[4], T. Paipais[1], L. Kefalidis[1], G. Loudos[1]
[1]Technological Educational Institute (TEI) of Athens, Greece; [2]University of Thessaly, Greece; [3]National Technical University of Athens, Greece; [4]University of Patras, Greece

N36-4 (17:15) A Scintillating Fibre Tracker for Muon Radiography
M. Hoek[1], A. Clarkson[1], D. Hamilton[1], R. Kaiser[1], T. Keri[1], D. Mahon[1], B. McKinnon[1], M. Murray[1], S. L. Nutbeam[1], C. Shearer[2], G. Yang[1]
[1]University of Glasgow, UK; [2]National Nuclear Laboratory, UK

N36-5 (17:30) Portable and Active Collimation Imager Using MURA Patterned Scintillator
T. Lee, W. Lee, *Korea University, Korea*

N36-6 (17:45) Neutron Response Result of Hybrid Scintillator; Ce:LiCaAlF6 Covered with Plastic Scintillator Coupled to APD
T. Fujiwara[1], H. Takahashi[1], Y. Mitsuya[1], K. Kamada[2], T. Yanagida[2], K. Fukuda[3], N. Kawaguchi[3], Y. Fujimoto[2], M. Uesaka[1]
[1]The University of Tokyo, Japan; [2]Tohoku University, Japan; [3]Tokuyama Corporation, Japan

N36-7 (18:00) Development of an Antineutrino Detector to Monitor the Operation of a CANDU 6 on-Load Refueled Reactor
T. M. Classen, N. Bowden, A. Bernstein, *Lawrence Livermore National Laboratory, USA*; B. Cabrera-Palmer, D. Reyna, *Sandia National Laboratory, USA*; G. Jonkmans, C. Jewett, *Atomic Energy of Canada Limited, Canada*

N37 High Energy Physics and Nuclear Physics Detectors : Calorimeters II

Wednesday, Oct. 26 16:30-18:15 Meliá, Valentia B

Session Chairs: **Jun Miyamoto**, Louisiana State University, United States
Anatoly B. Rosenfeld, University of Wollongong, Australia

N37-1 (16:30) Dual-Readout Calorimetry with a Mo-Doped PbWO4 Electromagnetic Section
S. Franchino, *Pavia University and INFN, Italy*
On behalf of the The DREAM collaboration

N37-2 (16:45) A BGO-Based Electromagnetic Section for a Dual Readout Calorimeter
D. Pinci, *INFN - Sezione di Roma, Italy*
On behalf of the DREAM collaboration

N37-3 (17:00) Possible Issues for Dual-Readout Scintillator Materials for HHCAL
A. Vasil'ev, *SINP, Moscow State University, Russia*

N37-4 (17:15) Crystals for Homogeneous Hadron Calorimeter
R. Mao, L. Zhag, R.-Y. Zhu
California Institute of Technology, USA

N37-5 (17:30) Front-End Photodetector for PRIMEX Calorimeter Readout
E. B. Johnson[1], X. J. Chen[1], R. Rines[1], C. J. Stapels[1], C. Whitney[1], M. McClish[1], P. Dokhale[1], K. Shah[1], E. Chapman[1], G. Alberghini[1], R. Miskimen[2], F. L. Augustine[3], J. F. Christian[1]
[1]Radiation Monitoring Devices, Inc., USA; [2]University of Massachusetts, USA; [3]Augustine Engineering, USA

N37-6 (17:45) Separation of Nuclear Reaction Product Ion Groups at Solenoid Focal Spot
C. Granja[1], P. de Faria[2], R. Lichtenthaler[2], A. Lepine-Szily[2], S. Pospisil[1]
[1]Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic; [2]Instituto de Fsica da Universidade de Sao Paulo, Brazil

N37-7 (18:00) Detecting Fast Neutrons from Pu Fission Chains Using an Array of Liquid Scintillator Detector
S. A. Ouedraogo, L. Nakae, R. Wurtz, A. Glenn, S. Sheets, N. Snyderman, J. Verbeke, I. Pawelczak, P. Kerr
LLNL, USA

N38 Scintillators 4

Wednesday, Oct. 26 16:30-18:15 Meliá, Valentia C

Session Chairs: **Nerine Cherepy**, Lawrence Livermore National Laboratory, United States
Edgar V. Van Loef, Radiation Monitoring Devices, Inc., United States

N38-1 (16:30) Praseodymium Valence Determination in Scintillators by X-Ray Absorption Spectroscopy
M. Zhuravleva[1], S. Friedrich[2], M. Koschan[1], C. Melcher[1]
[1]University of Tennessee, USA; [2]Lawrence Livermore National Laboratory, USA

N38-2 (16:45) Dependence of Scintillation Properties on Cerium Concentration for GPS Single Crystal Scintillators Grown by a TSSG Method
Y. Tsubota[1], J. H. Kaneko[1], M. Higuchi[1], T. Shimaoka[1], S. Nishiyama[1], H. Ishibashi[2], F. Fujita[1]
[1]Hokkaido University, Japan; [2]Hitachi Chemical co.ltd, Japan

N38-3 (17:00) 2-Inch Size Single Crystal Growth and Scintillation Properties of New Scintillator; Ce:Gd3Al2Ga3O12
K. Kamada[1], T. Yanagida[2], T. Endo[1], K. Tsutsumi[1], Y. Usuki[1], M. Nikl[3], Y. Fujimoto[2], A. Fukabori[2], A. Yoshikawa[2]
[1]Furukawa Co., Ltd., Japan; [2]Tohoku University, Japan; [3]Institute of Physics, Czech Republic

N38-4 (17:15) Scintillation Yield in Ce-Doped LGSO Scintillators
O. Gektin[1], A. Belsky[2], S. Neicheva[1], O. Sidletskiy[1], D. Amans[2], D. Kurtseva[1], V. Tarasov[1]
[1]Institute for scintillation materials, Ukraine; [2]bLPCML, CNRS, Universit Lyon 1, Villeurbanne F-69622, Universit de Lyon, France

N38-5 (17:30) Influence of Heat Treatment in Hydrogen on the Luminescence Spectra, Spectrometric, Physical, and Mechanical Properties of ZnSe(X) Crystals
L. P. Gal'chinetskii, A. I. Lalayants, R. F. Kamalieddin, G. M. Onyshchenko, S. N. Galkin
Institute for Scintillation Materials, National Academy of Science of Ukraine, Ukraine

N38-6 (17:45) Radiation Damage and Recovery Mechanisms in Cooled $PbWO_4$ Crystals
T. Kuske, *2. Physikalisches Institut, University Giessen, Germany*
On behalf of the PANDA Collaboration

N38-7 (18:00) Radiation Effects on YAG:Ce Scintillating Fiber
B. J. Singleton, B. S. Jones, A. A. Bickley, J. C. Petrosky, J. W. McClory, B. R. Kowash
Air Force Institute of Technology, USA

N39 Solid State Hybrid and Monolithic Detectors 5

Wednesday, Oct. 26 16:30-18:00 Meliá, Meeting 1&2&3

Session Chairs: **Yasuo Arai**, KEK, Japan
Ingrid-Maria Gregor, DESY, Germany

N39-1 (16:30) BJT Detector for Alpha Particle and Radon Detection and Monitoring
V. Tyzhnevyi, G.-F. Dalla Betta, *University of Trento, Italy*; G. Verzellesi, *University of Modena and Reggio Emilia, Italy*; L. Bosisio, *University of Trieste, Italy*; G. Batignani, *University of Pisa, Italy*

N39-2 (16:45) Fabrication of a Hybrid Silicon CCD-Strip Detector for Electron Tracking Based Compton Imager
P. J. Barton[1], D. Chivers[2], C. S. Tindall[1], S. E. Holland[1], T.-E. Hansen[3], K. Vetter[2]
[1]Lawrence Berkeley National Laboratory, USA; [2]University of California, USA; [3]SINTEF, Norway

N39-3 (17:00) DynAMITe: a Large Area Sensor for Biomedical Applications with Bimodal Dynamic Range and Resolution
M. Esposito[1], T. Anaxagoras[2], A. Fant[2], K. Wells[1], A. Konstantinidis[3], R. D. Speller[3], J. Osmond[4], P. M. Evans[4], N. M. Allinson[2]
[1]University of Surrey, U.K.; [2]University of Lincoln, U.K.; [3]University College London, U.K.; [4]Institute of Cancer Research and Royal Marsden NHS Trust, U.K.

N39-4 (17:15) Fast, Radiation Hard, Direct Detection CMOS Imagers for High Resolution Transmission Electron Microscopy
B. Krieger, D. Contarato, P. Denes, D. Doering, D. Gnani, J. Joseph
Lawrence Berkeley National Laboratory, USA

N39-5 (17:30) AGIPD - the Adaptive Gain Integrating Pixel Detector for the European XFEL. Development and Status.
J. Becker[1], P. Göttlicher[1], H. Graafsma[1], D. Greiffenberg[2], B. Henrich[2], H. Hirsemann[1], S. Jack[1], M. Karagounis[3], R. Klanner[4], H. Krüger[3], A. Marras[1], A. Mozzanica[2], B. Nilsson[1], B. Schmitt[2], J. Schwandt[4], S. Sengelmann[1], F. Tian[1,5], U. Trunk[1], X. Shi[2], J. Zhang[4]
[1]DESY Deutsches Elektronen-Synchrotron, Germany; [2]PSI Paul Scherrer Institut, Switzerland; [3]Universtät Bonn, Germany; [4]Universität Hamburg, Germany; [5]now at Infineon Technologies AG, Germany

N39-6 (17:45) Large Area Ultra-Thin Detector Ladders Based on CMOS Monolithic Pixel Sensors
W. Dulinski, *IPHC/IIN2P3/CNRS, France*
On behalf of the PLUME, SERVIETTE and PLUMETTE Collaborations

MIC1 Opening and Plenary 1

Wednesday, Oct. 26 08:30-10:30 VCC, Auditorium 1

Session Chair: **Alberto Del Guerra**, University Pisa, Italy

MIC1-1 (08:30) Welcome and opening
A. Del Guerra, *University of Pisa, Italy*

MIC1-2 (09:00, invited) Is there still room for research in CT?
W. Kalender, *University Erlangen-Nuernberg, Germany*

MIC1-3 (09:45, invited) New frontiers in radiobiology for particle therapy
C. Bert, *GSI, Germany*

MIC2 Awards and Plenary 2

Wednesday, Oct. 26 11:00-13:00 VCC, Auditorium 1

Session Chair: **Juan Jose Vaquero**, Universidad Carlos III de Madrid, Spain

MIC2-1 (11:00, invited) Optimal use of imaging in radiation therapy
A. Brahme, *Karolinska Institutet, Sweden*

MIC2-2 (11:45) Awards
A. Celler, *University of British Columbia, Canada*

MIC3 Multi-modality Systems 1

Wednesday, Oct. 26 14:30-16:00 VCC, Auditorium 1

Session Chairs: **Sibylle I. Ziegler**, Nuklearmedizin Klinikum rechts der Isar der TU München, Germany
Joel S. Karp, University of Pennsylvania, United States

MIC3-1 (14:30) Effect of in-vivo MR-based non-rigid motion correction on lesion detection in simultaneous PET-MR
J. Ouyang[1,2], S. Y. Chun[1,2], T. Reese[2,3], C. Catana[2,3], E. Moussallem[1,2], N. Alpert[1,2], G. El Fakhri[1,2]
[1]Massachusetts General Hospital, U.S.A; [2]Harvard Medical School, U.S.A; [3]Athinoula A. Martinos Center for Biomedical Imaging, U.S.A

MIC3-2 (14:45) Attenuation Correction in MR-BrainPET with Segmented T1-Weighted MR Images of the Patients Head - A Comparative Study with CT
G. Wagenknecht[1], E. Rota Kops[1], F. Mantlik[2], E. Fried[1], T. Pilz[1], H. Hautzel[3], L. Tellmann[1], B. Pichler[2], H. Herzog[1]
[1]Research Center Juelich, Germany; [2]Eberhard Karls University Tuebingen, Germany; [3]University Hospital Duesseldorf and Research Center Juelich, Germany

MIC3-3 (15:00) Effect of MR Contrast Agents on Quantitative Accuracy of PET in Combined Whole-Body PET/MR Imaging
C. Lois[1,2], I. Bezrukov[2], H. Schmidt[2], N. Schwenzer[2], M. K. Werner[2], B. J. Pichler[2], J. Kupferschlaeger[2], T. Beyer[2]
[1]Universidade de Santiago de Compostela, Spain; [2]Eberhard Karls Universitaet Tuebingen, Germany

MIC3-4 (15:15) Development of an Ultra High Resolution Integrated PET/MRI System: iPET/MRI II
S. Yamamoto, *Kobe City College of Technology, Japan*; M. Aoki, E. Sugiyama, *Neomax Engineering, Japan*; H. Watabe, Y. Kanai, E. Shimosegawa, J. Hatazawa, *Osaka University, Japan*

MIC3-5 (15:30) Evaluation of the Efficacy of an MR-based PET Motion Correction Scheme by Assessing the Improvement in FDG Image-

Derived AIF as Compared to Arterial Blood Sampling in Healthy Volunteers
D. B. Chonde[1,2], G. Arabasz[1], S. L. Bowen[1], A. G. Sorensen[1], C. Catana[1]
[1]A. A. Martinos Center for Biomedial Imaging, USA; [2]Harvard University, USA

MIC3-6 (15:45) Development of ClearPEM-Sonic: a Multimodal Positron Emission Mammograph and Ultrasound Scanner
B. Frisch, *CERN, Switzerland*
On behalf of the ClearPEM-Sonic collaboration

MIC4 Hadron Therapy 1

Wednesday, Oct. 26 14:30-16:00 VCC, Auditorium 2

Session Chairs: **Hartmut F. F-W. Sadrozinski**, Santa Cruz Institute for Particle Physics, Univ. of California Santa Cruz, United States
Marco Silari, CERN, Switzerland

MIC4-1 (14:30) Post-Therapeutical β+-Activity Measurements in Comparison to Simulations Towards In-Vivo Verification of Ion Beam Therapy
D. Unholtz[1], F. Sommerer[1], J. Bauer[1], D. van Straaten[2], T. Haberer[1], J. Debus[1], K. Parodi[1]
[1]Heidelberg Ion-Beam Therapy Center, Germany; [2]Fraunhofer MEVIS, Institute for Medical Image Computing, Germany

MIC4-2 (14:45) Measurement of the Carbon Ion Fragmentation with the FIRST Experiment at GSI
V. Patera, *INFN, Italy*
On behalf of the FIRST Collaboration

MIC4-3 (15:00) Ion Radiography: Measuring High Soft Tissue Contrast with an Amorphous Silicon Detector
J. Telsemeyer[1,2], L. Huber[1], O. Jaekel[1,2,3], M. Martisikova[1]
[1]German Cancer Research Center (DKFZ), Germany; [2]Heidelberg University Hospital, Germany; [3]Heidelberg Ion-Beam Therapy Center, Germany

MIC4-4 (15:15) Imaging with Scattered or Secondary Radiation in Hadron Therapy Beams with the 3D Sensitive Voxel Detector
J. Jakubek, C. Granja, *Institute of Experimental and Applied Physics of the Czech Technical University, Czech Republic*; B. Hartmann, M. Martisikova, O. Jaekel, *German Cancer Research Center, Germany*; L. Opalka, *FBME, Czech Technical University in Prague, Kladno, Czech Republic*

MIC4-5 (15:30) In-Beam Imaging Performance of the Small OpenPET Prototype with ^{10}C Beam Irradiation
T. Yamaya[1], E. Yoshida[1], Y. Nakajima[2], S. Sato[1], T. Inaniwa[1], S. Kinouchi[3,1], M. Suga[3], F. Nishikido[1], H. Tashima[1], N. Inadama[1], H. Murayama[1]
[1]National Institute of Radiological Sciences, Japan; [2]Tokyo Institute of Technology, Japan; [3]Chiba University, Japan

MIC4-6 (15:45) Application of the HICAM Camera for Imaging of Prompt Gamma Rays in Measurements of Proton Beam Range
R. Peloso[1,2], P. Busca[1,2], C. Fiorini[1,2], M. Basilavecchia[3], T. Frizzi[3], D. Prieels[4], J. Smeets[5], F. Stichelbaut[4], A. Benilov[4], F. Roellinghoff[4]
[1]Politecnico di Milano, Dipartimento di Elettronica e Informazione, Italy; [2]INFN, Sezione di Milano, Italy; [3]XGLab, Italy; [4]Ion Beam Applications S.A., Belgium; [5]Department of Nuclear Metrology, Universit Libre de Bruxelles, Belgium

MIC5 Hi-Res and Pre-Clinical Imaging 1

Wednesday, Oct. 26 16:30-18:30 VCC, Auditorium 1

Session Chairs: **Robert S. Miyaoka**, University of Washington, United States
Stefaan Vandenberghe, Ghent University, Belgium

MIC5-1 (16:30) Natural Feature Pose Measurement for Awake Animal Imaging
J. S. Goddard, *Oak Ridge National Laboratory, USA*

MIC5-2 (16:45) The Effect of Time Domain Pose Filtering on Accuracy of Small Marker Based Motion Correction in Awake Animal PET
A. Z. Kyme[1], J. Maclaren[2], S. R. Meikle[1], C. Baldock[1], R. R. Fulton[1,3]
[1]University of Sydney, Australia; [2]University Medical Center Freiburg, Germany; [3]Westmead Hospital, Australia

MIC5-3 (17:00) Slit-Slat Collimator Equipped Gamma Camera for Whole-Mouse SPECT-CT Imaging
L. Cao, J. Peter
German Cancer Research Center, Heidelberg, Germany

MIC5-4 (17:15) A Method for Measuring the Sub-Pixel Light Distribution of Scintillation Detectors with Digital SiPMs
P. M. Dueppenbecker[1], R. Haagen[1], S. Lodomez[1], P. K. Marsden[2], V. Schulz[1,3]
[1]Philips Research Europe, DE; [2]King's College London, UK; [3]RWTH Aachen University, DE

MIC5-5 (17:30) Studies of Electrode Design for a Sub-mm Resolution 3-D Position Sensitive CZT PET Detector
Y. Gu, C. S. Levin, *Stanford University, USA*

MIC5-6 (17:45) Automatic Self Gating of Small-Animal PET from List-Mode Data
J. L. Herraiz[1], J. J. Vaquero[2], M. Desco[2,3,4], L. Cusso[3,4], J. M. Udias[1]
[1]Universidad Complutense de Madrid, Spain; [2]Universidad Carlos III de Madrid, Spain; [3]Hospital General Universitario Gregorio Maran, Spain; [4]Centro de investigacion biomedica en red en salud mental (CIBERSAM), Spain

MIC5-7 (18:00) In-Vivo Multiple-Probes Tracker Based on Astrophysical Gamma-Ray Detector Technologies
S. Takeda[1], H. Odaka[2], S.-N. Ishikawa[2], S. Watanabe[2], T. Takahashi[2], Y. Kanayama[1], M. Hiromura[1], S. Enomoto[1]
[1]RIKEN Center for Molecular Imaging Science, Japan; [2]ISAS/JAXA, Japan

MIC5-8 (18:15) Instrumentation Setup for Simultaneous Measurement of Optical and Positron Labeled Probes in Mice
J. Peter, J. Schmitz, U. Christ, U. Haberkorn
German Cancer Research Center, Germany

MIC6 Simulation, Modeling and Detector Design

Wednesday, Oct. 26 16:30-18:30 VCC, Auditorium 2

Session Chairs: **Craig L. Woody**, Brookhaven National Lab, United States
Dennis R. Schaart, Delft University of Technology, Netherlands

MIC6-1 (16:30) Combined Effects of Pulse Pile-up and Energy Response in Energy-Resolved, Photon-Counting Computed Tomography
E. Roessl, K. J. Engel, A. Thran, R. Proksa
Philips Research Laboratories, Germany

MIC6-2 (16:45) Investigations on the Origin of the Darkfield Signal in X-Ray Talbot Interferometry
A. Ritter, F. Bayer, J. Durst, K. Goedel, W. Haas, T. Michel, T. Weber, G. Anton, *University of Erlangen-Nuremberg, Germany*

MIC6-3 (17:00) A Reaction-Diffusion Simulation Model of ^{18}F-FDG PET Imaging for the Quantitative Interpretation of Cancerous Metabolism
Q. Wang, Z. Liu, S. I. Ziegler, K. Shi
Technische Universitaet Muenchen, Germany

MIC6-4 (17:15) Development and Validation of a Simulation Model for the Biograph mMR Whole-Body PET/MR Scanner
G. Delso, R. Kraus, X. Cheng, A. Martinez-Moeller, S. G. Nekolla, S. I. Ziegler, *TU Muenchen, Germany*

MIC6-5 (17:30) Simulations of the 4DMPET SiPM-Based PET Module
F. Pennazio[1,2], J. Barrio[3], G. Bisogni[4,2], P. Cerello[2], A. del Guerra[4,2], C. Lacasta[3], G. Gabriela Llosa[3], G. De Luca[4], G. Magazzu`[4], C. Peroni[1,2], R. Wheadon[2]
[1]Universita` degli Studi di Torino, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]Instituto de Fisica Corpuscular (IFIC-CSIC/UVEG), Spain; [4]Universita` degli Studi di Pisa, Italy

MIC6-6 (17:45) Challenges of Image Generation for Tight Ring, Long Bore PET Scanners
K. Wangerin, H. Qian, R. Manjeshwar
GE Global Research, USA

MIC6-7 (18:00) Design and Initial Performance of PETbox4, a High Sensitivity Preclinical Imaging Tomograph
Z. Gu[1], R. Taschereau[1], N. T. Vu[2], H. Wang[1], D. L. Prout[1], R. W. Silverman[1], D. B. Stout[1], M. E. Phelps[1], A. F. Chatziioannou[1]
[1]UCLA, USA; [2]Sofie Biosciences Inc., USA

MIC6-8 (18:15) Investigation of Timing Algorithms in a Parallel Signal Processing environment using data from multiple SSPM pixels for each event
C. J. Bircher, X. Sun, Y. Shao
University of Texas MD Anderson Cancer Center, USA

R09 Imaging

Wednesday, Oct. 26 08:30-09:55 VCC, Auditorium 3 A & B

Session Chair: **Giuseppe Bertuccio**, Politecnico di Milano, Italy

R09-1 (08:30, invited) High-Resolution CdTe Detectors and Application to Gamma-Ray Imaging
T. Takahashi, *ISAS/JAXA, Japan*

R09-2 (08:50, invited) GAMPIX: a New Gamma Imaging System for Radiological Safety and Homeland Security Purposes
F. Carrel[1], S. Colas[2], G. Ferrand[3], E. Gaillard-Lecanu[4], M. Gmar[1], D. Hameau[4], S. Jahan[4], F. Laine[1], A.-S. Lalleman[3], C. Mahe[5], S. Normand[1], N. Saurel[2], V. Schoepff[1]
[1]CEA, LIST, FRANCE; [2]CEA, DAM VALDUC, FRANCE; [3]CEA, DAM, DIF, FRANCE; [4]EDF R&D, STEP, FRANCE; [5]CEA, DEN, DTEC/SDTC/LSTD, FRANCE

R09-3 (09:10) 8-Channel X-Ray Imaging with Medipix3
S. Procz[1], J. Luebke[2], M. Pichotka[1], E. Hamann[3], A. Fauler[1], A. Zwerger[1], M. Mix[2], M. Fiederle[1]
[1]Universitaet Freiburg, Germany; [2]Uniklinikum Freiburg, Germany; [3]KIT, Germany

R09-4 (09:25) Optimization of Room-Temperature Semiconductor Detectors for Energy-Resolved X-Ray Imaging
J. S. Iwanczyk[1], E. Nygard[2], J. C. Wessel[2], N. Malakhov[2], G. Wawrzyniak[2], N. E. Hartsough[1], T. Gandhi[1], W. C. Barber[1]
[1]DxRay Inc., USA; [2]Interon AS., Norway

R09-5 (09:40) The investigation of polycrystalline photoconductors for digital mammography and fluoroscopy
K. Oh[1], J. Shin[1], Y. Lee[1], K. Jang[1], S. Kang[2], G. Park[1], S. Nam[1]
[1]Inje University, Republic of Korea; [2]International University, Republic of Korea

R10 Applications of CdTe / CdZnTe Pixel Detectors

Wednesday, Oct. 26 11:00-12:10 VCC, Auditorium 3 A & B

Session Chair: **Michael Fiederle**, Freiburger Materialforschungszentrum, Germany

R10-1 (11:00, invited) New Development on Polaris Gamma-Ray Imaging Spectrometer Systems
Z. He, F. Zhang, W. Kaye, Y. A. Boucher, W. Wang, C. Wahl, J. M. Jaworski, Y. Zhu, S. J. Kaye, J. E. Berry
The University of Michigan, USA

R10-2 (11:20, invited) Spectroscopic CT Imaging Using Medipix3
A. P. H. Butler, *University of Otago, New Zealand*

R10-3 (11:40) X-Ray Beam Studies of Charge Sharing in Small Pixel, Spectroscopic, CdZnTe Detectors
C. Allwork[1], D. Kitou[1,2], S. Chaudhuri[1], P. J. Sellin[1,2], P. Seller[2], M. C. Veale[2], N. Tartoni[3]
[1]University of Surrey, United Kingdom; [2]Science & Technologies Facilities Council, United Kingdom; [3]Diamond light Source, United Kingdom

R10-4 (11:55) Photo-Current Transients and High-Flux Polarization in CdZnTe Radiation Detectors
M. Prokesch, H. Li, D. Bale
Detection & Imaging Systems, a division of Endicott Interconnect Technologies, Inc., USA

R12 CZT II

Wednesday, Oct. 26 16:00-18:10 VCC, Auditorium 3 A & B

Session Chair: **Ralph James**, Brookhaven National Laboratory, United States

R12-1 (16:00) RTSD Scientist Award Presentation
R. B. James, *Brookhaven National Laboratory, United States*; E. Dieguez, *Univerasidad Autonome de Madrid, Spain*; M. Fiederle, *Freiburger Materialforschungszentrum, Germany*

R12-2 (16:05, invited) Crossing the Chasm
C. Szeles
Endicott Interconnect Detection and Imaging Systems, USA

R12-3 (16:35, invited) Efforts to Grow Uniform and Large-Volume CdZnTe and CdMnTe Detectors
K. H. Kim[1], A. E. Bolotnikov[1], G. S. Carmada[1], R. Tappero[1], Y. Cui[1], G. Yang[1], A. Hossain[1], R. Gul[1], J. Franc[2], A. Marchini[3], A. Zappettini[3], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]Charles University, Czech Republic; [3]IMEM-CNR, Italy

R12-4 (16:55) A Pixellated Cd(Zn)Te Spectroscopic Detector for X-Ray Applications below 200keV
M. D. Wilson[1], S. Bell[1], R. J. Cernik[2], C. Christodoulou[3], C. K. Egan[2], S. Jacques[2], S. Pani[4], C. Reid[3], J. W. Scruffham[5], P. Seller[1], P. J. Sellin[4], R. D. Speller[3], M. C. Veale[1]
[1]STFC, UK; [2]University of Manchester, UK; [3]University College London, UK; [4]University of Surrey, UK; [5]Royal Surrey County Hospital NHS Foundation Trust, UK

R12-5 (17:10) Electric Field Distribution in CdTe and CZT Detectors under X-Ray Irradiation.
A. Cola, A. Valletta, I. Farella, *CNR, Italy*

R12-6 (17:25) Event Classification in 3D Position Sensitive Pixelated CdZnTe Detectors
W. Kaye, F. Zhang, Y. A. Boucher, W. Wang, J. C. Kim, Z. He
University of Michigan, USA

R12-7 (17:40) Crystal Growth and Characterization of CdZnTe for X-Ray and Gamma-Ray Detector Applications
W. Jie, *Northwestern Polytechnical University, China*

R12-8 (17:55) TOF Measurements on Schottky Type CdTe Detectors
K. Suzuki, T. Sawada, K. Imai, *Hokkaido Institute of Technology, Japan*; S. Seto, *Ishikawa National College of Technology, Japan*

NP5.S Poster Session Detection Components

Wednesday, Oct. 26 11:00-13:00 Sorolla, Gran Recati

Session Chairs: **Stefaan P. Tavernier**, Vrije Universiteit Brussel, Belgium
Jae Yu, Univ. of Texas Arlington, United States

NP5.S-2 Systematic Study of Scintillation Decay Time of 5d-4f Transition of Ce3+, Pr3+, and Nd3+ Activated Materials
T. Yanagida[1], Y. Fujimot[1], N. Kawaguchi[1,2], K. Kamada[1], D. Totsuka[3], Y. Yokota[1], A. Yoshikawa[1]
[1]Tohoku University, Japan; [2]Tokuyama, Japan; [3]Nihon Kessho Kogaku, Japan

NP5.S-4 Performance Test of the Nd-Doped Lutetium Aluminum Garnet Single Crystal for X-Ray Imaging Applications
M. Sugiyama[1], Y. Fujimoto[1], T. Yanagida[2], D. Totsuka[1,3], Y. Yokota[1], A. Yoshikawa[1,2]
[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku University, Japan; [3]Nihon Kessho Kogaku Co., Ltd., Japan

NP5.S-6 Investigations of Optical and Scintillation Properties of Tm3+-Doped YAlO3
D. Totsuka[1,2], T. Yanagida[3], M. Sugiyama[1], Y. Fujimoto[1], Y. Yokota[1], A. Yoshikawa[1,3]
[1]IMR, Japan; [2]Nihon Kessho Kogaku CO.,LTD, Japan; [3]NICHe, Japan

NP5.S-8 Lu-Free Highly Efficient Scintillator Ce:$Gd_3(Ga,Al)_5O_{12}$; the Effect of Elaboration Method on Scintillation Properties.
A. Yoshikawa[1], K. Kamada[2], T. Yanagida[3], Y. Fujimoto[1], Y. Futami[1], M. Sugiyama[1], S. Wakahara[1], S. Kurosawa[1], Y. Yokota[1], K. Yubuta[1], T. Shishido[1], M. Kikuchi[1], M. Nikl[4]
[1]IMR, Tohoku University, Japan; [2]Materials Research Laboratory, Furukawa Co. Ltd., Japan; [3]NICHe, Tohoku University, Japan; [4]Institute of Physics, AS CR, Japan

NP5.S-10 Scintillation Properties of Ce Doped (Lu,Gd)3(Ga,Al)5O12 Single Crystal Grown by the Micro-Puling-down Method
T. Endo[1], K. Kamada[1], T. Yanagida[2], K. Tsutumi[1], Y. Usuki[1], M. Nikl[3], Y. Fujimoto[2], A. Fukabori[2], A. Yoshikawa[2]
[1]FURUKAWA CO.,LTD., Japan; [2]Tohoku University, Japan; [3]Cukrovarnick, Czech Republic

NP5.S-12 Growth and Scintillation Properties of Pr Doped (Lu,Y)3(Ga,Al)5O12 Single Crystals
K. Kamada[1], T. Yanagida[2], T. Endo[1], K. Tsutsumi[1], Y. Usuki[1], M. Nikl[3], Y. Fujimoto[2], A. Fukabori[2], A. Yoshikawa[2]
[1]Furukawa Co., Ltd., Japan; [2]Tohoku University, Japan; [3]Institute of Physics, Czech Republic

NP5.S-14 Comparative Investigation of Charge Transfer Luminescence of Yb^{3+} in $Gd_3Ga_5O_{12}$ Crystals with Several Concentrations using the Streak Camera System Equipped with Pulsed X-ray Source
Y. Fujimoto[1], T. Yanagida[2], A. Yamaji[1], M. Sugiyama[1], S. Wakahara[1], Y. Yokota[1], A. Yoshikawa[1,2]
[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku University, Japan

NP5.S-16 Correlation Between Dislocation Density and Scintillation Properties in Pr:LuAG Single Crystals
A. Yamaji[1], T. Yanagida[2], Y. Yokota[1], K. Kamada[3], A. Yoshikawa[1,2]
[1]Institute for Materials Research, Tohoku University, Japan; [2]New Industry Creation Hatchery Center, Tohoku University, Japan; [3]Materials Research Laboratory, Furukawa Company Ltd, Japan

NP5.S-18 Growth and Scintillation Properties of Lu-Free Langasite-Type Crystals.
A. Yoshikawa[1], Y. Futami[2], T. Yanagida[2], Y. Fujimoto[1], S. Kurosawa[1], Y. Yokota[1], M. Sugiyama[1], S. Wakahara[1], M. Kikuchi[1], M. Nikl[3]
[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku University, Japan; [3]Institute of Physics, AS CR, Czech Republic

NP5.S-20 Scintillation Properties of Ho:YAP Scintillator Using an APD
S. Kurosawa[1], D. Totsuka[2], M. Sugiyama[1], T. Yanagida[1], Y. Yokota[1], A. Yoshikawa[1]
[1]Tohoku University, Japan; [2]Nihon Kessho Kogaku Co.,Ltd, Japan

NP5.S-22 The Effect of Europium Concentration on Luminescent and Detection Properties of Large SrI2:Eu2+ Scintillator Single Crystals
E. Tupitsyn[1], P. Bhattacharya[1], N. Cherepy[2], S. Payne[2], L. Boatner[3], K. Shah[4], A. Burger[1]
[1]Fisk University, USA; [2]Lawrence Livermore National Laboratory, USA; [3]Oak Ridge National Laboratory, USA; [4]Radiation Monitoring Devices, Inc., USA

NP5.S-24 Study of Radiation Damage in SrI_2 for ^{90}Sr Based Betabatteries
N. M. Rensing, T. C. Tiernan, M. R. Squillante
Radiation Monitoring Devices, Inc, USA

NP5.S-26 Optical, Photoluminescence and Scintillation Properties of Pure and Eu^{2+} Doped SrI_2 Single Crystals
J. Chen[1,2], S. Wang[1]
[1]Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; [2]Graduate University of Chinese Academy of Sciences, China

NP5.S-28 Development of SrI2 Scintillators for Spectroscopy and X-Ray Imaging Applications
L. O. Alaribe[1], C. Disch[1], A. Fauler[1], E. Keller[2], A. Cecilia[3], T. D. S. Rolo[3], R. Engels[4], M. Fiederle[1]
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NP5.S-30 Scintillation of LYSO Crystals Co-Doped with Ce, Ca, Sn
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NP5.S-32 Impact of Co-Doping on Scintillation Properties of Lu2xGd2(1-x)SiO5:Ce (LGSO, X=0.9)
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NP5.S-34 Growth and Scintillation Properties of Bismuth Germanium Silicon Oxide (BGSO) Single Crystals
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NP5.S-36 Preliminary Investigations of New Scintillators for Gamma-Ray Spectroscopy: $Cs(Ba,Sr)(Br,I)_3$
U. Shirwadkar, E. V. van Loef, R. Hawrami, S. Mukhopadhyay, J. Glodo, K. Shah
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NP5.S-38 Optical and Scintillation Properties of $Cs_2BaX_4:Eu^{2+}$ (X = Cl, Br, I)
R. B. Borade, G. A. Bizarri, E. D. Bourret-Courchesne, S. E. Derenzo
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NP5.S-40 Characterization of Nanocrystalline Gd2O3(Eu) Scintillator-Based CMOS Imaging Sensor for High-Resolution Neutron Imaging
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NP5.S-42 Scintillation Properties of Nd^{3+} Doped $KCaF_3$ in the Vacuum-Ultraviolet Region
N. Kawaguchi[1,2,3], T. Yanagida[4], Y. Futami[2], Y. Fujimoto[2], K. Fukuda[1], S. Kajimoto[3], Y. Fukumura[3], Y. Yokota[2], A. Yoshikawa[2,4]
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NP5.S-44 Growth and Scintillation Properties of (Zn,Mg)O Single Crystalline Film
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NP5.S-46 Crystal Growth and Characterization of Rare-Earth Doped Na2CaLu2F10
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NP5.S-48 Comparative Characterization of ZnSe Based Scintillators Applicable for Multienergy X-Ray Equipments
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NP5.S-50 First-principles studies of Luminescence and Scintillation properties of the Eu doped Ba/Sr-Te/Se family of binary compounds
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NP5.S-52 Evaluation of Ceramic Pr:LuAG Scintillator with Different Pr Content
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NP5.S-54 Dopant Segregation in Czochralski Grown Rare-Earth-Ion Doped ^{6}LiCaAlF$_6$ Single Crystal for Thermal Neutron Detection
N. Kawaguchi[1,2,3], T. Yanagida[4], Y. Futami[2], Y. Fujimoto[2], A. Yamazaki[5], K. Watanabe[5], K. Fukuda[1], S. Kajimoto[3], Y. Fukumura[3], Y. Yokota[2], A. Yoshikawa[2,4]
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NP5.S-56 6LiF-SrxCa1-xF2 Doped with Ce and Eu Eutectic Scintillator for Neutron Detection
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NP5.S-58 Crystal Growth of Ce Doped LiYF$_4$ Single Crystal by Cz Method and the Scintillation Properties
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NP5.S-60 Optical and Scintillation Properties of Pure, Cu-, and Zn-Doped LiAlO$_2$ Single Crystals
Y. Fujimoto[1], T. Yanagida[2], Y. Yokota[1], N. Kawaguchi[3], K. Fukuda[3], D. Totsuka[4], K. Watanabe[5], A. Yamazaki[5], A. Uritani[5], T. Iguchi[5], A. Yoshikawa[1,2]
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NP5.S-62 The Neutron Detection Properties of Li6Re(BO3)3:Ce (Re=Y,Gd,Lu) Crystals
F. Yang, S. K. Pan, D. Z. Ding, H. Y. Li, G. H. Ren
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NP5.S-64 Behavior of Cs2LiYCl6:Ce Scintillator up to 175 C
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NP5.S-66 Crystal Growth and Scintillation Properties of Cs2LiYCl6:Ce (CLYC) for Gamma Ray and Neutron Detection
R. Hawrami, U. Shirwadkar, J. Glodo, C. Hines, V. Biteman, I. Abselem, B. Higgins, J. Tower, A. Churilov, E. Van Loef, P. Dougherty, T. Hazlett, K. Shah
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NP5.S-68 Response of GPS Single Crystal Scintillators for Fission Neutrons and Low Energy Photons
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NP5.S-70 GSO(Ce) Scintillator as a Detector of Thermal Neutrons
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NP5.S-72 Neutron Energy Spectrum Unfolding with Deuterium- and Hydrogen-based Liquid Scintillators
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NP5.S-74 Simulation of the Pulse-Height Spectra of the Heterogeneous Scintillation Detectors
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NP5.S-76 Development of Thin and High-Aspect-Ratio Scintillator with Designed Surface Profile
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NP5.S-78 A Timing Resolution Model for Scintillating Fibers
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Department of Physics, Faculty of Science, University of Zagreb, Croatia

NP5.S-80 Radiation Damage Evaluation on LYSO and LuYAP Materials Through Dpa Calculation Assisted by Monte Carlo Method
I. Pinera Hernandez[1], Y. Abreu Alfonso[1], A. Diaz Garcia[1], P. Van Espen[2], A. Leyva Fabelo[1], C. M. Cruz Inclan[1]
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NP5.S-82 Plastic Scintillator for Alpha-Particles Registration
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NP5.S-84 Scintillation Spectrometers Based on Bright Scintillators and Solid-State Photosensors
K. S. Shah, J. Glodo, S. Mukhopadhay, U. Shirwadkar, P. Dokhale
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NP5.S-86 Plastic Scintillator Dosimetry in Radiology Applications
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NP5.S-88 Properties of NaI(Tl) Scintillator at Liquid Nitrogen Temperature.
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NP5.S-90 Growth of Tungstate and Molybdate Scintillation Crystals for Detection of Rare Events Search
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NP5.S-92 Evaluation of Resolution and Nuclide Identification Performance of Large Volume CeBr3 Scintillation Crystals
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NP5.S-94 Performance Comparison of Small GYGAG (Ce) and CsI(Tl) Crystals with PIN Detectors
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NP5.S-96 An Investigation of Lu1.8Gd0.2SiO5:Ce (LGSO) Phoswich Crystal Identification by Digital Methods
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NP5.S-98 Assessment of $LaBr_3$(Ce) Scintillators System for Measuring Nuclear Resonance Fluorescence Excitations near 2 MeV.
M. Omer, M. A. Bakr, R. Kinjo, Y.-W. Choi, K. Yoshida, N. Kimura, K. Ishida, T. Komai, M. Shibata, K. Shimahashi, H. Imon, T. Sonobe, T. Kii, K. Masuda, H. Ohgaki, *Institute of Advanced Energy, Kyoto University, Japan*; R. Hajima, T. Hayakawa, T. Shizuma, *Japan Atomic Energy Agency, Japan*; H. Toyokawa, *National Institute of Advanced Industrial Science and Technology, Japan*

NP5.S-100 Scintillation Properties and Imaging Performance of CsI:Tl Scintillator for X-Ray Imaging System
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NP5.S-102 Performance Study of a Planar LaBr3 Detector in the Very Low Gamma Energy (3 to 200-keV) Range
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NP5.S-104 Cherenkov Light Readout with a SiPM on Small Tiles
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NP5.S-106 Studies for the Mass Production of Scintillator Tiles with Direct SiPM Readout for Imaging Calorimeters
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NP5.S-108 Scintillation Detector Prototype for Thermal Neutrons with Wavelength Shifting Fiber Readout
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NP5.S-110 Development of a Position Sensitive Thermal Neutron Detector for Large Area Coverage in Inelastic Scattering Instruments
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NP5.S-112 Reducing the Number of Segment Detectors in a Current Mode "transXend" Detector for Application in the Third Generation X-Ray Computed Tomography
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NP5.S-114 sCVD Diamond Photo-Detectors in UV Region
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NP5.S-116 Test Results of Multi Channel Readout System for High Performance Scintillation Imaging
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NP5.S-118 Anomalous Gain Drop Effects in Hamamatsu 3998-01 Photomultiplier
C. Plettner, F. Scherwinski, G. Pausch, A. Birker, Y. Kong, R. Lentering, J. Stein, *FLIR Radiation GmbH, Germany*

NP5.S-120 Aging and Time Resolution Measurements for the Hamamatsu R7600 Multi-Anode Photomultiplier Tube
M. Maino, M. Calvi, A. Giachero, C. Gotti, C. Matteuzzi, A. Millefanti, G. Pessina
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NP5.S-122 4H-SiC Schottky Photodiodes for Ultraviolet Light Detection
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NP5.S-124 Development of Large Aperture Hybrid Avalanche Photo-Detector System
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NP5.S-126 Signal Conditioning Technique for Position Sensitive Photodetectors to Manipulate Pixelated Crystal Identification Capabilities
F. W. Y. Lau, P. D. Reynolds, A. Vandenbroucke, H. Ho, C. S. Levin
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NP5.S-128 Epitaxial Approach for Silicon Avalanche Photodiode Performance Improvements
M. McClish, R. Farrell, K. S. Shah
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NP5.S-130 Improvement of Multi-Pixel Photon Counter (MPPC)
T. Nagano, K. Sato, K. Yamamoto
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NP5.S-132 Dynamic Range of Cq Integrated SiPM
C. Lee[1], H. Kim[1], C. Kim[1], J. H. Bae[1], J. Kim[1], D.-U. Kang[1], H. Yoo[1], M. Cho[1], D. H. Lee[1], M. Kim[1], W. S. Sul[2], G. Cho[1]
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NP5.S-134 High Performance Geiger Photodiodes in Small Feature Size CMOS Technology
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NP5.S-136 Reliability of High Quantum Efficiency MA-PMT for Spectrometric Quality Assurance of Scintillation Imagers
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NP5.S-138 Back-Illuminated Silicon Geiger-Mode Avalanche Photodiodes
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NP5.S-140 Pulse Shape and Other Electrical Characteristics of Silicon Photomultipliers
A. Para, P. Rubinov, *Fermilab, USA*; I. Vasilas, *University of Cyprus, Cyprus*

NP5.S-142 Radiation-Induced Changes in Electrical Properties on Pixelated Photon Detector (PPD)
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NP5.S-144 A Front-End ASIC for a Silicon Avalanche Photodiode Linear Array Detector for Synchrotron X-Ray Experiments
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NP5.S-146 Increasing the Sensitive Area of Silicon Photomultiplier by Using Light Concentrators
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NP5.S-148 Assessing the Time Resolution of an Integrated Front End for Solid State Radiation Detectors
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NP5.S-150 2x2 MPPC Arrays in Gamma Spectrometry with CsI(Tl), LSO:Ce(Ca), LaBr3
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NP5.S-152 Monte Carlo Simulation of Silicon Photomultiplier Output in Response to Scintillation Induced Light
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NP5.S-154 Timing Methods for Monolithic Scintillator Detectors Based on Digital SiPM Arrays
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NP5.S-156 Generalization of the Modeling and Design Consideration of Spiral Si Drift Detectors
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NP5.S-158 Development of a Thin-Window, Radiation-Hard, N-Type, Hexagonal-Spiral, Silicon Drift Detector for an Extraterrestrial X-Ray Spectrometer
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NP5.S-160 DRS4 Readout for High Time Resolution of Detectors Based on Silicon Photomultipliers.
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NP5.S-162 Threshold Equalization Optimization for a Large Area Photon-counting Medipix3-based Detector
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NP5.S-164 Performance Study of Monolithic Pixel Detectors Fabricated with FD-SOI Technology
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NP5.S-166 Detection of Soft X-Rays Using Hybrid Semiconductor Pixel Detector Timepix Operated as a High Sensitive Dark-Current Free CCD-like Camera
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NP5.S-168 Camera Head of the DSSC X-Ray Imager
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NP5.S-170 Improving and Characterising the Threshold Equalisation Process for Multi-Chip Medipix3 Cameras in Single Pixel Mode
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NP5.S-172 Development and Characterization of a CMOS Image Sensor Coupled with Pixelated Scintillators for High Resolution X-Ray Imaging
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NP5.S-174 Energy Calibration of Pixel Detector Working in Time-over-Threshold Mode Using Test Pulses
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NP5.S-176 Low Material Budget Silicon Avalanche Detectors
V. Saveliev, N. D'Ascenzo
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NP5.S-178 Development of Radiation Sensor Based on Pt/ZnO Schottky Diode
S. Narita, Y. Nishibori, H. Naito, *Iwate University, Japan*; H. Endo, T. Chiba, *Iwate Industrial Research Institute, Japan*; Y. Sakemi, M. Itoh, H. Yoshida, *Tohoku University, Japan*

NP5.S-180 Novel Si Sensor and Readout for the Compact High Resolving Power Electromagnetic Calorimeter with Energy Flow Measurement Capability.
E. P. Kistenev, *Brookhaven National Laboratory, USA*
On behalf of the PHENIX Collaboration

NP5.S-182 An Investigation of Single-Crystal PbTe for Nuclear Radiation Detector Applications
G. Kim, M. D. Hammig, *University of Michigan, USA*

NP5.S-184 Simulation and Test of a New Microdosimeter Based upon Single Crystal Diamond
M. Angelone[1], G. Magrin[2], M. Pillon[1], G. Prestopino[1], S. Rollet[3], M. Marinelli[4], E. Milani[4], C. Verona[4], G. Verona-Rinati[4]
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NP5.S-186 Growth and Characterization of Li Ternary Compounds for Solid-State Neutron Detection
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NP5.S-188 Recent Developments on HPGe and Si(Li) Detectors for X- and Gamma-Ray Spectroscopy and Imaging
B. Pirard, J.-O. Beau, P. Dressler, S. Heini, M. Zuvic, M.-O. Lampert
Canberra France, France

NP5.S-190 Investigation of CdZnTe Pixelated Detector Performance for Photon Counting, Spectral X-Ray Medical Imaging Applications
M. E. Myronakis, M. Zvelebil, D. G. Darambara
Institute of Cancer Research, UK

NP5.S-192 EBIC Characterization of Thin-Film on ASIC Particle Detectors
A. Franco, Y. Riesen, N. Wyrsch, M. Despeisse, C. Ballif
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NP5.S-194 Mapping of the Response Function of DePFET-Based Pixel Sensors at Different Levels of Charge Injection
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NP5.S-195 The Anode Reset Mechanism of the eROSITA X-Ray pnCCD
J. Elbs[1,2]
[1]MPI Halbleiterlabor, Germany; [2]Max-Planck Institut fuer extraterrestrische Physik, Germany

NP5.S-196 Multiscale Modeling of Radiation Damage and Annealing in Si Samples Implanted with 57-Mn Radioactive Ions
Y. Abreu[1], C. M. Cruz[1], P. Van Espen[2], I. Pinera[1], A. Leyva[1], A. E. Cabal[1]
[1]Center of Technological Applications and Nuclear Development (CEADEN), Cuba; [2]University of Antwerp, Belgium

NP5.S-197 Effects of Gap Width on High-Purity Germanium Double-Sided Strip Detector Performance
D. L. Campbell[1], L. C. Johnson[1], E. Hull[2], T. E. Peterson[1]
[1]Vanderbilt University, USA; [2]PHDs Co, USA

NP5.S-198 A New Algorithm for Electron Track Trajectory Reconstruction for Compton Imaging
B. C. Plimley[1], A. Coffer[1], D. Chivers[1], K. Vetter[1,2]
[1]UC Berkeley, USA; [2]Lawrence Berkeley National Laboratory, USA

NP5.S-199 The Low-Mass Drift Chamber System of the MEG Experiment
M. Hildebrandt, *Paul Scherrer Institut, Switzerland*
On behalf of the MEG Collaboration

NP5.S-200 Test of Spatial Resolution and Trigger Efficiency of a Combined Thin Gap and Fast Drift Tube Chambers for High-Luminosity LHC Upgrades
G. Bella[1], Y. Benhammou[1], B. Bittner[2], J. Dubbert[2], E. Duchovni[3], E. Etzion[1], A. Klier[3], H. Kroha[2], N. Lupu[4], G. Mikenberg[3], D. Milstein[3], Y. Munwes[1], O. Sasaki[5], P. Schwegler[2], M. Shoa[3], V. Smakhtin[3]
[1]Raymond and Beverly school of Physics and Astronomy, Tel Aviv University, Israel; [2]Max-Plank-Institut fr Physik, Germany; [3]Weizmann Institute of Science, Israel; [4]Technion Israel Institute of Technology, Israel; [5]KEK, High Energy Accelerator Research Organization, Japan

NP5.S-201 A Microstrip Ion Chamber for Hard X-Ray Imaging at Synchrotron Light Sources
O. Ruebsamen[1], W. Leitenberger[2], U. Pietsch[1], H. W. Schenk[1], A. H. Walenta[1]
[1]University of Siegen, Germany; [2]University of Potsdam, Germany

NP5.S-202 Properties of Swarm Parameters in Pure Isobutane
I. B. Lima[1], T. C. Vivaldini[1], A. Mangiarotti[2], J. A. C. Goncalves[1,3], S. Botelho[3], P. Fonte[2], C. C. Bueno[1,3]
[1]IPEN-CNEN/SP, Brazil; [2]LIP-Coimbra, Portugal; [3]PUC-SP, Brazil

NP5.S-203 A Low-Mass Multi-Sampling Ionization Chamber for Fission Studies
B. Voss, C. Kaya, J. Kunkel
GSI Helmholtzzentrum fuer Schwerionenforschung GmbH, Germany

NP5.S-204 Optimization of Proportional Counters for High Count Rates
K. Chung, K. D. Ianakiev, M. Illiev, H. Nguyen, *Los Alamos Nat. Lab., USA*

NP5.S-205 Time Resolution of Small Size RPC Prototypes for Relativistic Ions
C. Paradela[1], Y. Ayyad[1], J. Benlliure[1], E. Casarejos[2], I. Duran[1], N. Montes[1], J. R. Pereira[1]
[1]Universidad de Santiago de Compostela, Spain; [2]Universidad de Vigo, Spain

NP5.S-206 Long Term Validation of the Optimal Filters Configuration for the Resistive Plate Chambers Gas System at the Large Hadron Collider Experiments
R. Guida[1], M. Capeans[1], F. Hahn[1], S. Haider[1], B. Mandelli[1,2]
[1]CERN, Switzerland; [2]University of Pavia, Italy

NP5.S-207 Pattern Recognition with Silicon Photomultipliers for Neutrinoless Double Beta Decay with a Xenon TPC (NEXT)
M. Ball, *Instituto di Fisica Corpuscolar (IFIC), Spain*
On behalf of the NEXT Collaboration

NP5.S-208 Stability and Calibration of the Analog RPC Readout in ARGO-YBJ
S. Mastroianni, *INFN, Italy,* On behalf of the ARGO-YBJ Collaboration

NP5.S-209 The Fission TPC Project
M. Heffner, *Lawrence Livermore National Laboratory, USA*
On behalf of the NIFFTE Collaboration

NP5.S-210 Prototype Development of a Gem-Tpc for the Super-FRS of the FAIR Facility
F. Garcia[1], M. Pikna[2], R. Janik[2], P. Strmen[2], J. Heino[1], R. Lauhakangas[1], R. Turpeinen[1], E. Tuominen[1], B. Sitar[2]
[1]Helsinki Institute of Physics and Department of Physcal Sciences, University of Helsinki, Finland; [2]Comenius University, Slovakia

NP5.S-211 Energy Resolution at the Statistical Limit from a Negative Ion Time Projection Chamber
P. Sorensen, A. Bernstein, M. Heffner, *Lawrence Livermore National Laboratory, USA*; J. Renner, *Lawrence Berkeley National Laboratory, USA*

NP5.S-212 Experimental Determination of the Electroluminescence Yield in GEMs and THGEMs Operating in Gaseous Argon and Xenon
C. M. B. Monteiro[1], L. M. P. Fernandes[1], J. F. C. A. Veloso[1,2], J. M. F. dos Santos[1]
[1]CI, University of Coimbra, Portugal; [2]I3N, University of Aveiro, Portugal

NP5.S-213 Tracking with Straw Tubes in the PANDA Experiment
G. Boca[1], S. Costanza[1], P. Gianotti[2], M. Idzik[3], S. Jowzaee[4], M. Kajetanowicz[4], A. Kashchuk[5], G. Korcyl[4], K. Kozlov[6], L. Lavezzi[1], O. Levitskaya[5], V. Lucherini[2], H. Ohm[6], S. Orfanitski[6], M. Mertens[6], E. Pace[2], K. Pysz[7], D. Przyborowski[3], J. Ritman[6], M. Roeder[6], A. Rotondi[1], P. Salabura[4], M. Savrie[8], V. Serydiuk[6], J. Smyrski[4], P. Wintz[6], P. Montagna[1]
[1]Pavia University and INFN, Italy; [2]INFN, Italy; [3]AGH University of Science and Technology, Poland; [4]Jagiellonian University, Poland; [5]PNPI, Russia; [6]Forschungszentrum Jlich, Germany; [7]Ferrara University and INFN, Italy; [8]PAN, Poland

NP5.S-214 Experimental Measurement of H3+, H5+, D3+ and D5+ Mobilities in Their Parent Gases
P. N. B. Neves[1], J. Escada[2], F. I. G. M. Borges[2], L. M. N. Tavora[3], C. A. N. Conde[2]
[1]ATP Group, Portugal; [2]LIP Coimbra, Portugal; [3]ESTG - Instituto Politecnico de Leiria, Portugal

NP5.S-215 Mobilities and Diffusion Parameters of Xe^+ Ions in Xe-Ne Mixtures
J. A. S. Barata[1,2], C. A. N. Conde[2]
[1]Universidade da Beira Interior, Portugal; [2]Universidade de Coimbra, Portugal

NP5.S-216 Characterizing Discharge Protection and Improving Drift Time Resolution for Gridpix
M. Fransen, N. V. Bakel, H. V. D. Graaf, F. Hartjes, W. Koppert, J. Timmermans, J. Visser, R. Kluit, V. Gromov, F. Zappon, *Nikhef, Netherlands*; V. Blanco Carballo, J. Schmitz, *university of Twente, Netherlands*; Y. Bilevych, *University of Bonn, Germany*

NP5.S-217 New Concept for an Ion-Backflowless HEP TPC basend on Electroluminescence (EL)
M. Ball, *Technical University Munich, Germany*

NP5.S-218 The Electroluminescence Yield and Fluctuations in Xe and in Xe Doped with CH4 or CF4: a Comparative Study Between Planar and Cylindrical Geometries
J. Escada[1], T. H. V. T. Dias[1], P. J. B. M. Rachinhas[2], F. P. Santos[1], F. I. G. M. Borges[1], C. A. N. Conde[1], A. D. Stauffer[3]
[1]Universidade de Coimbra, Portugal; [2]Hospitais da Universidade de Coimbra, Portugal; [3]York University, Canada

NP5.S-219 GEM Imaging Detector Based on FET Array Readout
Y. Li[1], Z. Deng[1], X. Zheng[2], G. Gong[1], H. Gong[1], Z. Deng[1], D. He[1], Y. Li[1]
[1]Tsinghua University, China; [2]Nuctech Co. Ltd, China

NP5.S-220 Electroluminescence Properties in Micropattern Gaseous Detectors: a Simulation Study Considering Charging-up Effect
C. A. B. Oliveira[1], P. M. M. Correia[1], R. Veenhof[2], A. L. Ferreira[1], J. F. C. A. Veloso[1]
[1]i3N, Portugal; [2]CERN, Switzerland

NP5.S-221 Construction and Performance of Large-Area Triple-GEM Prototypes for Future Upgrades of the CMS Forward Muon System
M. Maggi, S. Tupputi, *INFN/University Bari, Italy*; Y. Ban, J. Cai, H. Teng, *Peking University, China*; A. Gutierrez, P. E. Karchin, *Wayne State University, USA*; L. Benussi, S. Bianco, S. Colafranceschi, *LNF-INFN Frascati, Italy*; D. Abbaneo, S. Bally, J.-P. Chatelain, A. Conde Garcia, E. David, R. De Oliveira, S. Duarte Pinto, S. Ferry, H. Postema, A. Rodrigues, L. Ropelewski, A. Sharma, *CERN, Switzerland*; A. Marinov, M. Tytgat, N. Zaganidis, *Ghent University, Belgium*; K. Gnanvo, M. Holhmann, *Florida Institute of Technology, USA*; G. Magazzu, E. Oliveri, A. Scribano, N. Turini, *INFN Pisa (Siena), Italy*; K. Bunkowski, T. Fruboes, *Warsaw University, Poland*

NP5.S-222 Monte Carlo Simulation of the Low-Energy Nuclear Quench Factor and Ionization Yield in Liquid Argon
M. Foxe[1,2], C. Hagmann[2], I. Jovanovic[1]
[1]The Pennsylvania State University, USA; [2]Lawrence Livermore National Laborator, USA

NP5.S-223 A Novel Ionization Chamber for High Doses at Industrial Gamma Irradiation Facilities.
F. J. Ramirez-Jimenez, *Instituto Nacional de Investigaciones Nucleares, Mexico*; Y. B. Alcantara-Perez, *Instituto Politecnico Nacional, Mexico*

NP5.S-224 Commissioning and Operation of the CF4 Recuperation Plant for the Cathode Strip Chambers Detector at the CERN Compact Muon Solenoid Experiment
R. Guida, M. Capeans, F. Hahn, S. Haider, *CERN, Switzerland*

NP5.S-225 A Common Analysis Station for the Gas Systems of the Compact Muon Solenoid Experiment at the Large Hadron Collider
R. Guida, M. Capeans, F. Hahn, S. Haider, *CERN, Switzerland*; E. Focardi, *University fo Florence, Italy*

NP5.S-226 X-Ray Spectroscopy with Photon Counting Imaging Detectors such as Timepix
P. Sievers[1,2], T. Schneider[1], G. Anton[2], T. Michel[2]
[1]Physikalisch-Technische Bundesanstalt (PTB), Germany; [2]University of Erlangen-Nurenberg, Germany

NP5.S-227 Precision Gas Monitoring of the ATLAS Muon Spectrometer During LHC Running
N. Amram[1], R. Ball[2], Y. Benhammou[1], M. Ben Moshe[1], T. Dai[2], E. B. Diehl[2], E. Etzion[1], C. Ferretti[2], J. Gregory[2], J. Hindes[2], D. S. Levin[2], R. Thun[2], A. Wilson[2], C. Weaverdyck[2], Y. Wu[2], H. Yang[2], B. Zhou[2]
[1]Tel Aviv University, Israel; [2]University of Michigan, USA

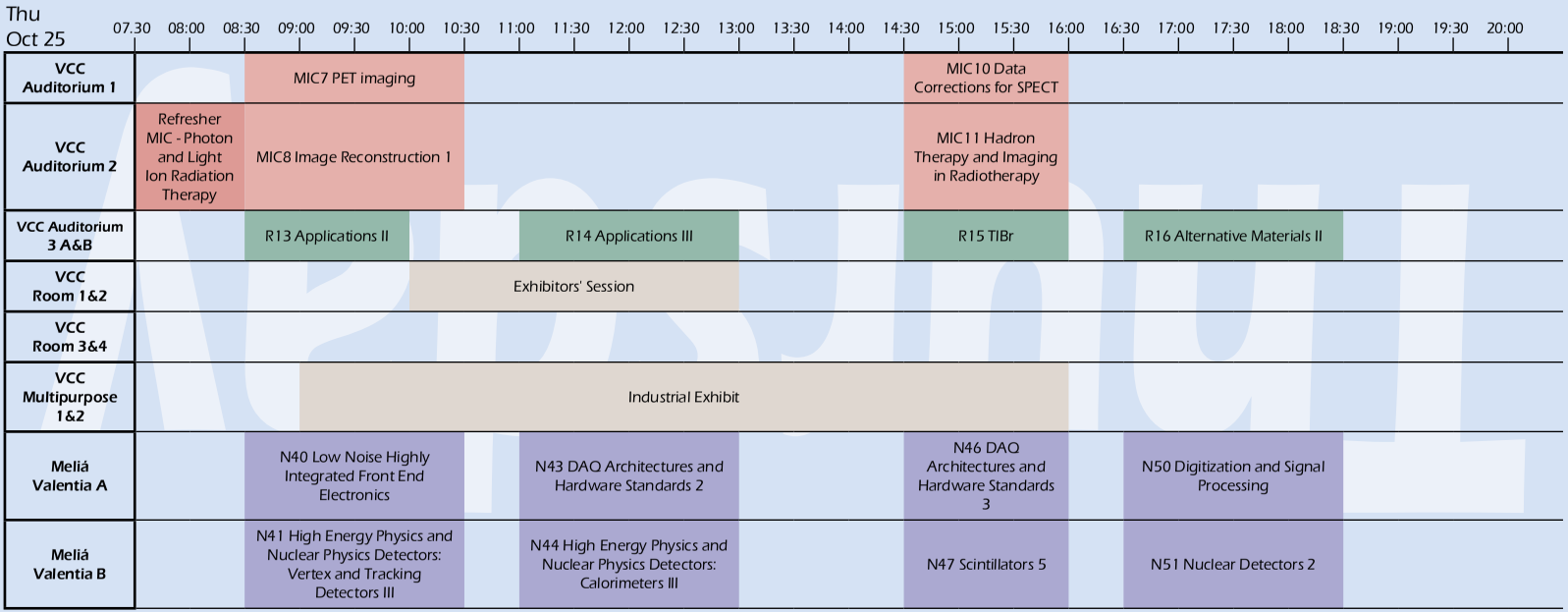
R11 Poster Session II

Wednesday, Oct. 26 14:30-16:00 Sorolla, Gran Recati

Session Chair: **Ernesto Dieguez**, Universidad Autonoma de Madrid, Spain

The posters of this session are identical to RTSD Poster Session I. See list of posters page 143.

Wednesday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VCC Auditorium 1
MIC7 PET imaging
MIC10 Data Corrections for SPECT
VCC Auditorium 2
Refresher MIC - Photon and Light Ion Radiation Therapy
MIC8 Image Reconstruction 1
MIC11 Hadron Therapy and Imaging in Radiotherapy
VCC Auditorium 3 A&B
R13 Applications II
R14 Applications III
R15 TIBr
R16 Alternative Materials II
VCC Room 1&2
Exhibitors' Session
VCC Room 3&4
VCC Multipurpose 1&2
Industrial Exhibit
Meliá Valentia A
N40 Low Noise Highly Integrated Front End Electronics
N43 DAQ Architectures and Hardware Standards 2
N46 DAQ Architectures and Hardware Standards 3
N50 Digitization and Signal Processing
Meliá Valentia B
N41 High Energy Physics and Nuclear Physics Detectors: Vertex and Tracking Detectors III
N44 High Energy Physics and Nuclear Physics Detectors: Calorimeters III
N47 Scintillators 5
N51 Nuclear Detectors 2

Thu
Oct 25

	07:30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
Meliá Valentia C				N42 Gamma Ray and Neutron Detection 5					N45 Photodetectors 3							N48 Fault Tolerance and Radiation Hardness				N52 Homeland Security 3						
Meliá Meeting 1&2&3																N49 Simulation and Analysis HEP and Astroparticles				N53 Simulation Medical Physics and Homeland Security						
Meliá Room A&B																				MIC12.M MIC Posters 2						
Sorolla Gran Recati									MIC9.S MIC Posters 1																	
Sorolla Arenas-Perellonet																							Special Women in Engineering (WIE) Session			
Sorolla Pinedo/Faro Almarda/Raco																								GOLD Reception		

N40 Low Noise Highly Integrated Front End Electronics

Thursday, Oct. 27 08:30-10:15 Meliá, Valentia A

Session Chairs: **Maurice Garcia-Sciveres**, LBNL, United States
Erik H. M. Heijne, CERN, Switzerland

N40-1 (08:30) Front End Electronics for SLHC Semiconductor Trackers in CMOS 90 nm and 130 nm Processes
J. Kaplon, M. Noy, *CERN, Switzerland*

N40-2 (08:45, invited) Analog Design Criteria for High-Granularity Detector Readout in the 65 Nm CMOS Technology
M. Manghisoni[1,2], L. Gaioni[2], L. Ratti[3,2], G. Traversi[1,2], V. Re[1,2]
[1]Universita' degli Studi di Bergamo, Italy; [2]INFN, Italy; [3]Universita' degli Studi di Pavia, Italy

N40-3 (09:00) The Apsel65 Front-End Chip for the Readout of Pixel Sensors in the 65 Nm CMOS Node
L. Gaioni[1], M. Manghisoni[2,1], L. Ratti[3,1], V. Re[2,1], G. Traversi[2,1]
[1]INFN Pavia, Italy; [2]Universita' di Bergamo, Italy; [3]Universita' di Pavia, Italy

N40-4 (09:15) Front-End Electronics for DEPFET Pixel Detectors at Belle II
H. Krueger, *Bonn University, Germany,* On behalf of the DEPFET Collaboration

N40-5 (09:30) CUBE, a Low-Noise CMOS Preamplifier as Alternative to JFET Front-End for High-Count Rate Spectroscopy
L. Bombelli[1,2], C. Fiorini[1], T. Frizzi[2], R. Nava[2], A. Longoni[1]
[1]Politecnico di Milano Dip. Elettronica e Informazione, Italy; [2]XGLab SRL., Italy

N40-6 (09:45) Low-Noise Low-Mass Front End Electronics for Low-Background Physics Experiments Using Germanium Detectors
P. J. Barton, P. N. Luke, M. Amman, Y.-D. Chan, J. Detwiler, J. Loach, R. D. Martin, A. Poon, C. S. Tindall, K. Vetter
Lawrence Berkeley National Laboratory, USA

N40-7 (10:00) Flood Histogram Measurement of a Pixellated Gamma Scintillation Detector Module Using Fully Integrated Readout
V. Mlotok, M. Ritzert, P. Fischer, *Heidelberg University, Germany*; T. Solf, *Philips Research Laboratories, Germany*; V. Schulz, *RWTH Aachen, Germany*

N41 High Energy Physics and Nuclear Physics Detectors : Vertex and Tracking Detectors III

Thursday, Oct. 27 08:30-10:15 VALENTIA B

Session Chairs: **Mara Bruzzi**, Dipartimento di Energetica di Firenze, Italy
Charles Young, SLAC, United States

N41-1 (08:30) Operational Experience with the ATLAS Pixel Detector at the LHC
C. Troncon, *INFN Milano, ITALY* - On behalf of the ATLAS Collaboration

N41-2 (08:45) Overview of Silicon Pixel Sensor Development for the ATLAS Insertable B-Layer (IBL)
S. Grinstein, *IFAE Barcelona, Spain,*
On behalf of the The ATLAS IBL Collaboration

N41-3 (09:00) Evolution of the Charge Sharing Between Adjacent Readout Electrodes in Irradiated Silicon Pixel Sensors
G. Casse, P. P. Allport, A. Affolder, D. Forshaw, I. Tsurin
University of Liverpool, UK

N41-4 (09:15) Radiation-Hard Silicon for HL-LHC Trackers
U. Parzefall, *University of Freiburg, Germany*
On behalf of the RD50 Collaboration

N41-5 (09:30) Design and Studies of Micro-Strip Stacked Module Prototypes for Tracking and Trigger at the SLHC
G. L. Bruno, *Université catholique de Louvain, Belgium*
On behalf of the CMS Collaboration

N41-6 (09:45) Performance of the ATLAS Tau Trigger System with 7 TeV pp Collisions at the LHC
M. P. Casado Lechuga, *UAB, Spain* - On behalf of the ATLAS Collaboration

N41-7 (10:00) Searching for the Neutrinoless Double Beta Decay with CdTe Pixel Detectors: Measurement of the Electron Track Energy Resolution
M. Filipenko, T. Gleixner, J. Durst, M. Boehnel, T. Michel, G. Anton
Erlangen Centre for Astroparticle Physics (ECAP), Germany

N42 Gamma Ray and Neutron Detection 5

Thursday, Oct. 27 08:30-10:15 Meliá, Valentia C

Session Chairs: **Lus Mario Fraile Prieto**, UCM, Spain
Nerine Cherepy, Lawrence Livermore National Laboratory, United States

N42-1 (08:30) Thermal Neutron Detection Using Alkali Halide Scintillators with Li-6 and Pulse Shape Discrimination
E. Brubaker, D. Dibble, P. Yang, *Sandia National Laboratories, USA*

N42-2 (08:45) Photon Counting Detector Based on Structured CsI:Tl Directly Deposited on a Solid-State Photomultiplier (SSPM)
G. Prekas, H. Sabet, H. H. Bhandari, M. Breen, S. Miller, G. Derderian, F. Robertson, H. Kudrolli, C. J. Stapels, J. Christian, S. Cool, V. V. Nagarkar
RMD, Inc., USA

N42-3 (09:00) High-Speed Diamond Detectors for Fast-Neutron Analysis of Inertial Confinement Fusion Experiments
S. Friedrich, T. J. Clancy, M. J. Eckart, R. A. Zacharias, *Lawrence Livermore Nat. Laboratory, USA*; M. J. Shoup, T. Buczek, V. Y. Glebov, T. C. Sangster, *Laboratory for Laser Energetics, USA*; J. Kilkenny, *General Atomics, USA*

N42-4 (09:15) Design, Implementation and First Measurements with the Medipix Neutron Camera in CMS
D. Pfeiffer[1,2], A. Ball[1], A. Bell[1], A. Butler[2], P. Butler[2], R. Hall-Wilton[3], J. Hegeman[1], S. Lansley[2], D. Krofcheck[4], S. Mueller[2], A. Macpherson[1], S. Pospisil[5], H. Silverwood[2], E. Tsesmelis[1], Z. Vykydal[5]
[1]CERN, Switzerland; [2]University of Canterbury, New Zealand; [3]European Spallation Source AB, Sweden; [4]University of Auckland, New Zealand; [5]Czech Technical University (CTU), Czech Republic

N42-5 (09:30) Large Microcalorimeter Arrays for High-Resolution Gamma-Ray Spectroscopy
D. A. Bennett, R. D. Horansky, W. B. Doriese, G. C. Hilton, K. D. Irwin, V. Kotsubo, D. R. Schmidt, L. R. Vale, J. N. Ullom, *National Institute of Standards and Technology, USA*; A. S. Hoover, N. J. Hoteling, D. W. Lee, M. W. Rabin, D. T. Vo, *Los Alamos National Laboratory, USA*

N42-6 (09:45) 3D Millimeter Event Localization in Bulk Scintillator Crystals
K. P. Ziock, M. A. Blackston, V. V. Thorwald, *Oak Ridge National Lab, USA*

N42-7 (10:00) A Low Background Germanium Facility under Heavy Shielding Located at the Surface
T. Neddermann, T. Koettig, O. Schulz, C. Goessling
TU Dortmund, Germany

N43 DAQ Architectures and Hardware Standards 2

Thursday, Oct. 27 11:00-12:45 Meliá, Valentia A

Session Chairs: **Gary Drake**, Argonne National Laboratory, United States
Martin L. Purschke, Brookhaven National Lab, United States

N43-1 (11:00) New Developments in Next-Generation Platform Standards for Physics Instrumentation and Controls
R. S. Larsen, R. W. Downing, *SLAC National Accelerator Laboratory, USA*; Z. Liu, *Institute of High Energy Physics, China*; A. P. Lowell, *Triple Ring Technologies, USA*; V. Pavlicek, *Fermi National Accelerator Laboratory, USA*; S. Simrock, *ITER, France*; R. Somes, *Arroyo Technology Consultants, USA*

N43-2 (11:15) Development of an ATCA IPMI Controller Mezzanine Board and Its Usage on an ATCA ROD Evaluator Board for the ATLAS LAr Upgrade
L. Hervas, *CERN, Switzerland*
On behalf of the ATLAS LAr group

N43-3 (11:30) An xTCA Compliant DAQ System Development for PXD Detector at Belle II Experiment
Z. A. Liu, H. Xu, J. Z. Zhao, Q. Wang, D. H. Sun, *Inst. of High Energy Physics, Chinese Academy of Sciences, China*; W. Kuehn, S. Lange, *Justus-Libig-universitat Giessen, Germany*

N43-4 (11:45) An Acquisition System for CMOS Imagers with a Genuine 10 Gbps Bandwith
C. Guerin[1,2], J. Marhoug[1,2], W. Tromeur[1,2], J. Houles[1,2], Q. T. Doan[1,2], A. Dominjon[1,2], T. Cajgfinger[1,2], R. Barbier[1,2]
[1]Universite de Lyon, Universite Lyon 1, France; [2]CNRS/IN2P3, Institut de Physique Nucleaire de Lyon, France

N43-5 (12:00) Front-End Electronics for the Scalable Readout System of RD51
S. Martoiu, H. Muller, *CERN, Switzerland*; J. Toledo, *Universidad Politecnica de Valencia, Spain*

N43-6 (12:15) Multi-Threaded Evolution of the Data-Logging System of the ATLAS Experiment at CERN
T. Colombo, W. Vandelli, *CERN, Switzerland*

N43-7 (12:30) Mdaq-D3, a C++ Distributed Driver Development Framework Used in a Nuclear Physics Experiment
J. Chavas[1], F. Chateau[2], S. Anvar[1]
[1]CEA, France; [2]INRIA, France

N44 High Energy Physics and Nuclear Physics Detectors : Calorimeters III

Thursday, Oct. 27 11:00-12:45 Meliá, Valentia B

Session Chairs: **Horst G. Oberlack**, MPI fuer Physik, Munich, Germany
Hong Ma, Brookhaven National Laboratory, United States

N44-1 (11:00) Status of the Atlas Liquid Argon Calorimeter and Its Performance after One Year of LHC Operation
L. Hervas, *CERN, Switzerland*
On behalf of the Atlas Liquid Argon Calorimeter Group

N44-2 (11:15) Study of the Limitations of the Operation of the ATLAS End-Cap Calorimeters at HL-LHC Luminosities
H. Oberlack, *CERN, Switzerland*
On behalf of the Hilum ATLAS Liquid Argon Endcap Collaboration

N44-3 (11:30) Operational Experience and First Results with a Highly Granular Tungsten Analog Hadron Calorimeter
F. Simon, *Max-Planck-Institut fuer Physik, Germany*
On behalf of the CALICE Collaboration

N44-4 (11:45) Construction of a Technological Semi-Digital Hadronic Calorimeter Protoype for Future Linear Collider Experiments
J. Puerta-Pelayo, *CIEMAT, Spain*
On behalf of the CALICE Collaboration

N44-5 (12:00) Performance of the ALICE Zero Degree Calorimeters in Pb-Pb Collisions at LHC
N. De Marco, *INFN - sezione di Torino, Italy*
On behalf of the ALICE Collaboration

N44-6 (12:15) Scintillators with Silicon Photomultiplier Readout for Timing Measurements in Hadronic Showers
C. Soldner, *Max-Planck-Institute for Physics, Germany*
On behalf of the CALICE Collaboration

N44-7 (12:30) Particle-Gamma-Separation with the CALIFA Calorimeter
M. Bendel, *University of Technology, Munich, Germany*
On behalf of the R3B collaboration

N45 Photodetectors 3

Thursday, Oct. 27 11:00-12:15 Meliá, Valentia C

Session Chairs: **Hartmut Hillemanns**,CERN, Switzerland
Vivek V. Nagarkar, RMD, Inc., United States

N45-1 (11:00) Development of Large Area Photon Counting Detectors Optimized for Cherenkov Light Imaging with High Temporal and sub-mm Spatial Resolution
O. H. W. Siegmund, J. B. McPhate, A. S. Tremsin, S. R. Jelinsky, *University of California at Berkeley, USA*; H. J. Frisch, *University of Chicago, USA*; J. W. Elam, A. U. Mane, *Argonne National Laboratory, USA*; M. Members of LAPPD Collaboration, *LAPPD collaboration, USA*

N45-2 (11:15) Performance and Lifetime of Microchannel Plate PMTs
A. Lehmann, *University Erlangen-Nuremberg, Germany*
On behalf of the PANDA Cherenkov Group

N45-3 (11:30) InAs Avalanche Photodiodes for X-Ray Detection
R. B. Gomes, P. J. Ker, C. H. Tan, J. P. R. David, J. S. Ng
University of Sheffield, United Kingdom

N45-4 (11:45) Electron Response in Windowed and Windowless Si(Li), SDD and PIN Diode Photodetectors
S. J. Asztalos, C. Cox, W. Hennig, *XIA, LLC, USA*

N45-5 (12:00) Development of a Hybrid Scintillation Spectrometer Emplying SrI2(Eu) and a Novel Silicon Drift Photo-Detector
J. D. Valentine[1], R. M. Polichar[1], L. S. Carlson[2], W. L. Hicks[1], W. E. Hood[1], M. A. Peressini[1], L. G. Chavez[1], L. Fabris[3], E. M. Leboffe[1], N. R. Baker[1], J. Baltgavis[1]
[1]SAIC, USA; [2]LSC Techologies, USA; [3]Oak Ridge National Laboratory, USA

N46 DAQ Architectures and Hardware Standards 3

Thursday, Oct. 27 14:30-15:45 Meliá, Valentia A

Session Chairs: **Martin L. Purschke**, Brookhaven National Lab, United States
Gary Drake, Argonne National Laboratory, United States

N46-1 (14:30) Wireless Data Acquisition System for Large Instrumentation Systems
M. D'Agostino, P. De Lurgio, Z. Djurcic, G. Drake, A. Kreps
Argonne National Laboratory, United States

N46-2 (14:45) The IBL BOC Demonstrator
A. Kugel[1], J. Dopke[2], D. Falchieri[3], T. Flick[4], A. Gabrielli[3], J. Grosse-Knetter[5], T. Heim[4], J. Joseph[6], N. Krieger[5], P. Morettini[7], M. Neumann[4], A. Polini[7], N. Schroer[1]
[1]Heidelberg University, Germany; [2]CERN, Swizzerland; [3]Bologna University, Italy; [4]Bergische Universitaet Wuppertal, Germany; [5]Universitaet Goettingen, Germany; [6]LBNL, USA; [7]INFN, Italy

N46-3 (15:00) A Data Acquisition Module with Online Digital Adaptive Processing for Pulse Discrimination in the Angra Neutrino Project
H. P. Lima Jr, A. F. Barbosa, R. G. Gama, *Centro Brasileiro de Pesquisas Fsicas, Brazil*; L. M. de Andrade Filho, A. S. Cerqueira, M. V. S. Oliveira, *Universidade Federal de Juiz de Fora, Brazil*; L. F. Gonzalez, *Universidade Estadual de Campinas, Brazil*

N46-4 (15:15) Data Acquisition System of CANDLES Detector for Double Beta Decay Experiment
S. Umehara, M. Nomachi, Y. Sugaya, G. Ito, M. Saka, K. Seki, S. Ajimura, *Osaka University, Japan*; Y. Tamagawa, *Fukui University, Japan*

N46-5 (15:30) Performance and Operational Experience with the Heterogeneous Farm of the ATLAS Trigger and Data-Acquisition System.

N. Garelli, *CERN, Switzerland,*
On behalf of the ATLAS TDAQ Collaboration

N47 Scintillators 5

Thursday, Oct. 27 14:30-15:45 Meliá, Valentia B

Session Chairs: **Christophe Dujardin**, University Lyon1, France
Alex Gektin, Institute for Scintillation Materials, Ukraine

N47-1 (14:30) Quality of the PbWO4 Crystals for the PANDA-EMC
T. Eissner, *2. Physikalische Institut, University Giessen, Germany*
On behalf of the PANDA Collaboration

N47-2 (14:45) Development of Inorganic Scintillating Fibres Made of LYSO:Ce
R. W. Novotny, *2nd Physics Institute, University Giessen, Germany*
On behalf of the HP2-WP21 Collaboration

N47-3 (15:00) Crystal Growth of Eu Doped SrI_2 Single Crystals by Modified Micro-Pulling-down Method and the Scintillation Properties
Y. Yokota[1], T. Yanagida[2], D. Totsuka[1,3], N. Kawaguchi[1,4], K. Fukuda[1,4], A. Yamaji[1], Y. Futami[2], A. Yoshikawa[1,2]
[1]Institute of Materials Research, Tohoku University, Japan; [2]New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan; [3]Nihon Kessho Kogaku Corporation, Japan; [4]Tokuyama Corporation, Japan

N47-4 (15:15) Characterization Technique of Sub-Millimeter Scintillating Fiber.
D. Lo Presti[1], G. V. Russo[1], N. Randazzo[2], S. Aiello[2], E. Leonora[2], F. Longhitano[2], V. Sipala[1], D. L. Bonanno[3]
[1]University of Catania - I.N.F.N. Catania, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]Studio ingegneria Bonanno, Italy

N47-5 (15:30) Phase Separated CsI-NaCl Scintillator with Optical Guiding Function
T. Den, T. Saito, R. Horie, Y. Ohashi, N. Yasui
Canon Inc., Japan

N48 Fault Tolerance and Radiation Hardness

Thursday, Oct. 27 14:30-15:45 Meliá, Valentia C

Session Chairs: **Erik H. M. Heijne**, CERN, Switzerland
Christian Bohm, University of Stockholm, Department of physics, Sweden

N48-1 (14:30) On the Mechanisms of Damage in Lead Tungstate Crystals Exposed to High Hadron Fluences
F. Nessi-Tedaldi, G. Dissertori, D. Luckey, F. Pauss, R. Wallny, *ETH Zurich, Switzerland*; R. Spikings, R. Van Der Lelij, *University of Geneva, Switzerland*

N48-2 (14:45) Radiation-Hard Asics for Optical Data Transmission in the First Phase of the LHC Upgrade
K. K. Gan, *The Ohio State University, USA*

N48-3 (15:00) Testing Radiation Tolerance of SerDeses for Serial Links of the SuperB Experiment
A. Aloisio, R. Giordano, *Universita' degli Studi di Napoli 'Federico II', Italy*; V. Izzo, *INFN Sezione di Napoli, Italy*

N48-4 (15:15) Study of Single Event Transients on the VELA ASIC, X-Ray Detectors FEE for New Generation Astronomical Instruments
M. Uslenghi[1], M. Fiorini[1], C. Fiorini[2,1], L. Bombelli[2], S. Facchinetti[2], A. Marone[2], G. Rocco[2], C. A. Vermi[2], S. Mattiazzo[3,4], D. Bisello[3,4], A. Candelori[3], J. Wyss[5]
[1]INAF/IASF-Milano, Italy; [2]Politecnico di Milano, Italy; [3]INFN sez. Padova, Italy; [4]Universita' di Padova, Italy; [5]Universita' di Cassino, Italy

N48-5 (15:30) Radiation Tolerant IP Cores for the Control and Readout of Front-End Electronics in High Energy Physics Experiments
G. Bianchi[1], N. Costantino[1,2], L. Fanucci[2], J. Incandela[1], G. Magazzu'[1,3], C. Tongiani[1], S. Saponara[2]
[1]University of California, USA; [2]University of Pisa, Italy; [3]INFN, Italy

N49 Simulation and Analysis HEP and Astroparticles

Thursday, Oct. 27 14:30-15:45 Meliá, Meeting 1&2&3

Session Chairs: **Gloria Corti**, CERN, Switzerland
Andreas Mussgiller, DESY, Germany

N49-1 (14:30, invited) Description of Hadron-Induced Showers in Calorimeters Using the Geant4 Simulation Toolkit
A. Dotti, *CERN, Switzerland*
On behalf of the Geant4 Hadronic Working Group

N49-2 (14:45) A Novel Alignment Procedure and Results for the LHCb Silicon Tracker Detector
F. Dupertuis, *Laboratory for High Energy Physics (LPHE), Ecole Federale de Lausanne (EPFL), Switzerland*

N49-3 (15:00) Hadronic Shower Reconstruction in an Imaging Calorimeter
M. V. Chadeeva, *Institute for Theoretical and Experimental Physics, Russia*
On behalf of the CALICE Collaboration

N49-4 (15:15) PANDA Disc DIRC : Simulation and Reconstruction
T. Keri, *University of Glasgow, United Kingdom*
On behalf of the PANDA Cherenkov Group

N49-5 (15:30) Simulations for Tracking Cosmogenic Activation in Germanium and Copper
E. Aguayo Navarrete, *Pacific Northwest National Laboratory, USA*
On behalf of the Majorana Collaboration

N50 Digitization and Signal Processing

Thursday, Oct. 27 16:30-18:15 Meliá, Valentia A

Session Chairs: **Alberto Aloisio**, University of Naples 'Federico II' and INFN, Italy
Stefan Ritt, Paul Scherrer Institute, Switzerland

N50-1 (16:30) Domino Ring Samplers for Dual Read-Out Calorimetry
M. Cascella[1,2], *[1]University of Pisa, Italy; [2]INFN, Italy*
On behalf of the DREAM collaboration

N50-2 (16:45) Production and Commissioning of a Large Prototype Digital Hadron Calorimeter for Future Colliding Beam Experiments
G. Drake[1], A. Baumbaugh[2], J. Butler[3], T. Cundiff[1], L. Dal Monte[2], P. De Lurgio[1], K. Francis[1], B. Haberichter[1], E. Hazen[3], J. Hoff[2], S. Holm[2], A. Kreps[1], J. Repond[1], J. Schlereth[1], J. Smith[4], D. Trojand[5], S. Wu[3], L. Xia[1], Q. Zhang[6]
[1]Argonne National Laboratory, USA; [2]Fermi National Accelerator Laboratory, USA; [3]Boston University, USA; [4]University of Texas - Arlington, USA; [5]McGill University, Canada; [6]Institute of High Energy Physics, China

N50-3 (17:00) Pulse Pileup Recovery for the Front-End Electronics of the PANDA Electromagnetic Calorimeter
G. Tambave, *Kernfysisch Versneller Instituut (KVI), Groningen, Netherlands*
On behalf of the on behalf of the PANDA Collaboration

N50-4 (17:15) Requirements and Qualitative Comparison of Fast Waveform Digitizers for Data-Acquisition Systems Designed for Nuclear Nonproliferation Applications
M. Flaska, G. Chaud, R. T. Schiffer, S. A. Pozzi, D. D. Wentzloff
University of Michigan, USA

N50-5 (17:30) A Novel Nuclear Pulse Digitizing Scheme Using Time over Dynamic Threshold
W. Yonggang, Z. Wensong, C. Jun
University of Science and Technolgy of China, China

N50-6 (17:45) Real-Time Embedded Lossless Compression for Sparse Signal Data Optimized for X-Ray Free-Electron Laser Experiments
A. Amselem[1], T. Hatsui[2], M. Yamaga[1]
[1]JASRI (Japan Synchrotron Radiation Institute), JAPAN; [2]RIKEN SPring-8 Center, JAPAN

N50-7 (18:00) Improving Single Slope ADC and an Example Implemented in FPGA with 16.7 GHz Equivalent Counter Clock Frequency
J. Wu, *Fermilab, USA*; J. Odeghe, *South Carolina State University, USA*; S. Stackley, *Boston University, USA*

N51 Nuclear Detectors 2

Thursday, Oct. 27 16:30-18:15 Meliá, Valentia B

Session Chairs: **Paul A. Hausladen**, Oak Ridge National Laboratory, United States
Marek Flaska, University of Michigan, United States

N51-1 (16:30) Large-Scale Gadolinium-Doped Water Cerenkov Detector for Non-Proliferation
M. Sweany[1], A. Bernstein[2], N. Bowden[2], S. Dazeley[2], G. Keefer[2], R. Svoboda[1], M. Tripathi[1]
[1]University of California, Davis, USA; [2]Lawrence Livermore National Lab, USA

N51-2 (16:45) R&D of a Fast-Neutron Imaging Detector Based on Bulk-Micromegas TPC
X. Zhang[1], D. Attie[2], P. Colas[2], H. Shen[1], W. Wang[2,1], X. Wang[1], C. Zhang[1], Y. Chen[1], L. An[1], Y. Zhang[1]
[1]Lanzhou University, China; [2]CEA/Irfu Saclay, France

N51-3 (17:00) Multianode Photomultiplier Tube Studies for Ring Imaging Cherenkov Applications
R. A. Montgomery[1], M. Contalbrigo[2], E. N. Cowie[1], M. Hoek[1], T. Keri[1], M. Mirazita[3], P. Rossi[3], B. Seitz[1]
[1]University of Glasgow, Scotland; [2]INFN Ferrara, Italy; [3]INFN Laboratori Nazionali di Frascati, Italy

N51-4 (17:15) Improved Gradiometer Coil for Inductive Detection of Magnetic Monopoles
S. Rescia, *Brookhaven National Laboratory, USA*

N51-5 (17:30) A Composite Gamma Detector with Increased Sensitivity at Low Energies
S. Friedrich, C. R. Bates, M. T. Burks, *Lawrence Livermore National Laboratory, USA*; D. P. DiPrete, *Savannah River National Laboratory, USA*

N51-6 (17:45) Spectrometric Performances of Monocrystalline Artificial Diamond Detectors Operated at High Temperature
M. Angelone, N. Fonnesu, M. Pillon, G. Prestopino, *ENEA, Italy*; E. Milani, M. Marinelli, C. Verona, G. Verona-Rinati, *Universit degli Studi, Italy*

N51-7 (18:00) Development of Method for Detection of Alpha Contamination with Using UV-Camera DayCor by OFIL
O. P. Ivanov, V. Stepanov, S. Smirnov, A. Volkovich
National Research Centre Kurchatov Institute, Russia

N52 Homeland Security 3

Thursday, Oct. 27 16:30-18:15 Meliá, Valentia C

Session Chairs: **Nathan Hilton**, Sandia National Lab, United States
Aleksey E. Bolotnikov, Brookhaven National Laboratory, United States

N52-1 (16:30) Performance of the Roadside Tracker Portal-Less Portal Monitor
K. P. Ziock, A. M. Cheriyadat, F. Lorenzo, J. S. Goddard, D. E. Hornback, T. P. Karnowski, R. A. Kerekes, R. J. Newby
Oak Ridge National Laboratory, USA

N52-2 (16:45) An Integrated Mobile System for Port Security
L. Stevanato[1], D. Cester[1], D. Fabris[2], M. Lunardon[1,2], S. Moretto[1,2], G. Nebbia[2], S. Pesente[1], G. Viesti[1,2], F. Neri[3], S. Petrucci[3], S. Selmi[3], C. Tintori[3]
[1]Universit degli studi di padova, Italy; [2]INFN, Italy; [3]CAEN SPA, Italy

N52-3 (17:00) X-Ray Radiation Detectors of Scintillator-Photodiode Type for Security and Non Destructive Testing
O. D. Opolonin, V. D. Ryzhikov, O. K. Lysetska, S. M. Galkin, Y. F. Voronkin
INSTITUTE for SCINTILLATION MATERIALS National Academy of Sciences of Ukraine, Ukraine

N52-4 (17:15) Advanced Electromagnetic Sensors to Monitor Changes in Materials Properties
A. N. Lasseigne, J. E. Jackson, K. M. Koenig, *Generation 2 Materials Technology LLC, USA*; J. S. Morrell, *Y-12 National Security Complex, USA*

N52-5 (17:30) Ultra-High Resolution Alpha Particle Spectrometry Using Superconducting Microcalorimeter Detectors
R. D. Horansky[1], J. A. Beall[1], V. Kotsubo[1], D. Schmidt[1], M. K. Bacrania[2], M. P. Croce[2], E. M. Bond[2], D. E. Dry[2], W. A. Moody[2], M. W. Rabin[2], J. N. Ullom[1]
[1]National Institute of Standards and Technology, USA; [2]Los Alamos National Laboratory, USA

N52-6 (17:45) A Compton-Suppressed Phoswich Detector for Radioxenon Measurements
A. T. Farsoni, *Oregon State Universtiy, USA*

N52-7 (18:00) Characterization and Calibration of Large-Volume PVT Detectors Using Tagged Gamma Sources
G. Pausch, K. Roemer, C.-M. Herbach, Y. Kong, R. Lentering, J. Stein
FLIR Radiation GmbH, Germany

N53 Simulation Medical Physics and Homeland Security

Thursday, Oct. 27 16:30-18:15 Meliá, Meeting 1&2&3

Session Chairs: **Alexander S. Howard**, ETH, Zurich, Switzerland
George Kontaxakis, UPM, Madrid, Spain

N53-1 (16:30) A New Compton Imaging Algorithm for γ-Ray Tracking HPGe Detectors
M. Doncel, B. Quintana, *University of Salamanca, Spain*; A. Gadea, *IFIC, Spain*

N53-2 (16:45) Multiple-Hit Parameter Estimation in Monolithic Detectors
W. C. J. Hunter, R. S. Miyaoka, T. K. Lewellen, *University of Washington, USA*; H. H. Barrett, *University of Arizona, USA*

N53-3 (17:00) GAMOS: an Easy and Flexible Way to Use GEANT4
P. Arce, J. I. Lagares, *CIEMAT, Spain*; L. Harkness, *University of Liverpool, United Kingdom*; L. Desorgher, *SpaceIT, GmbH, Switzerland*; G. De Lorenzo, *IFAE, Spain*; Y. Abreu, *CEADEN, Cuba*; Z. Wang, *PSI, Switzerland*

N53-4 (17:15) Avalanche Gain Distribution of X-Ray Avalanche Photodiodes
R. B. Gomes[1], C. H. Tan[1], J. P. R. David[1], J. E. Lees[2], J. S. Ng[1]
[1]University of Sheffield, United Kingdom; [2]University of Leicester, UK

N53-5 (17:30) Charged Particle Interactions Library for Geant4
E. Mendoza, F. Sansaloni, P. Arce, D. Cano-Ott, J. I. Lagares
CIEMAT, Spain

N53-6 (17:45) Pulse Height Tally Response Expansion Method for Detector Systems
T. Zipperer, D. Zhang, F. Rahnema,
Georgia Institute of Technology, USA

N53-7 (18:00) Delayed Neutron Measurement in High Frequency Mode and Its Application to the Determination of Fissile Content in Spent Fuel Assembly
T.-H. Lee, H.-S. Shin, H.-D. Kim
Korea Atomic Energy Research Institute, South Korea

MIC7 PET Imaging

Thursday, Oct. 27 08:30-10:30 VCC, Auditorium 1

Session Chairs: **Cristina Lois**, Universidade de Santiago de Compostela, Spain
Bjoern W. Jakoby, Siemens Medical Solutions USA, Inc., United States

MIC7-1 (08:30) Simultaneous Reconstruction of Scatter and Unscattered PET Coincidences Using TOF and Energy Information
M. Conti, I. Hong, C. Michel, *Siemens Healthcare, USA*

MIC7-2 (08:45) Isotropic Resolution PET Detector "X'tal Cube" Using a Monolithic Scintillator Segmented by Laser Processing
E. Yoshida[1], N. Inadama[1], F. Nishikido[1], H. Tashima[1], S. Yoshioka[2], T. Moriya[3], T. Omura[3], M. Watanabe[3], M. Suga[2], H. Murayama[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan; [3]Hamamatsu Photonics K. K., Japan

MIC7-3 (09:00) Development and Testing of a SSPM based DOI capable prototype PET Detector
C. J. Bircher[1], X. Sun[1], A. Lan[1], T. Ma[2], Y. Xia[2], X. Zhu[2], Y. Shao[1]
[1]University of Texas MD Anderson Cancer Center, USA; [2]Tsinghua University, China

MIC7-4 (09:15) High Voltage Photodetector Calibration for Improved Timing Resolution with Scintillation Detectors for TOF-PET Imaging
Z. S. Davidson, R. I. Wiener, M. F. Newcomer, R. Vanberg, J. S. Karp
University of Pennsylvania, USA

MIC7-5 (09:30) On the Effect of Solid State Photomultiplier Microcell Size on Timing Performance for PET Applications
F. Guerrieri, A. Wagadarikar, S. Dolinsky
GE Global Research, USA

MIC7-6 (09:45) Investigating Performance of Limited Angle Dedicated Breast TOF PET
Y. Chen[1,2], K. Saha[2], S. J. Glick[2]
[1]Henry M. Jackson Foundation for the Advancement of Military Medicine, USA; [2]University of Massachusetts Medical School, USA

MIC7-7 (10:00) Dedicated High Resolution Prostate PET Imager
A. V. Stolin, S. Majewski, P. Martone, R. R. Raylman
West Virginia University, USA

MIC7-8 (10:15) Continuous LYSO-SSPM Array Based PET Detectors for Clinical and Small Volume Imaging Studies
P. Dokhale[1], R. Robertson[1], C. Stapels[1], J. Christian[1], M. Kaul[2], S. Surti[2], J. S. Karp[2], P. Vaska[3], K. Shah[1]
[1]Radiation Monitoring Devices, Inc., USA; [2]University of Pennsylvania, USA; [3]Brookhaven National Laboratory, USA

MIC8 Image Reconstruction 1

Thursday, Oct. 27 08:30-10:30 VCC, Auditorium 2

Session Chairs: **Dimitris Visvikis**, U650 INSERM, France
Paul E. Kinahan, University of Washington, United States

MIC8-1 (08:30) PET Image Reconstruction Using Statistical Shape Prior and Level Set Method
J. Cheng-Liao, J. Qi, *University of California, Davis, USA*

MIC8-2 (08:45) Evaluation of a Direct 4D Reconstruction Method Using GLLS for Estimating Parametric Maps of Micro-Parameters
G. I. Angelis, J. C. Matthews, F. A. Kotasidis, P. J. Markiewicz, W. R. Lionheart, *The University of Manchester, UK*; A. J. Reader, *McGill University, Canada*

MIC8-3 (09:00) Does OSEM Achieves the Lowest Variance ?
C. Cloquet, *Universit Libre de Bruxelles, Belgium*; M. Defrise, *Vrije Universiteit Brussel, Belgium*

MIC8-4 (09:15) Impact of Erroneous Kinetic Model Formulation in Direct 4D Image Reconstruction
F. A. Kotasidis, J. C. Matthews, G. I. Angelis, P. J. Markiewicz, W. R. Lionheart, *The University of manchester, United Kingdom*; A. J. Reader, *McGill University, Canada*

MIC8-5 (09:30) FBP Reconstruction of Sinograms with Gaps Based on the Inversion of a Perturbed Matrix
J. L. Herraiz[1], J. J. Vaquero[2], J. M. Udias[1]
[1]Universidad Complutense de Madrid, Spain; [2]Universidad Carlos III de Madrid, Spain

MIC8-6 (09:45) Estimating Effective Model Kernel Widths for PSF Reconstruction in PET
C. C. Watson, *Siemens Healthcare, USA*

MIC8-7 (10:00) Simultaneous Reconstruction of Activity and Attenuation in Time-of-Flight PET
A. Rezaei, J. Nuyts, *K.U.Leuven, Belgium*; G. Bal, C. Michel, C. Watson, *Siemens Medical Solutions, USA*

MIC8-8 (10:15) Reconstruction of Short Time PET Scans Using Bregman Iterations
J. Mueller[1], C. Brune[1], A. Sawatzky[1], T. Koesters[2], K. P. Schaefers[2], M. Burger[1]
[1]Institute for Computational and Applied Mathematics, Germany; [2]European Institute of Molecular Imaging, Germany

MIC10 Data Corrections for SPECT

Thursday, Oct. 27 14:30-16:00 VCC, Auditorium 1

Session Chairs: **Steven R. Meikle**, University of Sydney, Australia
Nils U. Schramm, Research Center Juelich, Germany

MIC10-1 (14:30) Comparison of Local and Global Approaches for Activity Estimation in Micro-SPECT Imaging
S. C. Moore[1,2], S. Southekal[1,2], M.-A. Park[1,2], S. J. McQuaid[1,2], M. F. Kijewski[1,2], S. P. Mueller[3]
[1]Brigham & Women's Hospital, USA; [2]Harvard Medical School, USA; [3]Universitaetsklinikum Essen, Germany

MIC10-2 (14:45) Cone-Beam Calibration with Small Balls: Centroids or Ellipse Centers?
R. Clackdoyle[1,2], C. Mennessier[1]
[1]CNRS and Jean Monnet University, France; [2]University of Ottawa, Canada

MIC10-3 (15:00) Combined Respiratory and Rigid Body Motion Compensation in Cardiac Perfusion SPECT Using a Visual Tracking System
P. H. Pretorius, M. A. King, K. L. Johnson, J. M. Mukherjee, J. Dey, A. Konik
University of Massachusetts Medical School, United States

MIC10-4 (15:15) Resolution Recovery for Compton Camera Using Origin Ensemble Algorithm
A. Andreyev[1,2], A. Celler[2], A. Sitek[1]
[1]Harvard Medical School and Brigham and Women's Hospital, USA; [2]University of British Columbia, Canada

MIC10-5 (15:30) Resolution and Noise Properties of 123I MIBG SPECT Images with Collimator-Detector Response Modeling
J. B. Moody[1], Y. K. Dewaraja[2], E. P. Ficaro[1]
[1]INVIA LLC, USA; [2]University of Michigan, USA

MIC10-6 (15:45) Automated Cardiac Pose Computation from Reconstructed Myocardial SPECT Images
S. Dwivedi, *Philips Healthcare, Philips Electronics India Limited, India*; H. Liang, J. Ye, A. J. Da Silva, A. Wong, A. Gervais, S. Flowers, H. Hines, *Philips Healthcare, USA*

MIC11 Hadron Therapy and Imaging in Radiotherapy

Thursday, Oct. 27 14:30-16:00 VCC, Auditorium 2

Session Chairs: **Avraham Dilmanian**, Brookhaven National Laboratory, United States
Martin Grossmann, PSI, Switzerland

MIC11-1 (14:30) Monte Carlo Modeling and in-Vivo Imaging at the Heidelberg Ion Beam Therapy Center
K. Parodi, J. Bauer, A. Mairani, F. Sommerer, D. Unholtz, T. Haberer, J. Debus
Heidelberg Ion Beam Therapy Center and Heidelberg University Hospital, Germany

MIC11-2 (14:45) Performance of Upstream Detectors of FIRST Experiment on Therapeutical Carbon Beam of 200-400 MeV/A
A. Sarti[1,2], V. Patera[1,2], A. Sciubba[1,2], L. Piersanti[2], A. Paoloni[1]
[1]INFN - LNF, Italy; [2]Universit di Roma «La Sapienza», Italy

MIC11-3 (15:00) Investigations on Novel Imaging Techniques for Ion Beam Therapy: Carbon Ion Radiography and Tomography
I. Rinaldi[1,2], S. Brons[2], O. Jaekel[1,3], R. Panse[2], B. Voss[4], K. Parodi[2]
[1]German Cancer Research Center, Germany; [2]Heidelberg Ion Therapy Center, Germany; [3]University Hospital Heidelberg (Dep. Radiation Therapy and Radiation Oncology), Germany; [4]GSI Biophysics, Germany

MIC11-4 (15:15) Commissioning Operations and Performances of the Dose Delivery System for CNAO
S. Giordanengo[1], M. Donetti[1,2], M. A. Garella[1,2], M. Lavagno[3], L. Capasso[1], R. Cirio[1,4], E. Marasso[4], F. Marchetto[1], C. Peroni[1,4], R. Sacchi[1,4]
[1]Istituto Nazionale di Fisica Nucleare, Italy; [2]Fondazione CNAO, Italy; [3]De.Tec. Tor. srl, Italy; [4]Universit degli studi di Torino, Italy

MIC11-5 (15:30) Dose-Free Monitoring of Radiotherapeutic Treatments with Scattered Photons: Concept and Simulation Study
M. Cunha[1], M. Pinto[1], B. Ferreira[2], P. Fonte[1,3], M. C. Lopes[4], P. Crespo[1,3]
[1]LIP - Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]University of Aveiro, Portugal; [3]ISEC - Instituto Superior de Engenharia de Coimbra, Portugal; [4]Instituto Português de Oncologia de Coimbra Francisco Gentil, EPE, Portugal

MIC11-6 (15:45) Feasibility Study and First Results of a Real Time Imaging Dosimeter for External Beam Radiation Therapy
S. Price, A. A. Silvius, E. W. Izaguirre
Washington University in Saint Louis, MO

R13 Applications II

Thursday, Oct. 27 08:30-09:50 VCC, Auditorium 3 A & B

Session Chair: **Ian Radley**, Kromek, United Kimgdom

R13-1 (08:30, invited) Status and Perspectives of the COBRA Double Beta Experiment Using CZT Detectors
K. T. Zuber, *Technische Universitaet Dresden, Germany*

R13-2 (08:50) Combined Medipix Based Imaging System with Si and CdTe Sensor
Z. Vykydal, J. Jakubek, P. Soukup, *Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic*; A. Fauler, M. Fiederle, A. Zwerger, *Freiburger Materialforschungszentrum, Germany*

R13-3 (09:05) Explosive Detection with an X-Ray Backscattering System Based on CdTe Spectrometric Detector
C. Paulus, J. Tabary, F. Mougel, N. Billon Pierron, F. Mathy, J. Rinkel, L. Verger
CEA-Leti, MINATEC Campus, FRANCE

R13-4 (09:20) Development of Cadmium Telluride Strip- and Pixel-Sensors for High Sensibility X-Ray Diffraction Device
H. Toyokawa, T. Hirono, S. Wu, M. Kawase, Y. Furukawa, T. Ohata, *Japan Synchrotron Radiation Research Institute, Japan*; H. Ikeda, G. Sato, S. Watanabe, T. Takahashi, *Japan Aerospace Exploration Agency, Japan*

R13-5 (09:35) Design and Tests of the Hard X-Ray Polarimeter X-Calibur
Q. Guo[1,2], M. Beilicke[1], M. Baring[3], S. Barthelmy[4], R. Binns[1], J. Buckley[1], R. Coswik[1], P. Dowkontt[1], A. Garson[1], Y. Haba[5], M. Israel[1], H. Kunieda[5], K. Lee[1], H. Matsumoto[5], T. Miyazawa[5], T. Okajima[4], J. Schnittman[4], K. Tamura[5], J. Tueller[4], H. Krawczynski[1]
[1]Washington University in Saint Louis, USA; [2]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, China; [3]Goddard Space Flight Center, USA; [4]Rice University, USA; [5]Nagoya University, Japan

R14 Applications III

Thursday, Oct. 27 11:00-12:35 VCC, Auditorium 3 A & B

Session Chair: **Loick Verger**, CEA-LETI, France

R14-1 (11:00, invited) The Development of a Gamma Camera for Security Applications
C. P. Lambropoulos, *Technological Educational Institute of Chalkida, Greece*
On behalf of the COCAE Collaboration

R14-2 (11:20) Digital Pulse Processing System for High Resolution Spectroscopy with Compound Semiconductor Detectors
L. Abbene, G. Gerardi
Dipartimento di Fisica, Universita' di Palermo, Italy

R14-3 (11:35) A Fully Abuttable Detector for Multi-Energy, High-Flux Photon Counting
M. Clajus, S. Snyder, E. Tumer, T. Tumer, A. Volkovskii
NOVA R&D, Inc., USA

R14-4 (11:50) Amorphous Selenium as a Functional Material in Radiation Detection
O. Rubel[1,2], A. Reznik[1,2], W. Zhao[3], S. Kasap[4], J. Rowlands[1,2]
[1]Thunder Bay Regional Research Institute, Canada; [2]Lakehead University, Canada; [3]Health Sciences Center, State University of New York at Stony Brook, U.S.; [4]University of Saskatchewan, Canada

R14-5 (12:05) Characterization of Si, CdTe and GaAs Sensor Layers in Medipix Assemblies Using Microfocus X-Ray Sources

R. A. Younis[1], N. G. Anderson[2], A. Butler[2,1,3,4], P. Butler[1,3], R. M. Doesburg[1], M. F. Walsh[5], J. L. Mohr[5], S. J. Nik[1], R. Zainon[1]
[1]University Of Canterbury, New Zealand; [2]Canterbury District Health Board, New Zealand; [3]European Centre for Nuclear Research (CERN), Switzerland; [4]University of Otago Medical School, New Zealand; [5]University of Otago, New Zealand

R14-6 (12:20) Low-Temperature Bump Bonding of Timepix Readout Chips and CdTe Sensors at Different Sensor Pitches
H. Heikkinen, A. Gadda, S. Vahanen, J. Salonen, P. Monnoyer, *VTT Technical Research Center of Finland, Finland*; L. Tlustos, G. Blaj, M. Campbell, *CERN, Switzerland*

R15 TlBr

Thursday, Oct. 27 14:30-16:05 VCC, Auditorium 3 A & B

Session Chair: **Andrea Zappettini**, IMEM-CNR, Italy

R15-1 (14:30, invited) Single Carrier TlBr Gamma-Ray Spectrometers
K. S. Shah, H. Kim, A. Kargar, G. Ciampi, Y. P. Ogorodnik, L. Cirignano, W. Higgins, *Radiation Monitoring Devices, Inc., USA*; F. Olschner, *Cremat, USA*

R15-2 (14:50) Novel Method for Removing Impurities in Semiconductor Gamma-Ray Detectors
R. B. James[1], K.-H. Kim[1], A. E. Bolotnikov[1], G. C. Camarda[1], A. Hossain[1], G. Yang[1], H. Kim[2], L. Cirignano[2], K. Shah[2], V. Carcelen[1], A. Kargar[2], G. Ciampi[2], W. Higgins[2], F. Olschner[2]
[1]Brookhaven National Laboratory, USA; [2]RMD, Inc., USA

R15-3 (15:05) Room Temperature Stability of TlBr Gamma Detectors
A. Conway, L. Voss, A. Nelson, P. Beck, R. Nikolic, S. Payne, *LLNL, USA*; H. Kim, L. Cirignano, K. Shah, *RMD, USA*

R15-4 (15:20) Demonstration of the 3-D Position-Sensitive Capability of TlBr Detectors
C. L. Thrall[1], Z. He[1], H. Kim[2], L. Cirignano[2], K. Shah[2], W. Kaye[1], F. Zhang[1]
[1]Univeristy of Michigan, USA; [2]Radiation Monitoring Devices, Inc., USA

R15-5 (15:35) Optimizing Ionic Resistivity in TlBr Through Doping
S. R. Bishop, M. Kuhn, H. L. Tuller, *Massachusetts Institute of Technology, USA*; W. Higgins, G. Ciampi, A. Churilov, K. Shah, *Radiation Monitoring Devices, Inc., USA*

R15-6 (15:50) Thallium Bromochloride Gamma-Ray Spectrometer Development
L. J. Cirignano[1], H. Kim[1], A. V. Churilov[1], G. Ciampi[1], A. Kargar[1], S. Kim[1], Y. P. Ogorodnik[1], W. M. Higgins[1], F. Olschner[2], K. S. Shah[1]
[1]Radiation Monitoring Devices Inc., USA; [2]Cremat Inc., USA

R16 Alternative Materials II

Thursday, Oct. 27 16:30-18:25 VCC, Auditorium 3 A & B

Session Chair: **Robert D. McLaren**, Consultant, United States

R16-1 (16:30, invited) Organic Single Crystals as Room Temperature X-Ray Detectors
B. Fraboni, A. Ciavatti, F. Merlo, A. Cavallini, *University of Bologna, Italy*; L. Basirico', A. Bonfiglio, *University of Cagliari, Italy*; A. Fraleoni-Morgera, *Sincrotrone Trieste S.C.p.A., Italy*

R16-2 (16:50) Development of Cadmium Magnesium Telluride (Cd1-xMgxTe) for Room-Temperature X- and Gamma-Ray Detectors
A. Hossain[1], V. Yakimovich[2], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], R. Gul[1], K. Kim[1], G. Yang[1], R. Herpst[2], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]International Crystal Laboratories, USA

R16-3 (17:05, invited) Defect Correlation Studies on High Resistivity 4H SiC Bulk Crystals and Epitaxial Layers for Radiation Detectors
K. C. Mandal, P. G. Muzykov, R. M. Krishna, T. C. Hayes, T. S. Sudarshan *University of South Carolina, USA*

R16-4 (17:25) Potential New Semiconducting Detection Materials Developed from Information-Based Approaches to Materials Discovery
K. F. Ferris, *Pacific NW National Laboratory, usa*; D. M. Jones, *Proximate Technologies, LLC, usa*

R16-5 (17:40) Growth of High Quality Boron Phosphide Thin Films
D. Brasfield, *Y-12 National Security Complex, USA*; C. Feigerle, J. Abbott, *University of Tennessee Knoxville, USA*

R16-6 (17:55) Neutron Energy Spectrometer Utilizing Arrayed Microstructured Semiconductor Neutron Detectors
B. W. Cooper, S. L. Bellinger, R. G. Fronk, T. J. Sobering, K. Shultis, D. S. McGregor
Kansas State University, United States of America

R16-7 (18:10) Design of a Moderated Multidetector Neutron Spectrometer for Optimal Specificity
M. J. Harrison, *Oak Ridge National Laboratory, USA*; Q. Cherel, M. Monterial, *University of Florida, USA*

MIC9.S MIC Posters 1

Thursday, Oct. 27 11:00-13:00 Sorolla, Gran Recati

Session Chairs: **Paul Vaska**, Brookhaven National Laboratory, United States
Habib Zaidi, Geneva University Hospital, Switzerland
Ciprian Catana, Massachusetts General Hospital, United States

MIC9.S-1 Fluoride Transport in Brassica: a Positron Emission Tomography Botanical Study
A. K. Converse, E. O. Ahlers, P. H. Williams, J. W. Engle, T. E. Barnhart, R. J. Nickles, O. T. DeJesus, *University of Wisconsin-Madison, USA*

MIC9.S-4 Comparison of a GATE Monte Carlo Simulation Predictions to the Performance of a High-Resolution LYSO Based Dedicated Animal PET Camera
H. Baghaei, Y. Zhang, H. Li, R. A. Ramirez, S. Liu, C. Wang, S. An, W.-H. Wong, *University of Texas, M.D. Anderson Cancer Center, USA*

MIC9.S-7 Pulse Shape Discrimination for Continuous Depth of Interaction Encoding PET Detectors: Variation in Decay Time Measurements
E. Roncali, S. R. Cherry, *University of California-Davis, USA*

MIC9.S-10 A Micro-Channel Plate Photomultiplier Tube Based PET Detector Module
H. Kim, C.-M. Kao, H. Frisch, F. Tang, C.-T. Chen, *University of Chicago, U.S*

MIC9.S-13 A Development of Waveform Sampling Readout Board for PET using DRS4
H. Kim, C.-M. Kao, C.-T. Chen, *University of Chicago, U.S*; S. Kim, *Notice Inc., Korea*

MIC9.S-16 Measurements of [11C]CO2 in Exhaled Air with a Positron-Sensitive Proportional Counter after i.v. Injection of [11C]Acetate
H. T. Sipila[1], S.-J. Heselius[2], M. K. Kalliokoski[3], J. Kemppainen[1], H. Minn[1], T. Tolvanen[1], A. Roivainen[1]
[1]Turku University Hospital, Finland; [2]Abo Akademi University, Finland; [3]University of Helsinki, Finland

MIC9.S-19 Development of a Compact Prototype MRPC Module for TOF-PET Application
D. A. Watts[1,2], G. Borghi[1], F. Sauli[1], J. Samarati[1], M. Bucciantonio[1], N. Malakhov[1]
[1]TERA Foundation, Italy; [2]Universita Autonoma de Barcelona, Spain

MIC9.S-22 The Effect of Count Statistics on the Convergence Value in OSEM Reconstruction in PET and TOF PET
G. Mettivier[1], M. Conti[2], R. Salvati[1], P. Russo[1]
[1]INFN and Univ. of Napoli, Italy, Italy; [2]3Siemens Healthcare Molecular Imaging, Tennesse

MIC9.S-25 Estimating Image Quality for Future Generations of TOF PET Scanners
M. Conti, L. Eriksson, *Siemens Healthcare, USA*

MIC9.S-28 Silicon Photomultiplier-Based Detector Array for TOF PET
J. Y. Yeom, V. Spandoudaki, C. S. Levin, *Stanford University, USA*

MIC9.S-31 Development of a High Resolution Si-PM-Based Gamma Camera System
S. Yamamoto, *Kobe City College of Technology, Japan*; H. Watabe, Y. Kanai, M. Imaizumi, T. Watabe, E. Shimosegawa, J. Hatazawa, *Osaka University, Japan*

MIC9.S-34 Imaging Performance of a PET/SPECT Dual Modality Animal System
R. Yao[1], J.-F. Beaudoin[2], X. Deng[1], J. Cadorette[2], R. Lecomte[2]
[1]State University of New York at Buffalo, USA; [2]Universit de Sherbrooke, Canada

MIC9.S-37 Comparison of FORE and FOREX for a Preclinical PET Scanner with Large Axial Aperture
B. Feng, M. Chen, *Siemens Preclinical Solutions, USA*

MIC9.S-40 Performance Characteristics of the SMARTZOOM Collimator
J. Zeintl, T. D. Rempel, M. Bhattacharya, R. Malmin, A. H. Vija
Siemens Medical Solutions USA, Inc., USA

MIC9.S-43 Timing Properties Measurements of STMicroelectronics Silicon Photomultipliers for Time-of-Flight PET Sanners
F. Riggi, *University of Catania, Italy*; P. La Rocca, *Centro Fermi, Italy*; P. G. Fallica, B. Carbone, G. Condorelli, M. Mazzillo, A. Piana, D. Sanfilippo, G. Valvo, *STMicroelectronics, Italy*

MIC9.S-46 Evaluation of High Density Pixilated Crystal Blocks with SiPM Readout as Candidates for PET/MR Detectors in a Small Animal PET Insert
C. J. Thompson[1], A. L. Goertzen[2], E. J. Berg[2], F. Retire[3], P. Kozlowski[4], L. Ryner[5], G. Stortz[4], V. Sossi[4]
[1]McGill University, Canada; [2]University of Manitoba, Canada; [3]TRIUMF, Canada; [4]University of British Columbia, Canada; [5]National Research Council, Canada

MIC9.S-49 The electronic system for a TOF PET prostate probe
P. Musico[1], L. Cosentino[2], F. Cusanno[3], R. De Leo[4], P. Finocchiaro[2], M. Foresta[4], A. Gabrielli[5], F. Garibaldi[6], F. Giorgi[5], F. Giuliani[7], M. Gricia[7], F. Loddo[4], M. Lucentini[7], F. Meddi[6], E. Monno[8], A. Pappalardo[2], R. Perrino[9], A. Ranieri[4], C. Tamma[4], M. Turisini[10]
[1]INFN Genova, Italy; [2]INFN LNS, Italy; [3]Physik, Technische Universitaet Muenchen, Germany; [4]INFN Bari, Italy; [5]INFN Bologna, Italy; [6]INFN Roma1, Itay; [7]Istituto Superiore di Sanita', Italy; [8]ENEA, Italy; [9]INFN Lecce, Italy; [10]Physics, University of Rome La Sapienza, Italy

MIC9.S-52 Comparison of the Image Quality Metrics Performance in PET and SPECT Imaging Systems
A. Samartzis[1], G. P. Fountos[2], C. M. Michail[2], A. Zanglis[3], V. Koukou[4], N. Martini[4], E. P. Kounadi[5], N. I. Kalyvas[2], I. S. Kandarakis[2], G. Nikiforidis[4]
[1]EVANGELISMOS General Hospital, Greece; [2]Technological Educational Institute, Greece; [3]University of Patras, Greece; [4]Agios Savvas Hospital, Greece; [5]ALEXANDRA University Hospital, Greece

MIC9.S-55 Slit-Slat Collimator Geometrical Calibration for a Dual Modality PET/SPECT Animal Scanner
X. Deng[1], J.-F. Beaudoin[2], J. Cadorette[2], R. Lecomte[2,3], R. Yao[1]
[1]University at Buffalo, USA; [2]Sherbrooke Molecular Imaging Center, Canada; [3]Universit de Sherbrooke, Canada

MIC9.S-58 Validation of the Spatially Variant Probability Density Functions for the HRRT
Y. Jian[1], R. Yao[2], T. Mulnix[1], R. Carson[1]
[1]Yale University, USA; [2]University of Buffalo, USA

MIC9.S-61 Design of a Monolithic Multi-Channel Front-End Readout ASIC for LYSO/SiPM-Based Small-Animal Flat-Panel PET Imaging
W. Gao[1], D. Gao[1], T. Wei[1], H. Zeng[1], Y. Duan[1], S. Lu[1], L. Shen[1], W. Xu[1], Q. Xie[2], Y. Hu[1,3]
[1]Northwestern Polytechnical University, China; [2]Huazhong University of Science and Technology, China; [3]University of Strasbourg/CNRS/IN2P3, France

MIC9.S-64 Tomographic Performance Characteristics of the IQ.SPECT System
R. Rajaram, M. Bhattacharya, X. Ding, R. Malmin, T. D. Rempel, A. H. Vija, J. Zeintl, *Siemens Medical Solution USA, Inc., USA*

MIC9.S-67 Development of a High-Resolution and Depth-of-Interaction Capable Detector for Time-of-Flight PET
S. Krishnamoorthy, M. Kaul, R. Wiener, J. S. Karp, S. Surti
University of Pennsylvania, USA

MIC9.S-70 3D X-Ray Fluorescence Images in Prostate Samples
G. R. Pereira[1], H. S. Rocha[2], M. J. Anjos[3], I. Lima[2], R. T. Lopes[2]
[1]Non-destructive Testing, Corrosion and Welding Laboratory, Department of Metallurgical and Materials, Brazil; [2]Nuclear Instrumentation Laboratory, Brazil; [3]Physics Institute, Brazil

MIC9.S-73 Fast X-Ray CT Metal Artifacts Reduction Based on Noniterative Sinogram Inpainting
Y. Zhang, Y. Pu, J. Hu, J. Zhou, *Sichuan University, China*

MIC9.S-76 Optimal Design of a Deblurring Filter in Digital Tomosynthesis for the Application of Dental X-Ray Imaging
J. E. Oh, H. S. Cho, D. S. Kim, Y. O. Park, D. K. Hong, U. K. Je, M. S. Lee, Y. J. Yang, H. J. Kim, Y. S. Koo, H. M. Cho
Yonsei University, South Korea

MIC9.S-79 Modeling Noise Properties of a High Resolution CMOS Detector for X-Ray Digital Mammography
N. I. Kalyvas[1], C. Michail[1,2], G. Fountos[1], I. Valais[1], P. Liaparinos[1], I. Seferis[2], V. Spyropoulou[2], A. Mytafidis[3], G. Panayiotakis[2], I. Kandarakis[1]
[1]Technological Educational Institute of Athens Greece, Greece; [2]University of Patras, Greece; [3],

MIC9.S-82 Substantiative Experiments of Distortion Correction for Novel Si/CdTe Compton Camera
N. Kawachi[1], M. Yamaguchi[1], Y. Nagao[1], N. Suzui[1], S. Fujimaki[1], T. Kamiya[1], H. Odaka[2,3], M. Kokubun[2,4], S. Takeda[2], S. Ishikawa[2,3], S. Watanabe[2,3], T. Takahashi[2,3], K. Torikai[5], H. Shimada[5], K. Arakawa[5], Y. Suzuki[5], T. Nakano[5]
[1]Japan Atomic Energy Agency, Japan; [2]Japan Aerospace Exploration Agency, Japan; [3]University of Tokyo, Japan; [4]Graduate Univ. for Advanced Studies, Japan; [5]Gunma University, Japan

MIC9.S-85 Simulation of Motion Artifacts in Offset Flat-Panel Cone-Beam CT
E. Hansis, L. Shao, *Philips Healthcare, USA*

MIC9.S-88 Low Dose CT Technique Using Prior Image Knowledge
S. Abbas, J. Min, J. Lee, S. Cho, *KAIST, South Korea*

MIC9.S-91 Goodbye Wires and Formers: 3-D Additive Manufacturing and Fractal Cooling Applied to MRI Gradient Coils
M. G. Urdaneta, P. Y. Stepanov, I. N. Weinberg, *Weinberg Medical Physics, United States*; S. T. Fricke, *Children's National Medical Center, United States*; R. Probst, *University of Maryland, United States*; P. M. Starewicz, *Resonance Research Incorporated, United States*

MIC9.S-94 Application of an Effective Dual-Energy Imaging Technique in Dental CBCT for Enhancing Anatomical Resolution
U. K. Je[1,2], J. E. Oh[1,2], H. S. Cho[1], S. I. Choi[1,2], Y. O. Park[1], D. K. Hong[1,2], Y. J. Yang[1,2], M. S. Lee[1], D. S. Kim[1], H. J. Kim[1], Y. S. Koo[1], S. H. Lee[1], H. M. Cho[1], B. S. Kang[3]
[1]Yonsei University, South Korea; [2]Vatech Co. Ltd., South Korea; [3]Konyang University, South Korea

MIC9.S-97 How Heterogeneous is the Liver? a Cluster Analyse of DCE-MRI Time Series
M. Mohajer[1,2], V. J. Schmid[2], R. Braren[3], P. B. Noel[3], K.-H. Englmeier[1]
[1]Institute for Biological and Medical Imaging (IBMI), Germay; [2]Department of Statistics, Germay; [3]Klinikum rechts der Isar, Germay

MIC9.S-100 A High Spatial Resolution X-Ray Camera Using a CMOS Sensor and Scintillator Matrix Technology
M. D. Wilson[1], M. Anderson[2], N. Guerrini[1], A. Sahlolm[2], P. Seller[1], O. Svenonius[2], R. Turchetta[1]
[1]STFC, UK; [2]Scint-X AB, Sweden

MIC9.S-103 Energy-Dependent Visibility Measurement and Its Simulation in X-Ray Talbot Interferometry
T. Weber, F. Bayer, W. Haas, G. Pelzer, J. Rieger, A. Ritter, L. Wucherer, J. Durst, T. Michel, G. Anton
University of Erlangen-Nuremberg, Germany

MIC9.S-106 Beam Stop Array Scattered Light Correction for Cone Beam Optical CT Evaluation of Radiochromic Gel Dosimeters
J. Solc, V. Sochor
Czech Metrology Institute, Czech Republic

MIC9.S-109 Low-Dose Thoracic CT Image Processing Using a Novel Artifact Pre-Suppressed Large-Scale Nonlocal Means
Y. Chen
INSERM U642, Laboratory LTSI, University Rennes I,, France

MIC9.S-112 Western Blotting Electrophoretic Sequencing: First Images with a Room Temperature CMOS Detector
M. Esposito, J. Newcombe, K. Wells, *University of Surrey, U.K.*

MIC9.S-115 Simulation of Ultra Low-Dose Scans in Quantum-Counting Clinical CT
T. Weidinger, T. M. Buzug, *Universitaet zu Luebeck, Germany*; S. Kappler, K. Stierstorfer, *Siemens, Germany*

MIC9.S-118 Evaluation of Cross-Modality Electromagnetic Interactions in a Shielded PET/MRI System
S. H. Maramraju[1], S. D. Smith[2], S. Rescia[2], S. Stoll[2], M. Budassi[1], T. Cao[1], B. Ravindranath[1], D. Schulz[2], P. Bhadrecha[1], P. Vaska[2], C. Woody[2], D. Schlyer[2]
[1]Stony Brook University, USA; [2]Brookhaven National Laboratory, USA

MIC9.S-121 Effect of MR truncation compensation on quantitative PET reconstruction for whole-body PET/MR
J. Tang[1], R. Haagen[2], T. Blaffert[2], S. Renisch[2], A. Blaeser[2], A. Salomon[2], B. Schweizer[2], Z. Hu[1]
[1]Philips Healthcare, United States; [2]Philips Research, Germany

MIC9.S-124 Studying the Effects of Truncated Mu-Map on Scatter Estimation
G. Bal[1], F. Kehren[1], C. Michel[1], J. Nuyts[2], M. Fenchel[3], D. Manthey[1], C. C. Watson[1]
[1]Siemens Healthcare, USA; [2]K.U. Leuven, Belgium; [3]Siemens AG, Germany

MIC9.S-127 A Novel Energy Mapping Approach in CT-Based Attenuation Correction of PET Data Using Multi-Energy CT Imaging
H. Ghadiri[1], M. R. Ay[1], M. B. Shiran[1], H. Soltanian Zadeh[2,3], H. Zaidi[4]
[1]Tehran University of Medical Sciences, Iran; [2]University of Tehran, Iran; [3]Henry Ford Health System, USA; [4]Geneva University Hospital, Switzerland

MIC9.S-130 Design and Characterization of a Dual Modality (SPET-US) Tomography Device
R. Pani[1,2], M. N. Cinti[1,2], P. Bennati[3,2], R. Pellegrini[1,2], V. Orsolini Cencelli[3,2], A. Fabbri[3,2], F. de Notaristefani[3,2], R. Scafe'[1], S. Ridolfi[1], G. De Vincentis[1], E. Di Castro[1], M. Mattioli[2], P. Boccaccio[4], G. Moschini[5], N. Lanconelli[6], S. Lo Meo[6], F. Navarria[6], D. Sacco[7]
[1]"Sapienza" University of Rome, Italy; [2]INFN, Italy; [3]"Roma Tre University of Rome, Italy; [4]LNL-INFN, Italy; [5]University of Padua, Italy; [6]University of Bologne, Italy; [7]ISPESL Monteporzio, Italy

MIC9.S-133 Sparse Crystal Setting and Large Axial FOV for Integrated Whole Body PET/MR
A. Salomon[1,2], D. Truhn[3], R. Botnar[1], F. Kiessling[3], V. Schulz[2,3]
[1]King's College London, United Kingdom; [2]Philips Research Europe, Germany; [3]RWTH/UKA Aachen University, Germany

MIC9.S-136 SiPM-PET with Short Optical Fiber Bundle for Simultaneous PET-MR Imaging
S. J. Hong[1], H. G. Kang[1], G. B. Ko[2], I. C. Song[2], J. T. Rhee[3], J. S. Lee[2]
[1]Eulji University, S. Korea; [2]Seoul National University, College of Medicine, S. Korea; [3]Konkuk University, S. Korea

MIC9.S-139 The Influence of Using Different Tissue Classes on the Accuracy MR-Based Attenuation Correction of PET Data
A. Akbarzadeh[1], M. R. Ay[1], A. Ahmadian[1], N. Riahi alam[1], H. Zaidi[2]
[1]Tehran University of Medical Sciences, Iran; [2]Geneva University Hospital, Switzerland

MIC9.S-142 Feasibility of Small Animal Dual Tracer SPECT and PET/SPECT Measurements
J. G. Mannheim, B. J. Pichler, *University of Tuebingen, Germany*

MIC9.S-145 A High-Resolution PET Insert for Simultaneous PET/MR Imaging
Y. Wu[1], M. S. Judenhofer[1], J. Bec[1], J. Zhou[1], K. Di[1], X. Bai[1], Y. Yang[1], R. Farrell[2], J. Qi[1], S. R. Cherry[1]
[1]University of California, Davis, USA; [2]Radiation Monitoring Devices Inc, USA

MIC9.S-148 Toward PET/MRI: Measurement of Positron Range in Magnetic Fields and Evaluation of a Simulator
C.-C. Liu, A. Kolb, H. Schmidt, B. J. Pichler
Eberhard-Kals-University Tuebingen, Germany

MIC9.S-151 Development of a Second Generation MRI Compatible PET Insert for Preclinical in Vivo Studies
M. M. Hossain[1], K. Lankes[1,2], H. Wehrl[1], M. S. Judenhofer[1], A. Kolb[1], C. C. Liu[1], B. J. Pichler[1]
[1]University of Tuebingen, Germany; [2]Bruker Biospin MRI GmbH, Germany

MIC9.S-154 X-Ray Based Attenuation Correction for a Dual-Modality PET/mammography Scanner
P. E. Kinahan, K. Kanal, L. R. Macdonald
University of Washington, USA

MIC9.S-157 Time Resolution Performance of an Electro-Optical-Coupled PET Detector for Time-of-Flight PET/MRI
M. F. Bieniosek, P. D. Olcott, C. S. Levin
Stanford University, USA

MIC9.S-160 A MR Compatible Brain PET Using Tileable GAPD Arrays
J. H. Jung[1], Y. Choi[1], K. J. Hong[1], J. Kang[2], W. Hu[2], H. K. Lim[1], Y. Huh[2], S. Kim[1], J. W. Jung[1], K. B. Kim[1], M. S. Song[3], H.-W. Park[3]
[1]Sogang University, Korea; [2]Sungkyunkwan University School of Medicine, Korea; [3]Korea Advanced Institute of Science and Technology, Korea

MIC9.S-163 Sinogram Restoration in Computed Tomography with a Non-Quadratic, Edge-Preserving Penalty
K. J. Little, P. J. La Riviere, *University of Chicago, USA*

MIC9.S-166 A BPF Reconstruction Algorithm for CBCT with a Half-Size Flat Panel Detector
J. Hao[1,2], L. Li[1,2], L. Zhang[1,2], Z. Chen[1,2], K. Kang[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

MIC9.S-169 Shared-Memory Alternatives for Parallel Image Reconstruction
F. Torres, F. de la Fuente, F. R. Rannou
University of Santiago of Chile, Chile

MIC9.S-172 1D-Image Reconstruction for Magnetic Particle Imaging Using a Hybrid System Function
M. Gruettner[1], M. Graeser[1], S. Biederer[1], T. F. Sattel[1], H. Wojtczyk[1], W. Tenner[1], T. Knopp[1], B. Gleich[1,2], J. Borgert[2], T. M. Buzug[1]
[1]University of Luebeck, Germany; [2]Philips Technologie GmbH Innovative Technologies, Germany

MIC9.S-175 Sparse-View Image Reconstruction from Gated Cardiac Data
J. Bian[1], J. Wang[2], X. Han[1], E. Y. Sidky[1], J. Ye[2], S. Prevrhal[2], H. Liang[2], L. Shao[2], X. Pan[1]
[1]The University of Chicago, USA; [2]Philips Healthcare, USA

MIC9.S-178 Sequential Regularized MLEM Reconstruction Method for Incomplete Sinograms
U. Tuna, A. Pepe, U. Ruotsalainen
Tampere University of Technology, Finland

MIC9.S-181 Ultrafast Multipinhole SPECT Iterative Reconstruction Using High Performance GPU and CUDA
F. Alhassen[1], S. Kim[1], H. Kudrolli[2], G. A. Sayre[1], J. D. Bowen[1], B. Singh[2], R. Gould[1], V. V. Nagarkar[2], Y. Seo[1]
[1]University of California, San Francisco, USA; [2]Radiation Monitoring Devices, Inc., USA

MIC9.S-184 Adaptive Normalized Metal Artifact Reduction (ANMAR) in Computed Tomography
E. Meyer[1], R. Raupach[2], B. Schmidt[2], A. H. Mahnken[3], M. Kachelriess[1]
[1]Institute of Medical Physics, University of Erlangen-Nuernberg, Germany; [2]Siemens Healthcare, Germany; [3]Department of Diagnostic and Interventional Radiology, Germany

MIC9.S-187 A Preliminary Study of Image Reconstruction from Low-dose Data in Dedicated Breast CT
J. Bian[1], X. Han[1], K. Yang[2], E. Y. Sidky[1], J. M. Boone[2], X. Pan[1]
[1]The University of Chicago, USA; [2]University of California Davis, USA

MIC9.S-190 Fast Reconstruction of High-Resolution Attenuation-Weighted Line-of-Response 3D OSEM PET Images on the GPU
M. A. Nassiri, J.-F. Carrier, *1560 rue Sherbrooke Est., Canada*; P. Despres, *11 Cote du Palais., Canada*

MIC9.S-193 Reconstruction for Musculoskeletal Tomosynthesis: a Comparative Study using Image Quality Assessment in Image and Projection Domain
Y. M. Levakhina[1], B. Kratz[1], R. L. Duschka[2], F. Vogt[2], J. Barkhausen[2], T. M. Buzug[1]
[1]University of Luebeck, Germany; [2]University Clinics Schleswig-Holstein, Germany

MIC9.S-196 Fast and Accurate 3D Compton Cone Projections on GPU Using CUDA
J.-Y. Cui, G. Chinn, C. S. Levin, *Stanford University, USA*

MIC9.S-199 Accelerated Convergence with Image-Block Iterative Reconstruction
K. Van Slambrouck, J. Nuyts, *K.U.Leuven, Belgium*

MIC9.S-202 Continuous Space-Time Reconstruction in 4D PET
M. D. Fall[1,2], E. Barat[2], C. Comtat[3], T. Dautremer[2], T. Montagu[2], A. Mohammad-Djafari[1]
[1]Laboratoire des Signaux et Systemes (L2S), Supelec, France; [2]Laboratoire de Modelisation, Simulation et Systemes (LM2S), CEA Saclay, France; [3]Service Hospitalier Frederic Joliot (SHFJ), CEA/DSV/I2BM, France

MIC9.S-205 Information Divergence Constrained Total Variation Minimization for Positron Emission Tomography Image Reconstruction
L. Tian[1], J. Ma[1,2], Z. Liang[2], J. Huang[1], W. Chen[1]
[1]Southern Medical University, China; [2]Stony Brook University, USA

MIC9.S-208 Data-Driven Spatially-Varying Point Spread Function for List-Mode PET Reconstruction on GPU
J.-Y. Cui[1], G. Pratx[1], S. Prevrhal[2], B. Zhang[2], L. Shao[2], C. S. Levin[1]
[1]Stanford University, USA; [2]Philips Healthcare, USA

MIC9.S-211 Redundancy Information Induced Edge-Preserving Prior for Perfusion Computed Tomography Image Reconstruction
H. Zhang[1], J. Ma[1,2], Z. Liang[2], Y. Fan[2], J. Huang[1], H. Lu[3], W. Chen[1]
[1]Southern Medical University, China; [2]Stony Brook University, USA; [3]Fourth Military Medical University, China

MIC9.S-214 A New Representation and Projection Model for Tomography, Based on Separable B-Splines
F. Momey[1,2], L. Denis[1,2], C. Mennessier[2], E. Thiebaut[1], J.-M. Becker[2], L. Desbat[3]
[1]Centre de Recherche Astrophysique de Lyon, France; [2]Laboratoire Hubert Curien, France; [3]Laboratoire TIMC-IMAG, France

MIC9.S-217 A Direct Time-of-Flight Reconstruction for Whole-Body Single-Bed RPC-PET: Results from Lesion and Anthropomorphic Simulated Data
P. Martins[1], A. Blanco[1], M. Couceiro[1,2], N. C. Ferreira[3,4], R. Ferreira Marques[1,5], P. Fonte[1,2], L. Mendes[3], P. Crespo[1,2]
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MIC9.S-220 Micro-Strip Metal Detectors for Radiation Therapy Instrumentations
O. Kovalchuk, V. Pugatch, A. Chaus, O. Fedorovich, O. Okhrimenko, D. Storozhyk, *Kiev Institute for Nuclear Research NASU, Ukraine*; M. Campbell, L. Tlustos, X. Llopart, *CERN, Switzerland*; S. Pospisil, *Institute of Experimental and Applied Physics, Czech Republic*; Y. Prezado, M. Renier, *ESRF, France*

MIC9.S-223 A Fully 4D Mesh Parameterisation PET Image Reconstruction Algorithm for List-Mode Data
M. G. Bickell, A. Buffler, I. Govender
University of Cape Town, South Africa

MIC9.S-226 Accelerated Monte Carlo Based Dual Isotope SPECT Reconstruction
M. I. Karamat[1], T. H. Farncombe[1,2]
[1]McMaster University, Canada; [2]Hamilton Health Sciences, Canada

MIC9.S-229 ART with Split Bregman Denoising: a Reconstruction Method for Fluorescence Diffuse Optical Tomography
J. Chamorro[1], J. F. Abascal[2], J. Aguirre[2], S. Arridge[3], T. Correia[3], J. Ripoll[4], M. Desco[1,2], J. J. Vaquero[1]
[1]Departamento de Universidad Carlos III de Madrid, Spain; [2]Hospital General Universitario Gregorio Maran, Spain; [3]University College London, UK; [4]FORTH, GreeceJ

MIC9.S-232 A Modified Spatial Resolution Formula for DOI PET
Y. Xia, T. Ma, Y. Liu, *Tsinghua University, China*; Y. Shao, *University of Texas, M. D. Anderson Cancer Center, U. S. A*

MIC9.S-235 Optimization of a Novel Cerenkov Detector for Radiotherapy Applications Using GEANT 4 and FLUKA
S. Lo Meo[1], T. Rovelli[2], C. Fiorino[3], M. Cattaneo[3], R. Calandrino[3], F. Boschi[4], A. Sbarbati[4], F. Campanella[1], M. Mattozzi[1], A. S. Panebianco[1], A. E. Spinelli[3]
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MIC9.S-238 Ensuring Convergence in Total-Variation-Based Reconstruction for Accurate Microcalcification Imaging in Breast X-Ray CT
J. H. Joergensen, *Technical University of Denmark, Denmark*; E. Y. Sidky, X. Pan, *University of Chicago, United States*

MIC9.S-241 Iterative Reconstruction of Whole Accelerator Phase Spaces for Intraoperative Radiation Therapy (IORT) from Measured Dose Data
E. Herranz[1], J. L. Herraiz[1], J. Cal-gonzalez[1], P. M. G. Corzo[1], P. Guerra[2], J. M. Udias[1]
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MIC9.S-244 Iterative Reconstruction for Axial Field of View Extension in Radiotherapy Cone-Beam CT
E. Pearson, X. Han, X. Pan, C. Pelizzari
University of Chicago, USA

MIC9.S-247 Radiation Internal Dosimetry in Radioimmunotherapy (RIT) Using 131I-Rituximamab
Y. S. Lee[1,2], J. S. Kim[1], K. M. Kim[1], W. H. Lee[1], H. J. Kang[3], I. H. Lim[1], H.-J. Kim[2], S. M. Lim[1]
[1]Korea Institute of Radiological & Medical Sciences, Korea; [2]Yonsei University, Korea; [3]Korea Cancer Center Hospital, Korea

MIC9.S-250 GPU Based Calculation of a SPECT Projection Operator for Content Adaptive Mesh Model
F. Massanes Basi, J. G. Brankov
Illinois Institute of Technology, USA

MIC9.S-253 Optical Scattering Length of LYSO Scintillator Crystals
C. O. Steinbach, F. Ujhelyi, E. Lorincz
Budapest University of Technology and Economics, Hungary

MIC9.S-256 Attenuation Map Estimation Without Transmission Scanning Using Measured Scatter Data
S. C. Cade[1,2], S. Arridge[1], M. J. Evans[2], B. F. Hutton[1]
[1]University College London, UK; [2]Royal United Hospital, UK

MIC9.S-259 Rapid Construction of Pinhole SPECT Imaging System Matrices by Gaussian Interpolation Method Combined with Geometric Parameter Estimations
M.-W. Lee, Y.-C. Chen
National Central University, Taiwan (R.O.C.)

MIC9.S-262 Compressed Sensing Algorithm for Sparse-View Pinhole SPECT
P. A. Wolf[1], E. Y. Sidky[2], T. G. Schmidt[1]
[1]Marquette University, USA; [2]University of Chicago, USA

MIC9.S-265 GPU-Based Fast Projection-Backprojection Algorithm for 3-D PET Image Reconstruction
I. J. Ahn, K. Y. Jeong, W. H. Nam, J. H. Kim, J. B. Ra
KAIST, Republic of Korea

MIC9.S-268 Metal Artifact Reduction in X-Ray Computed Tomography: Inpainting Versus Missing Value
U. Heil[1,2], D. Gross[1,2], R. Schulze[3], U. Schwanecke[1], E. Schoemer[2]
[1]Dept. of Design, Computer Science and Media, Hochschule RheinMain, University of Applied Sciences, Germany; [2]Johannes Gutenberg University, Germany; [3]University Medical Center of the Johannes Gutenberg University, Germany

MIC9.S-271 Optimizing the Magnification Factor in the Developmental Micro-CT System Based on Fourier Metrics of Imaging Performances
S. Jang, H. Youn, M. K. Cho, H. K. Kim
Pusan National University, Republic of Korea

MIC9.S-274 Cluster-Based Priors for MAP PET Image Reconstruction
L. Lu[1], J. Tang[2], N. Karakatsanis[3], W. Chen[1], A. Rahmim[3]
[1]Southern Medical University, China; [2]Philips Healthcare, USA; [3]Johns Hopkins University, USA

MIC9.S-277 An Investigation on Computed Tomography Image Reconstruction with Compressed Sensing by L1 Norm Prior Image Constraints
Y. Liu, J. Ma, Y. Fan, Z. Liang, *Stony Brook University, USA*

MIC9.S-280 Using Monte-Carlo Simulations to Implement Corrections for I-124 as a Non-Pure Positron Emitter in Small Animal and Human PET Imaging
S. Sauerzapf[1,2], L. Thomas[2], M. Behe[1], W. Weber[1], U. Pietrzyk[2,3], A. Zakhnini[4], M. Mix[1]
[1]University Hospital of Freiburg, Germany; [2]University of Wuppertal, Germany; [3]Research Center Juelich, Germany; [4]Helmholtz Center Dresden Rossendorf, Germany

MIC9.S-283 Depth-of-Interaction Estimates in a Microcolumnar Scintillator Structure from Optical Transport Monte Carlo MANTIS Simulations
C. Sze[1,2], D. Sharma[1], H. Bhandari[2], V. Nagarkar[2], A. Badano[1]
[1]FDA/CDRH/OSEL (Division of Imaging and Applied Math), US; [2]RMD, US

MIC9.S-286 Effects of Scan Duration, Analysis Method, and SUV Measurement Error on Assessing Change in Response to Therapy
R. L. Harrison, B. F. Elston, R. Doot, T. K. Lewellen, D. A. Mankoff, P. E. Kinahan, *University of Washington, USA*

MIC9.S-289 Characterization of scattered radiation profile in volumetric 64 slice CT scanner: Monte Carlo study using GATE
A. Najafi Darmian[1,2], M. R. Ay[2], M. Pouladian[1], A. Shirazi[1,2], H. Ghadiri[2], A. Akbarzadeh[2], P. Ghafarian[3], H. Zaidi[4]
[1]azad university science and research branch, Iran; [2]Tehran University of Medical Sciences, Iran; [3]Shahid Beheshti University of Medical Sciences, Iran; [4]Geneva University Hospital, Switzerland

MIC9.S-292 Channelized Hotelling Observers for Signal Detection in Stack-Mode Reading of Volumetric Images on Medical Displays with Slow Response Time
L. Platisa[1], C. Marchessoux[2], T. Kimpe[2], E. Vansteenkiste[1], A. Badano[3], W. Philips[1]
[1]Ghent University, Belgium; [2]Barco N.V., Belgium; [3]FDA, US

MIC9.S-295 Implementing Geant4 on GPU for Medical Applications
H. Perez-Ponce[1], Z. El Bitar[2], Y. Boursier[1], D. Vintache[2], A. Bonissent[1], C. Morel[1], D. Brasse[2], D. Visvikis[3], J. Bert[3]
[1]Aix-Marseille Universite, France; [2]Institut Pluridisciplinaire Hubert Curien, France; [3]CHU Morvan, France

MIC9.S-298 Modeling, Simulation, and Evaluation of Compton Camera Based on Pixelated Solid-State Detector
Y. Calderon[1], G. De Lorenzo[1], P. Arce[2], M. Chmeissani[1], E. Mikhaylova[1], G. Arino[1], Y. Ozsahin[1], D. Uzun[1], J. G. Macias-Montero[1], C. Puigdengoles[1], R. Martinez[3], E. Cabruja[3]
[1]Instituto de Fisica de altas energias (IFAE), Spain; [2]CIEMAT, Spain; [3]Centro Nacional de Microelectrnica (CNM), Spain

MIC9.S-301 Simulation of Pseudo-Clinical Conditions and Image Quality Evaluation of PET Scanner Based on Pixelated CdTe Detector
E. Mikhaylova[1], G. De Lorenzo[1], P. Arce[2], M. Canadas[2], M. Chmeissani[1], G. Arino[1], Y. Calderon[1], Y. Ozsahin[1], D. Uzun[1], J. Gabriel[1], C. Puigdengoles[1], R. Martinez[3], E. Cabruja[3]
[1]Institut de Fisica d'Altes Energies (IFAE), Spain; [2]CIEMAT, Spain; [3]Centro Nacional de Microelectrnica, Spain

MIC9.S-304 Adaptive Panoramic Tomography (APT) for the Formation of Multi-Focal Image Layers with Enhanced Image Sharpness
D. S. Kim[1], H. S. Cho[1], J. E. Oh[1,2], D. K. Hong[1,2], S. I. Choi[1,2], Y. O. Park[1], Y. S. Koo[1,2], U. K. Je[1,2], Y. J. Yang[1,2], M. S. Lee[1], H. J. Kim[1], S. H. Lee[1], H. M. Cho[1]
[1]Yonsei University, South Korea; [2]Vatech Co. Ltd., South Korea

MIC9.S-307 Comparison of Single Shot DES and Conventional Methods Detector System Performance
E. Kim[1,2], K. S. Joo[2], B. J. Moon[1], J. H. Ahn[1], J. S. Kim[1], H. S. Kim[1], J. K. Yoon[1]
[1]DRTECH Corp., Korea; [2]Myong-ji University, Korea

MIC9.S-310 GPGPU-Based Optical Propagation Simulator of a Laser Processed Crystal Block for the "X'tal" Cube PET Detector
Y. Ogata[1], T. Moriya[2], N. Inadama[3], F. Nishikido[3], E. Yoshida[3], H. Murayama[3], T. Yamaya[3], H. Haneishi[1]
[1]Chiba University, Japan; [2]Hamamatsu Photonics k.K., Japan; [3]National Institute of Radiological Sciences, Japan

MIC9.S-313 A Simulation Study of the Effect of Phase-Shift on Dual Gated Myocardial Perfusion ECT
T.-S. Lee, M.-J. Park, B. M. W. Tsui
Johns Hopkins University, USA

MIC9.S-316 A General Framework to Study Positron Range Distributions
J. Cal-Gonzalez[1], J. L. Herraiz[1], S. Espana[2], P. M. G. Corzo[1], J. M. Udias[1]
[1]Universidad Complutense Madrid, Spain; [2]Ghent University Hospital, Belgium

MIC9.S-319 Characterizing the Parallax Error in Multi-Pinhole Micro-SPECT Reconstruction
B. Vandeghinste[1], J. De Beenhouwer[1,2], R. Van Holen[1], S. Vandenberghe[1], S. Staelens[1,2]
[1]Ghent University - IBBT, Belgium; [2]University of Antwerp, Belgium

MIC9.S-322 Evaluating Collimation Schemes for Nuclear Breast Imaging with High-Purity Germanium Detectors
D. L. Campbell, T. E. Peterson, *Vanderbilt University, USA*

MIC9.S-325 Performance Evaluation of Large-Area CMOS Active-Pixel Detectors for Mammography
S. Yun[1], S. Kam[1], C. H. Lim[1], J. C. Han[1], O. Joe[1], J.-M. Kim[2], T. G. Achterkirchen[3], H. K. Kim[1]
[1]Pusan National University, South Korea; [2]Korea University, South Korea; [3]DALSA Corporation, USA

MIC9.S-328 Mass-Spring Systems Model of Compressed Breasts for Deformable Registration to Mammography
H. R. Park[1], H. Youn[1], J. H. Kim[2], H. K. Kim[1]
[1]Pusan National University, Republic of Korea; [2]Seoul National University, Republic of Korea

MIC9.S-331 Ultra-Fast Hybrid CPU-GPU Monte Carlo Simulation for Scatter Correction in 3D PETs
K. S. Kim, J. C. Ye
Korea Advanced Institute of Science and Technology (KAIST), South Korea

MIC9.S-334 Efficient Simulation of Non-Pure Positron Emitter in GATE Embedded with SimSET Multiple Photon History Generator
H.-H. Lin[1], K.-S. Chuang[1,2], Y.-C. Ni[3], M.-L. Jan[3]
[1]National Tsing-Hua University, Taiwan; [2]Institute of Nuclear Engineering and Nuclear Science,National Tsing-Hua University, Taiwan; [3]Institute of Nuclear Energy Research,Atomic Energy Council, Taiwan

MIC9.S-337 Optimal Energy Window for Scatter Correction in I-131: GATE Simulation Study.
Y. S. Lee[1,2], J. S. Kim[1], K. M. Kim[1], H.-J. Kim[2], S. M. Lim[1]
[1]Korea Institute of Radiological & Medical Sciences, Korea; [2]Yonsei University, Korea

MIC9.S-340 Modeling High Energy (I-131) Pinhole Collimator for Small Animal Gamma Ray Imaging Device by Monte Carlo Simulation (GATE 6.0)
Y. J. Jung[1,2], J. G. Kim[1], K. M. Kim[1], J. S. Kim[1], S. K. Woo[1], J. A. Park[1], Y. S. Lee[1,3], W. Lee[1], J. W. Yu[1,3], K. Lee[2]
[1]Korea Institute of Radiologic And Medical Science, KIRAMS, Korea; [2]Korea University, Korea; [3]Yonsei University, Korea

MIC9.S-343 Using Myocardium-to-Background Ratio to Determine the Optimal Starting Angle for Non-360° Upright Cardiac SPECT Acquisition
H. Babla, C. Bai, R. L. Conwell, R. N. Old
Digirad Corporation, USA

MIC9.S-346 An Investigation on Image Reconstruction of Coronary Arteries from Few-View Data
X. Han[1], J. Bian[1], D. R. Eaker[2], E. Y. Sidky[1], E. L. Ritman[2], X. Pan[1]
[1]The University of Chicago, USA; [2]Mayo Clinic College of Medicine, USA

MIC12.M MIC Posters 2

Thursday, Oct. 27 16:30-18:30 Meliá, Room A&B

Session Chairs: **Andrew G. Weisenberger**, Thomas Jefferson National Accelerator Facility, United States
Christian Morel, CPPM, Aix-Marseille II University, France
Benjamin M. W. Tsui, Johns Hopkins University, United States

MIC12.M-1 Quantitative Reconstruction of Small Animal Multiplexed Multi-Pinhole SPECT with Scatter and Attenuation Correction
J. Strydhorst[1,2], R. G. Wells[1,2]
[1]University of Ottawa Heart Institute, Canada; [2]Carleton University, Canada

MIC12.M-3 Validation of a GEANT4 simulation model for pinhole SPECT including calibration parameters
P. Aguiar[1,2], F. Pino[3,4], D. Ros[3,5], Z. Bitar[6]
[1]Fundacion IDICHUS, Complexo Hospitalario Universitario de Santiago de Compostela, Spain; [2]Universidade de Santiago de Compostela, Spain; [3]Universitat de Barcelona, Spain; [4]Servei de Fsica Mdica i Protecci Radiolgica, Spain; [5]Ciber en Bioingeniera, Biomateriales y Nanomedicina, Spain; [6]Institut Pluridisciplinaire Hubert Curien, France

MIC12.M-5 SiPM Side Detectors for Performance Enhancements of an EMCCD-Based Gamma Camera
S. Salvador[1], M. A. N. Korevaar[1,2], J. W. T. Heemskerk[1,2], R. Kreuger[1], J. Huizenga[1], S. Seifert[1], D. R. Schaart[1], F. J. Beekman[1,2,3]
[1]TUDelft, The netherlands; [2]UMC, The netherlands; [3]MILabs, The netherlands

MIC12.M-7 Imaging Characterization of a Multi-Energy CT with Quasi-Monochromatic X-Ray Source
P. L. Rossi[1], R. Calandrino[2], A. Spinelli[2], S. Cappelli[1,3], G. Baldazzi[1,3]
[1]University of Bologna, Italy; [2]IRCCS San Raffaele, Italy; [3]INFN - National Istitute for Nuclear Physics, Italy

MIC12.M-9 Design and Sampling Completeness Evaluation of Scanning Orbits in Multi-pinhole Small Animal SPECT Imaging
T. Dai[1,2], T. Ma[1,2], Q. Wei[1,2], S. Wang[1,2], H. Liu[1,2], J. Cui[1,2], Y. Liu[1,2]
[1]Tsinghua University, P.R.China; [2]Ministry of Education, P.R.China

MIC12.M-11 Image Reconstruction Strategy for an Axial PET
E. Brard[1,2], D. Brasse[1,2]
[1]Universite de Strasbourg, IPHC, FRANCE; [2]CNRS, UMR7178, FRANCE

MIC12.M-13 Radiation Dose-Based Comparison of PET and SPECT for Preclinical Bone Imaging
L. C. Johnson, R. W. Johnson, J. A. Sterling, M. G. Stabin, T. E. Peterson
Vanderbilt University, USA

MIC12.M-15 High-Purity Germanium Detector for Small Animal SPECT
L. C. Johnson, D. L. Campbell, T. E. Peterson
Vanderbilt University, USA

MIC12.M-17 A Versatile Laboratory Platform for Studying X-Ray 3D Breast Imaging
H. H. de las Heras, R. R. Peng, R. R. Zeng, M. M. Freed, E. E. O'Bryan, R. R. Jennings, *US Food and Drug Administration, USA*

MIC12.M-19 Comparison of Material Decomposition Methods in Contrast Enhancement Digital Mammography Based on Photon Counting
Y.-N. Choi, H.-J. Kim, H.-M. Cho, S.-W. Lee, Y.-J. Lee, H.-J. Ryu
Yonsei unversity, South Korea

MIC12.M-21 A Depth-Encoding PET Detector Inserting Glass Plate Between Crystal Layers
J. Kang[1,2], Y. Choi[1], J. H. Jung[1], W. Hu[1,2], B.-T. Kim[2]
[1]Sogang University, Korea; [2]Sungkyunkwan University School of Medicine, Korea

MIC12.M-23 Full 4π emission collection and reconstruction for small animal PET imaging
Y. Zhang, H. Baghaei, H. Li, S. Liu, R. Ramirez, S. An, C. Wang, W.-H. Wong
University of Texas MD Anderson Cancer Center, USA

MIC12.M-25 Promising Results on PSF Correction Applied in the Reconstruction Process of a Small Animal PET Image
A. Orero[1], C. Correcher[2], A. Gonzalez[1,2], A. Soriano[1], M. Carles[1], L. Moliner[3], M. Seimetz[2], F. Sanchez[1], J. M. Benlloch[1]
[1]I3M (CSIC - UPV - CIEMAT), Spain; [2]ONCOVISION, Spain; [3]IFIC (CSIC - UV), Spain

MIC12.M-27 Performance Characteristics of a Positron Projection Imager for Whole-Body Mouse Imaging
J. Seidel[1,2], W. Xi[3,2], J. W. Kakareka[4], T. J. Pohida[4], E. M. Jagoda[2], M. V. Green[1,2], P. L. Choyke[2]
[1]SAIC-Frederick, Inc. (Contractor), USA; [2]Molecular Imaging Program, NCI, NIH, USA; [3]SAIC-Frederick, Inc. (Fellow), USA; [4]Signal Processing and Instrumentation Section, CIT, NIH, USA

MIC12.M-29 Dual-Gated Cardiac SPECT Imaging in Mice
C. Wu[1,2], B. Vastenhouw[2,3,4], J. R. de Jong[1], R. A. J. O. Dierckx[1], F. J. Beekman[2,3,4]
[1]University Medical Center Groningen, The Netherlands; [2]University Medical Center Utrecht, The Netherlands; [3]MILabs B.V., The Netherlands; [4]Delft University of Technology, The Netherlands

MIC12.M-31 Single-Ended Readout of Scintillation Crystal Elements Enables Photon Interaction Depth for High Resolution PET
F. Taghibakhsh, C. S. Levin, *Stanford Univrsity, USA*

MIC12.M-33 Quality Control Measurement on NanoPET/CT
A. Racz, K. Nagy, G. Jakab, G. Nemeth
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MIC12.M-35 Design of a High Resolution Phoswich PET Detector
Q. Wei, S. Wang, T. Ma, L. Lu, T. Dai, Y. Liu
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MIC12.M-37 X-Ray Edge Subtraction Imaging of Gold Nanoparticle Concentrations for Biological Imaging
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MIC12.M-39 Calibration of PET scanners with a new traceable point-like Ge^{68}/Ga^{68} source
T. Hasegawa[1], K. Oda[2], Y. Wada[3], Y. Sato[4], H. Murayama[5], T. Yamada[6], M. Matsumoto[6], M. Igarashi[1], J. Iryo[1], H. Kamitaka[1]
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MIC12.M-41 Atlas-Guided Automated Analysis of Small-Animal PET Studies
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MIC12.M-43 Assessment of the Effect of 3D Resolution Recovery During SPECT Image Reconstruction on Quantification of Small Liver Tumors: a Simulation Study
F. Kalantari, H. Rajabi, *Tarbiat Modares University, Iran*; M. Saghari, *Tehran University of Medical Sciences, Iran*

MIC12.M-45 Experimental Measurement of Human Head Motion for Clinical Dental CBCT System Design
L. Li, D. Wu, P. Liu, L. Liang, Z. Chen
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MIC12.M-47 Respiratory Gating for a Stationary Dedicated Cardiac SPECT System
C. Liu[1], C. Chan[1], M. Harris[2], J. Biondi[2], L. Volokh[3], A. Sinusas[1]
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MIC12.M-49 Quantitative Analysis Framework for SPECT•CT Tc-99m Bone Scintigraphy
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MIC12.M-51 A Bootstrap Method for Identifying Image Regions Affected by Intra-Scan Body Movement During a PET/CT Scan
S.-C. Huang, K.-P. Wong, H. Ye, M. Dahlbom, M. Wardak, W. Shao
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MIC12.M-53 Estimation of Kinetic Parameters and Tissue Heterogeneity from Patient Motion Corrupted PET Projections
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MIC12.M-55 On Field Spectrometry for Diagnostic X-Ray Beams: a Comparison Between Two Innovative Devices
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MIC12.M-57 ROI Based Perfusion Estimation in Peripherals Using C-Arms: a Simulation Study
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MIC12.M-59 Quantitative Capabilities of Current Commercial SPECT-CT Systems
C. Bernard, D. Nguyen, A. Seret
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MIC12.M-61 Beam Hardening Correction Using a Conical Water-Equivalent Phantom for Preclinical Micro-CT
J. Deng, S. Yan, M. Chen, *Siemens Molecular Imaging, USA*

MIC12.M-63 Quantitative Computed Microtomography for Evaluation of Radiotherapy Effects on Bone Microstructure
L. P. Nogueira[1], R. C. Barroso[2], C. J. G. Pinheiro[2], D. Braz[1], C. E. Almeida[2], C. B. Andrade[2]
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MIC12.M-65 Respiratory Motion Estimation in Nuclear Medicine Imaging Using a Kernel Model-Based Particle Filter Framework
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MIC12.M-67 Deadtime and Pile-up Correction Method Based on the Singles to Coincidences Ratio for PET
E. Vicente[1,2], J. L. Herraiz[1], S. Espana[3], E. Herranz[1], M. Desco[4,5], J. J. Vaquero[5], J. M. Udias[1]
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MIC12.M-69 Metal Artifact Reduction in CT-Based Attenuation Correction of PET Using Sobolev Sinogram Restoration
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MIC12.M-71 Evaluation of CT-Based Attenuation Correction for Small-Animal SPECT in Rats
C. Wu[1,2], J. R. de Jong[1], H. A. Gratama van Andel[2,3], F. van der Have[2,3,4], B. Vastenhouw[2,3,4], P. Laverman[5], O. C. Boerman[5], R. A. J. O. Dierckx[1], F. J. Beekman[2,3,4]
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MIC12.M-73 Distortion Correction, Geometric Calibration, and Volume Reconstruction for an Isocentric C-Arm X-Ray System
R. Clackdoyle[1,2], B. Spencer[3], C. Mennessier[1,4], A.-C. Conneau[4], T. Xu[3]
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MIC12.M-75 Development of Correction Methods for CdTe Detector with Edge-on Configuration for Gamma Camera
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MIC12.M-77 Region Adaptive PET Gating Using Internal Motion Estimation
J. W. Yu[1,2], S.-K. Woo[1], Y. J. Lee[1], J. S. Kim[1], K. C. Lee[1], M. H. Kim[1], Y. H. Ji[1], J. H. Kang[1], B. I. Kim[1], C. W. Choi[1], S. M. Lim[1], Y. H. Chung[2], K. M. Kim[1]
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MIC12.M-79 Geometric Calibration of Cone-Beam CT with a Flat-Panel Detector
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MIC12.M-81 Deformable Image Registration by Regarding Respiratory Motion as 1D Wave Propagation in an Elastic Medium
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MIC12.M-83 Robust Motion Correction for Respiratory Gated PET/CT Using Weighted Averaging
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MIC12.M-85 Quantification Limits of Iterative PET Reconstruction Algorithms and Improved Estimation of Kinetic Constants
E. Herranz[1], J. L. Herraiz[1], E. Vicente[1,2], S. Espana[3], M. Desco[4,5], J. J. Vaquero[5], J. M. Udias[1]
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MIC12.M-87 Methods for Motion Correction Evaluation Using FDG Human Brain Scans on a High Resolution PET Scanner
S. H. Keller[1], M. Sibomana[1], O. V. Olesen[1,2,3], C. Svarer[1], S. Holm[1], F. Andersen[1], L. Hoejgaard[1]
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MIC12.M-89 Iterative Non-Rigid Image Registration Based on Moebius Transformations
G. V. Gerganov, K. K. Mitev, *Sofia University, Bulgaria*

MIC12.M-91 Experimental evaluation of simultaneous emission and transmission imaging using TOF information
P. Mollet, V. Keereman, S. Vandenberghe
Ghent University IBBT IBiTech, Belgium

MIC12.M-93 Analysis of Lung Motion Due to Respiration and Its Application to PET Images
M. Kanai, H. Haneishi, *Chiba University, Japan*; Y. Tamai, A. Sakohira, K. Suga, *St. Hill Hospital, Japan*

MIC12.M-95 Intrinsic Respiratory Gating in PET Using External Markers
F. Buether, I. Ernst, M. Dawood, K. P. Schaefers
University of Muenster, Germany

MIC12.M-97 Ordered Subsets Acceleration of Iterative Algorithm for Variance Reduction on Compressed Sinogram Random Coincidences
V. Y. Panin, *Siemens Healthcare, USA*

MIC12.M-99 Development of an MPPC Detector for PET
K. Shimizu, H. Uchida, K. Sakai, M. Hirayanagi, S. Nakamura, T. Omura
Hamamatsu Photonics K.K., Japan

MIC12.M-101 Temperature Compensation Schemes for APD Detectors in PET
N. Zhang, M. Schmand, *Siemens Molecular Imaging, USA*

MIC12.M-103 Thin Substrate Powder Scintillator Screens for Use in Digital X-Ray Medical Imaging Applications
I. G. Valais[1], G. P. Fountos[1], C. M. Michail[2], I. Seferis[2], N. I. Kalyvas[1], A. K. Mytafidis[3], I. S. Kandarakis[1], G. S. Panayiotakis[2]
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MIC12.M-105 The Effects of Spectral Distortion on Multi-Energy X-Ray Imaging Based on Photon Counting Detector
H.-M. Cho, Y.-N. Choi, S.-W. Lee, H.-J. Ryu, Y.-J. Lee, H.-J. Kim
Yonsei university, Korea

MIC12.M-107 Investigation of the Capability for Material Decomposition in Photon Counting CT Images
S.-W. Lee, Y.-N. Choi, H.-M. Cho, Y.-J. Lee, H.-J. Ryu, H.-J. Kim
Yonsei University, South Korea

MIC12.M-109 Operating Characteristics of Screen-Printed HgI2 Photoconductors for X-Ray Imaging
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MIC12.M-111 A High Resolution TOF-DOI Detector Block Using PQS Configuration
S. Liu, S. An, H. Li, C. Wang, R. A. Ramirez, Y. Zhang, H. Baghaei, W.-H. Wong
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MIC12.M-113 Development of a TOF-PET Detector Capable of Four-Layer DOI Encoding with a Single-Layer Crystal Array
T. Tsuda, J. Ohi, H. Tonami, K. Kitamura
Shimadzu Corporation, Japan

MIC12.M-115 Effect of Gamma Radiation on Possible Ionising Radiation Detectors and Dosimeters Based on Quantum Dots
D. E. Leslie, P. R. Hobson, D. R. Smith
Brunel University, UK

MIC12.M-117 A New Gamma Camera with a Gas Electron Multiplier
T. Koike, *International University of Health and Welfare, Japan*; S. Uno, T. Uchida, M. Sekimoto, T. Murakami, *High Energy Accelerator Research Organization (KEK), Japan*; M. Shoji, *The Graduate University for Advanced Studies, Japan*; F. Nagashima, *Tohoku Gakuin University, Japan*; K. Yamamoto, E. Nakano, *Osaka City University, Japan*

MIC12.M-119 Metal Micro-Detectors for the Mini-Beam Radiation Therapy
A. Chaus, V. Pugatch, O. Kovalchuk, *Kiev Institute for Nuclear Research, Ukraine*; M. Campbell, X. Llopart, *CERN, Switzerland*; S. Pospisil, *Institute of Experimental and Applied Physics, Czech Republic*; Y. Prezado, *ESRF, France*

MIC12.M-121 A Gaseous Based Drift Detector with GEM Readout for Tracking Positrons for PET
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MIC12.M-123 Reflectivity Spectra for Commonly Used Reflectors
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Lawrence Berkeley National Laboratory, USA

MIC12.M-125 Novel High-Multiplexing Solid State DOI Detectors with a Direct Coupling Configuration
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MIC12.M-127 A Pulse Restoration Circuit Minimizing Performance Degradation of PET Detector Caused by Using Long Cable
K. B. Kim[1], Y. Choi[1], J. Kang[1,2], J. H. Jung[1], W. Hu[1,2]
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MIC12.M-129 Sensitivity Encoded Silicon Photomultipliers (SeSPs): a Novel Detector Design for Uniform Crystal Identification
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MIC12.M-133 Ultra High Resolution SPECT with CdTe for Small Animal Imaging Applications: Monte Carlo Simulation Study Using Voxelized Phantom
S.-J. Park, C.-L. Lee, H.-M. Cho, H.-S. Park, D.-H. Kim, Y.-S. Kim, H.-J. Kim
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MIC12.M-135 Neutron Time-of-Flight Spectroscopy for Depth-Resolved Quantification through NSECT.
G. A. Agasthya, J. Shah, B. P. Harrawood, A. J. Kapadia, *Duke University, USA*

MIC12.M-137 Design and Initial Performance Evaluation of a Novel PET Detector Module Based on Compact SiPM Arrays
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MIC12.M-139 Potential Advantages of Tapered Detector in PET
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MIC12.M-141 Energy and Time Characterization of SiPM Detector Blocks
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MIC12.M-143 A Fuzzy Logic C-Means Clustering Algorithm to Enhance a Microcalcifications Cluster in Digital Mammograms
R. Magro, D. Cascio, L. Vivona, F. Fauci, G. Raso
University, Italy

MIC12.M-145 Radon Transform Technique for Linear Structures Detection: Application to Vessel Detection in Fluorescein Angiography Fundus Images
M. Tavakoli[1,2,3], A. Mehdizadeh[3], R. Pourreza[1,4], H. R. Pourreza[1,4], T. Banaee[1,2], M. H. Bahreini[1,2]
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MIC12.M-147 Automated Optic Nerve Head Detection in Fluorescein Angiography Fundus Images
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MIC12.M-149 An Image Processing Approach to Compensate for the Bladder Wall Motion and Deformation in MR Cystography
Q. Lin[1,2], Z. Liang[1], H. Li[1], S. Jambawalikar[1], Q. Wang[3], B. Phillips[1], W. Waltzer[1], M. Zawain[1], D. Harrington[1], X. He[2]
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MIC12.M-151 Mosaics of Polynomial Transformations as a Patient Specific Registration to Reduce Breathing Motion Artefacts
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MIC12.M-153 Measurements of Time Discrepancies Between Input and Myocardial Time-Signal Intensity Curves on Estimates of Regional Myocardial Perfusion with First-Pass Contrast-Enhanced MRI
T. Ichihara, T. Natsume, *Fujita Health University School of Health Science, Japan*; K. Kitagawa, M. Ishida, H. Sakuma, *Mie University Hospital, Japan*

MIC12.M-155 Development of the Theory for Generating Regional Cardiac Perfusion Image During Coronary Angiography in the Coronary Angiography Lab
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MIC12.M-157 Myocardial Perfusion with Iodixanol Contrast Agent. Measurement of Extraction Fraction and Myocardial Blood Flow with CT Versus N-13-Ammonia PET
T. Ichihara[1], T. Natsume[1], K. Kitagawa[2], T. Michibata[1], Y. Ikeda[3], M. Ishida[2], H. Sakuma[2]
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MIC12.M-159 Bayesian Analysis of Emission Tomography Data
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MIC12.M-161 3000 Non-Rigid Medical Image Registrations Overnight on a Single PC
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MIC12.M-163 Sokoloff and Patlak Methods for CMRGlu Quantification with Aortic Image-Derived Input Function: a Feasibility Study
E. Vanzi, V. Berti, I. Freddi, C. Polito, G. Comis, A. Passeri, A. Pupi
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MIC12.M-165 Evaluation Performance of Local Adaptive Binarization Algorithms for Trabecular Bone on Simulated µCT
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MIC12.M-167 Mass-Preserving Motion Correction of PET: Displacement Field Vs. Spline Transformation
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MIC12.M-169 Lung CT Image Classification Using Locality-Constrained Linear Coding
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MIC12.M-171 An Input Function Estimation Method for Dynamic Mouse 18F-FDG microPET Studies
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MIC12.M-173 Wavelet-Based Resolution Recovery Using Anatomical Prior Provides Quantitative Recovery for Human Population Phantom PET [^{11}C]raclopride Data
M. Shidahara[1], C. Tsoumpas[2], C. McGinnity[3], T. Kato[4], H. Tamura[1], A. Hammers[5], H. Watabe[6], F. E. Turkheimer[3]
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MIC12.M-175 A Computational Approach for the Visualization of Hematopoietic Bone Marrow in Living Humans
A. M. Massone[1], G. Sambuceti[2], M. Brignone[3], S. Morbelli[3], F. Fiz[3], C. Marini[4], M. Massollo[3], F. Frassoni[3], M. Podesta[3], C. Campi[5], M. Piana[2]
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MIC12.M-177 Locally Adaptive Filtering for Edge Preserving Noise Reduction on Images with low SNR in PET
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MIC12.M-179 Image Visualization Object Model
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MIC12.M-181 Automatic Segmentation of Different Functional Groups of Lower Extremity Muscle on MRI
C.-B. Wu[1], T.-J. Lin[1], K.-P. Lin[1], C.-H. Chen[2,3]
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MIC12.M-183 Identification of Spinal Vertebrae Using Mathematical Morphology and Level Set Method
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MIC12.M-185 Automated Multimodal Breast Image Registration
C. Curtis, R. Frayne, E. Fear, *University of Calgary, Canada*

MIC12.M-187 Sparse Clustering with Resampling for Subject Classification in PET Amyloid Imaging Studies
W. Bi, G. C. Tseng, L. A. Weissfeld, J. C. Price, *University of Pittsburgh, USA*

MIC12.M-189 Initial Investigation of Single-Scan FDG+FLT PET Tumor Imaging Techniques
D. J. Kadrmas, *University of Utah, USA*

MIC12.M-191 Tilt Correction Using Hough Transform in CT Projection Data
W. Seong, J. Y. Kang, J. H. Kim, J. W. Park
Chungnam National University, South Korea

MIC12.M-193 Automatic Cerebral Aneurysm Detection in Multimodal Angiographic Images
C. M. Hentschke[1], O. Beuing[2], R. Nickl[2], K. D. Toennies[1]
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MIC12.M-195 A Minimum Cost Path Approach for the Segmentation of Bone Canalicular Network from Nano-CT Images
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MIC12.M-197 3D Breast Registration for PET-CT and MR Based on Surface Matching
H. Lee, K. Lee, E. Min, *Korea University, Korea*; I. Joo, H. Moon, *Sejong University, Korea*; K.-M. Kim, *Korea Institute of Radiological & Medical Sciences, Korea*

MIC12.M-199 PET Sinogram Denoising by Block-Matching and 3D Filtering
S. Peltonen, U. Tuna, U. Ruotsalainen
Tampere University of Technology, Finland

MIC12.M-201 Attenuation Correction Using Level Set Method for Application Specific PET scanners
Y. Yamakawa, K. Kitamura, *Shimadzu Corporation, Japan*

MIC12.M-203 Representation of the Arterial Input Function using a Markov Chain Whole-Body Circulation Model
J. Huang, F. O'Sullivan, J. N. O'Sullivan, *University College Cork,, Ireland*; D. A. Mankoff, *University of Washington and Seattle Cancer Care Alliance, US*

MIC12.M-205 Leader-Follower Clustering Algorithm for Automatic Segmentation of Cardiac PET Studies
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MIC12.M-207 Efficient Colon Wall Flattening by Improved Conformal Mapping Methodologies for Computed Tomography Colonography
R. Shi, H. Zhu, X. Gu, Z. Liang
Stony Brook University, United States

MIC12.M-209 A Study on Quality Level Reproducibility for the Usability of Irreversible Compression in Radiological Imaging
A. Signoroni[1], C. Tonoli[1], I. Castiglioni[2,3]
[1]University of Brescia, Italy; [2]H S. Raffaele Scientific Institute, Italy; [3]IBFM-CNR, Italy

MIC12.M-211 Functional Statistics Based Method for the Evaluation of the Registration of Sequences of 3D Perfusion MR Images
E. Dura, J. Domingo, G. Ayala, *University of Valencia, Spain*; L. Marti-Bonmati, *Hospital Universitario y Politecnico La Fe, Spain*

MIC12.M-213 A Precise Calculation of Bladder Wall Thickness for Detection of Bladder Abnormalities via MR Cystography
Y. Zhao[1], H. Zhu[1], C. Duan[2], X. Gu[1], Z. Liang[1]
[1]Stony Brook University, USA; [2]Tsinghua University, China

MIC12.M-215 Relationship Between the Spectral Signal-to-Noise Ratio Including Human Visual Characteristics and the Interval-Scale Value of Visual Assessment in Computed Radiograph
H. Yamauchi, S. Goto, S. Kondo, Y. Tsuji, Y. Hyodo, Y. Azuma
Okayama University, Japan

MIC12.M-217 A Method for Liver Segmentation in Functional Magnetic Resonance Images Using Multilevel and Multiscale Level Sets
T. Dima, J. Domingo, E. Dura
Universitat de Valencia, Spain

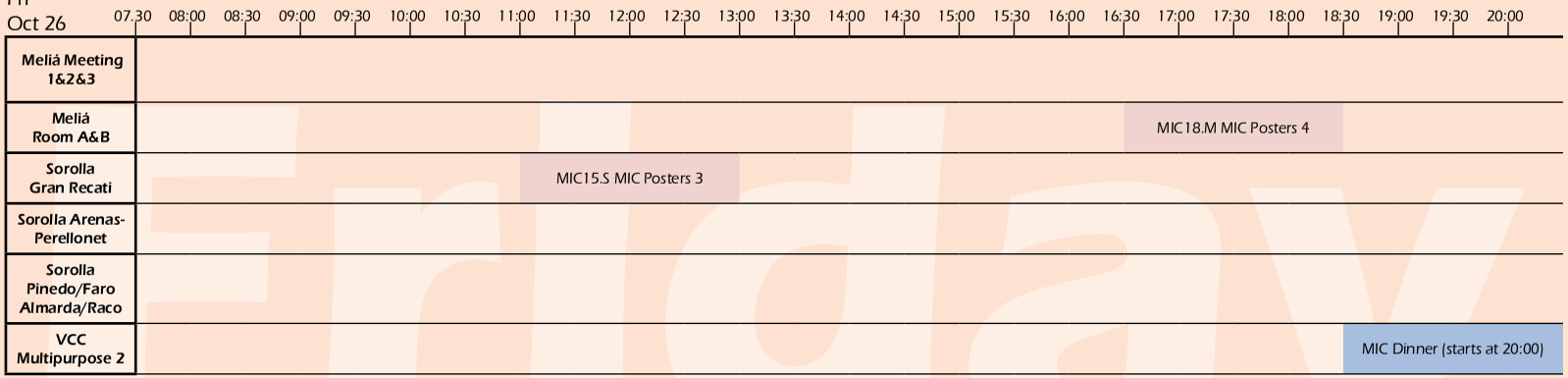
MIC12.M-219 Development of a Toolkit to Analyze Lower Limb Radiographic Imaging with Knee Osteoarthritis Based on Functional Biomechanical Parameters
F. D. A. Lemos[1], G. Hoff[2], F. C. Karam[3], M. A. Vaz[1]
[1]Universidade Federal do Rio Grande do Sul, Brazil; [2]Pontifcia Universidade Catlica do Rio grande do Sul, Brazil; [3]3Hospital So Lucas da Pontifcia Universidade Catlica do Rio Grande do Sul, Brazil

MIC12.M-221 A Depth-of-Interaction PET Detector Using Mutual Gain-Equalized Silicon Photomultipliers
W. Xi, A. G. Weisenberger, H. Dong, B. Kross, S. Lee, J. E. McKisson, J. McKisson, C. Zorn
Thomas Jefferson National Accelerator Facility, USA

Fri
Oct 26

	07:30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00
VCC Auditorium 1				MIC13 Multi-Modality Systems 2												MIC16 Student Competition										
VCC Auditorium 2		Refresher MIC - An Introduction to Modern CT		MIC14 Image Processing and Parametric Imaging												MIC17 Data Corrections for PET										
VCC Auditorium 3 A&B				R17 CdTe II				R18 Characterization III								R19 CZT III				R20 CZT IV						
VCC Room 1&2																										
VCC Room 3&4																										
VCC Multipurpose 1&2																										
Meliá Valentia A																										
Meliá Valentia B				Workshop on 3He Alternatives for Neutron Detection				Workshop on 3He Alternatives for Neutron Detection								Workshop on 3He Alternatives for Neutron Detection				Workshop on 3He Alternatives for Neutron Detection						
Meliá Valentia C																										

Fri
Oct 26



Friday

MIC13 Multi-Modality Systems 2

Friday, Oct. 28 08:30-10:30 VCC, Auditorium 1

Session Chairs: **George K. Loudos**, Department of Medical Instruments Technology, Technological Educational Institute of Athens, Greece
Craig S. Levin, Stanford University School of Medicine, United States

MIC13-1 (08:30) An MRI-Compatible PET Insert for Whole Body Studies in Rodents at High Functional and Anatomical Resolution
P. Vaska[1,2], M. L. Purschke[1], J. Fried[1], S. S. Junnarkar[1], E. Gualtieri[3], J. S. Karp[3], S. Stoll[1], S. H. Maramraju[2], B. Ravindranath[2], M. Budassi[2], T. Cao[2], J.-F. Pratte[4], P. O'Connor[1], D. J. Schlyer[1,2], C. L. Woody[1]
[1]Brookhaven National Laboratory, U.S.A.; [2]Stony Brook University, U.S.A.; [3]University of Pennsylvania, U.S.A.; [4]University of Sherbrooke, Canada

MIC13-2 (08:45) Clinical Evaluation of a Prototype Simultaneous PET-MRI Breast Imaging System
B. Ravindranath[1], P.-J. Huang[2], S. Junnarkar[3], X. Hong[4], M. L. Purschke[3], S. Stoll[3], S. H. Maramraju[1], G.-J. Wang[3], P. Vaska[3], C. Woody[3], D. Schlyer[3]
[1]Stony Brook University, USA; [2]Taipei Medical University Hospital, Taiwan; [3]Brookhaven National Laboratory, USA; [4]Aurora Imaging Technology, Inc., USA

MIC13-3 (09:00) Towards X-Ray Differential Phase Contrast Mammography: a Native Breast Tissue Study
Z. Wang[1], T. Thuering[1], C. David[1], E. Roessl[2], M. Trippel[3], R. A. Kubik-Huch[3], G. Singer[3], M. K. Hohl[4], N. Hauser[4], M. Stampanoni[1,5]
[1]Paul Scherrer Institut, Switzerland; [2]Philips Technologie GmbH, Germany; [3]Kantonsspital Baden, Switzerland; [4]Interdisciplinary Breast Center Baden, Kantonsspital Baden, Switzerland; [5]University and ETH Zrich, Switzerland

MIC13-4 (09:15) Dosimetric Characterization of an X-Ray Luminescence Optical Tomography Scanner Prototype
A. Martinez-Davalos[1,2], C. Li[1], M. Rodriguez-Villafuerte[1,2], S. R. Cherry[1]
[1]University of California, Davis, United States; [2]Instituto de Fisica, UNAM, Mexico

MIC13-5 (09:30) Design of a Realistic PET-CT-MRI Phantom
V. Keereman[1], P. Mollet[1], Y. Fierens[2], S. Espana[1], S. Vandenberghe[1]
[1]Ghent University-IBBT-IBiTech, Belgium; [2]UZ Brussel, Belgium

MIC13-6 (09:45) High Performance SPECT System for Simultaneous SPECT-MR Imaging of Small Animals
B. M. W. Tsui, J. Xu, A. Rittenbach, S. Chen, A.-M. El-Sharkawy, W. A. Edelstein, *Johns Hopkins University, United States*; X. Guo, A. Liu, J. W. Hugg, *Gamma Medica, Inc., United States*

MIC13-7 (10:00) Feasibility Study for a PET Detector Integrated with a RF Coil for PET-MRI
F. Nishikido[1], A. Tachibana[1], T. Obata[1], S. Yoshioka[2], N. Inadama[1], E. Yoshida[1], H. Tashima[1], M. Suga[1], H. Murayama[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan

MIC13-8 (10:15) Dynamic Region-of-Interest Cone-Beam CT for Image-Guided Postmastectomy Radiotherapy
E. Pearson, H. Al-Hallaq, X. Pan, C. Pelizzari, *University of Chicago, USA*

MIC14 Image Processing and Parametric Imaging

Friday, Oct. 28 08:30-10:30 VCC, Auditorium 2

Session Chairs: **Richard E. Carson**, Yale University, United States
Manuel Desco, Universidad Carlos III de Madrid, Spain

MIC14-1 (08:30) A Study on CT Sinogram Statistical Distribution by Information Divergence Theory
J. Ma[1,2], Z. Liang[1], Y. Fan[1], Y. Liu[1], J. Huang[2], H. Lu[3], W. Chen[2]
[1]Stony Brook University, USA; [2]Southern Medical University, China; [3]Military Medical University, China

MIC14-2 (08:45) Clough-Tocher Interpolation of Virtual Sinogram in a Delaunay Triangulated Grid for Metal Artifact Reduction of PET/CT Images
M. Abdoli, J. R. de Jong, J. Pruim, R. A. J. O. Dierckx, *University Medical Center Groningen, The Netherlands*; H. Zaidi, *Geneva University Hospital, Switzerland*

MIC14-3 (09:00) Lung Tumor Delineation in PET-CT Images Based on a New Segmentation Energy
C. Ballangan[1,2], X. Wang[1], D. Feng[1,3]
[1]Sydney University, Australia; [2]Petra Christian University, Indonesia; [3]Hong Kong Polytechnic University, Hong Kong

MIC14-4 (09:15) Mass-Preserving Motion Correction of Dual Gated Cardiac PET
F. Gigengack[1,2], L. Ruthotto[3], M. Burger[4], C. H. Wolters[5], X. Jiang[2], K. P. Schaefers[1]
[1]European Institute for Molecular Imaging (EIMI), Germany; [2]Institute for Computer Science, Germany; [3]Institute of Mathematics and Image Computing (MIC), Germany; [4]Institute for Computational and Applied Mathematics, Germany; [5]Institute for Biomagnetism and Biosignalanalysis, Germany

MIC14-5 (09:30) Influence of the Partial Volume Effect Correction Method on the Performance of OSEM Reconstruction Based Dynamic PET
S. L. Bowen[1], L. G. Byars[2], C. J. Michel[2], A. G. Sorensen[1], C. Catana[1]
[1]Massachusetts General Hospital, USA; [2]Siemens Medical Solutions, USA

MIC14-6 (09:45) Fourier Domain Closed-Form Formulas for Estimation of Kinetic Parameters in Multi-Compartment Models
G. L. Zeng, D. J. Kadrmas, *University of Utah, USA*; G. T. Gullberg, *Lawrence Berkeley National Laboratory, USA*

MIC14-7 (10:00) Simultaneous Water Activation and Glucose Metabolic Rate Imaging with PET.
J. Verhaeghe, A. J. Reader
McGill University, Montreal Neurological Institute, Canada

MIC14-8 (10:15) Compressed sensing for the multiplexing of signals from large area PET detector modules
P. D. Olcott, G. Chinn, C. S. Levin
Stanford University, USA

MIC16 Student Competition

Friday, Oct. 28 14:30-16:00 VCC, Auditorium 1

Session Chairs: **Michel Defrise**, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium
Simon R. Cherry, University of California-Davis, United States

MIC16-1 (14:30) Validation Study of VP-PET Insert for Enhancing Breast Cancer PET Imaging While Preserving Full Field of View Capacity
A. J. Mathews, S. Komarov, H. Wu, J. A. O'Sullivan, Y.-C. Tai
Washington University in St Louis, USA

MIC16-2 (14:45) LabPET II, an APD-Based PET Detector Module with Counting CT Imaging Capability
M. Bergeron[1], C. Thibaudeau[1], J. Cadorette[1], C. M. Pepin[1], M.-A. Tetrault[1], M. Davies[2], H. Dautet[2], P. Deschamps[2], R. Fontaine[1], R. Lecomte[1]
[1]Universite de Sherbrooke, Canada; [2]Excelitas Technologies, Canada

MIC16-3 (15:00) A System Calibration and Fast Iterative Reconstruction Method for Next-Generation, SPECT Imagers
B. W. Miller[1], R. Van Holen[2], H. H. Barrett[1], L. R. Furenlid[1]
[1]University of Arizona, USA; [2]Ghent University, Belgium

MIC16-4 (15:15) Novel SLAM-Based Markerless Motion Tracking of Conscious Unrestrained Rodents in PET
A. Z. Kyme[1], S. R. Meikle[1], C. Baldock[1], R. R. Fulton[1,2]
[1]University of Sydney, Australia; [2]Westmead Hospital, Australia

MIC16-5 (15:30) Investigation of 4D PET Attenuation Correction Using Ultra-Short Echo Time MR
C. Buerger[1], A. Aitken[2], C. Tsoumpas[1], A. P. King[1], V. Schulz[3], P. Marsden[1], T. Schaeffter[1]
[1]King's College London, United Kingdom; [2]King's College Hospital, United Kingdom; [3]Philips Research, Germany

MIC16-6 (15:45) A Nonlocal Averaging Technique for Kinetic Parameter Estimation from Dynamic PET Data
J. Dutta[1,2], G. El Fakhri[2], R. M. Leahy[1], Q. Li[2]
[1]University of Southern California, USA; [2]Massachusetts General Hospital, USA

MIC17 Data Corrections for PET

Friday, Oct. 28 14:30-16:00 VCC, Auditorium 2

Session Chairs: **Charles C. Watson**, Siemens Medical Solutions Molecular Imaging, United States
Nicola Belcari, Department of Physics, University of Pisa, Italy

MIC17-1 (14:30) Design and Development of Phantoms Capable of Continuous Motion During Simultaneous PET-MR Acquisitions
G. M. Soultanidis[1], J. E. Mackewn[1], C. Tsoumpas[1], C. Buerger[1], P. Halsted[1], T. Schaeffter[1], V. Schulz[1,2], P. K. Marsden[1]
[1]King's College London, United Kingdom; [2]Philips Research, Germany

MIC17-2 (14:45) Digital Anthropomorphic Phantoms of Non-Rigid Human Respiratory and Voluntary Body Motions: A Tool-Set for Investigating Motion Correction in 3D Reconstruction.
A. Konik[1], C. M. Connolly[1], K. L. Johnson[1], P. K. R. Dasari[1], P. Segars[2], P. H. Pretorius[1], M. A. King[1]
[1]Umass Medical School, United States; [2]Duke University Medical School, United States

MIC17-3 (15:00) Statistical Evaluation of PET Motion Correction Methods Using MR Derived Motion Fields.
I. Polycarpou, C. Tsoumpas, P. K. Marsden
King's College London, United Kingdom

MIC17-4 (15:15) Motion Correction in PET-MRI: a Human Torso Phantom Study
M. Fieseler[1], T. Koesters[1], F. Gigengack[1], H. Braun[2], H. H. Quick[2], K. P. Schaefers[1], X. Jiang[1]
[1]University of Muenster, Germany; [2]University of Nuernberg-Erlangen, Germany

MIC17-5 (15:30) Real-Time Respiratory Motion Correction for Simultaneous PET-MR Using an MR-Derived Motion Model
A. P. King[1], C. Tsoumpas[1], C. Buerger[1], V. Schulz[2], P. Marsden[1], T. Schaeffter[1]
[1]King's College London, United Kingdom; [2]Philips Research, Germany

MIC17-6 (15:45) Evaluation of Image Based Spatially Variant and Count Rate Dependent Point Spread Functions on the HRRT PET Scanner
F. A. Kotasidis[1], G. I. Angelis[1], J. Henderson[1], A. Buckley[1], P. J. Markiewicz[1], M. Green[1], J. Anton-rodriguez[1], W. R. Lionheart[1], A. J. Reader[2], J. C. Matthews[1]
[1]The University of Manchester, United Kingdom; [2]McGill University, Canada

R17 CdTe II

Friday, Oct. 28 08:30-10:05 VCC, Auditorium 3 A & B

Session Chair: **Paul Siffert**, Eurorad, Strasbourg, France

R17-1 (08:30, invited) Energy Discriminated X-Ray CT with High Count Rate CdTe X-Ray Spectrometer
T. Aoki[1,2], A. Koike[1,2], H. Morii[1], T. Okunoyama[1,2], H. Mimura[1], T. Yamakawa[1]
[1]Shizuoka University, Japan; [2]ANSeeN Inc., Japan

R17-2 (08:50) Characterization of X- and Gamma Ray CdTe Radiation Detectors
A. Raulo, M. Sowinska, G. Hennard, *EURORAD, France*; E. Perillo, G. Paternoster, L. Campajola, *University Federico II, Italy*

R17-3 (09:05) Characterisation of CdTe for a Prototype Hybrid Pixel Detector Front End
D. A. Prokopovich[1], M. Ruat[2,3], M. I. Reinhard[1]
[1]Australian Nuclear Science and Technology Organisation, Australia; [2]Monash University, Australia; [3]European Synchrotron Radiation Facility, France

R17-4 (09:20) Investigation of the X-Ray Response of CdTe Pixelated Detectors Using the TIMEPIX Photon-Counting Readout Chip
M. Ruat, C. Ponchut, *ESRF, France*

R17-5 (09:35) Effects of Dislocation Walls on the Performance of CdTe:Cl Based X-Ray Detector
C. Buis[1], E. Gros d'aillon[1], G. Marrakchi[2], A. Brambilla[1], L. Verger[1]
[1]CEA/LETI/MINATEC Campus, France; [2]Universit de Saint-Etienne, Jean Monnet, F-42000, France

R17-6 (09:50) Characterization of Metal Contacts for CdTe and (CdZn) Te Detectors
E. Belas, R. Grill, S. Uxa, P. Praus, J. Bok, J. Franc, P. Hoschl, *Institute of Physics, Charles University, Czech Republic*; R. B. James, *Brookhaven Nat.Lab., USA*

R18 Characterization III

Friday, Oct. 28 11:00-12:45 VCC, Auditorium 3 A & B

Session Chair: **Jan S. Iwanczyk**, DxRay, Inc., United States

R18-1 (11:00) GaAs P-I-N Diode for Room Temperature Soft X-Ray Photon Counting
J. S. Ng[1], R. Gomes[1], N. Babazadeh[1], J. Lees[2], J. David[1], C. H. Tan[1]
[1]University of Sheffield, UK; [2]University of Leicester, UK

R18-2 (11:15) Experimental Evidence for the Presence of Cd Vacancies and a-Centers in CZT Detectors
R. Gul[1], A. E. Bolotnikov[1], P. M. Fochuk[2], J. Franc[3], K. H. Kim[1], Y. Cui[1], G. S. Camarda[1], A. Hossain[1], G. Yang[1], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]Chernivtsi National University,, Ukraine; [3]Charles University,, Czech Republic

R18-3 (11:30) The Influence of Edge Effects on the Detection Properties of Detector-Grade Cadmium Telluride
M. Bosma[1], S. Vaehaenen[2], J. Visser[1]
[1]Nikhef - National Institute for Subatomic Physics, The Netherlands; [2]VTT, Finland

R18-4 (11:45) Dynamical Properties of Electron and Hole Generated in CdTe Radiation Detector Probed by Optical Pulses
T. Ito, Y. Suzuki, A. Koike, H. Mori, Y. Neo, H. Mimura, T. Aoki
Shizuoka University, Japan

R18-5 (12:00) CdTe Linear Pixel X-Ray Detector with Enhanced Spectrometric Performance for High Flux X-Ray Imaging
A. Brambilla[1], P. Ouvrier-Buffet[1], J. Rinkel[1], G. Gonon[1], C. Boudou[2], L. Verger[1]
[1]CEA-LETI,MINATEC Campus, FRANCE; [2]MULTIX SA, FRANCE

R18-6 (12:15) Towards Realization of CdMnTe (CMT) X-Ray Detectors
R. Rafiei, D. Boardman, D. A. Prokopovich, A. Sarbutt, M. I. Reinhard
Australian Nuclear Science and TEchnology Organization, Australia

R18-7 (12:30) Resistivity and Mu-Tau Imager for Automatic Characterization of Semiconductor Materials
M. Sowinska, H. Simon, A. Raulo, *EURORAD, France*; A. Mycielski, D. Kochanowska, M. Witkowska-Baran, *IFPAN, Poland*; R. B. James, *Brookhaven National Laboratory, USA*

R19 CZT III

Friday, Oct. 28 14:30-16:00 VCC, Auditorium 3 A & B

Session Chair: **Giuseppe S. Camarda**, Brookhaven National Lab, United States

R19-1 (14:30) Characterisation of Single Crystal CdZnTe Material Grown by the Modified Vertical Bridgman Method and Its Application in Hard X-Ray Imaging Applications
M. C. Veale[1], S. Bell[1,2], P. Seller[1], M. D. Wilson[1], P. J. Sellin[2], Y. Xu[3], W. Jie[3]
[1]STFC Rutherford Appleton Laboratory, UK; [2]University of Surrey, UK; [3]Northwestern Polytechnical University, China

R19-2 (14:45) Unique Deep Level in Spectroscopic CdZnTe: Compensation, Trapping, and Polarization
V. Babentsov, *Institute of Semiconductor Physics, Ukraine*; J. Franc, *Charles University in Prague, Czech Republic*; E. Dieguez, *Universidad Autonoma de Madrid, Spain*; M. V. Sochinskyi, *Consorzio CREO, Italy*; R. B. James, *Brookhaven National Laboratory, USA*

R19-3 (15:00) Post-Growth Annealing Investigation of CdZnTe Crystals for X-Ray and Gamma-Ray Detection Applications
G. Yang[1], A. E. Bolotnikov[1], P. M. Fochuk[2], K. H. Kim[1], Y. Cui[1], G. S. Camarda[1], A. Hossain[1], R. Gul[1], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]Chernivtsi National University, Ukraine

R19-4 (15:15) Polarization Study of CdZnTe under High X-Ray Flux Using the TOF Technique
O. Tousignant, J. E. Greenspan, *Anrad Corporation, Canada*; E. Dolazza, B. U. Karbeyaz, *Analogic Corporation, USA*

R19-5 (15:30) Low Cost, Thick CZT Spectroscopic Detectors by Sensor-Pack Construction of Multiple Tile Pieces
T. Zhang, Y. Du, J. E. Tkaczyk, *GE Global Research Center, USA*; H. Chen, G. Bindley, *Redlen Technologies, Canada*

R19-6 (15:45) Achieving High Position Resolution Using CZT Drift Strip Detectors
I. Kuvvetli, *DTU Space National Space Institute, Technical University of Denmark, Denmark*; G. Benassi, L. Marchini, N. Zambelli, A. Zappettini, *IMEM-CNR, Italy*; E. Caroli, J. B. Stephen, N. Auricchio, *INAF/IASF, Italy*

R20 CZT IV

Friday, Oct. 28 16:30-17:30 VCC, Auditorium 3 A & B

Session Chair: **Michael Fiederle**, Freiburger Materialforschungszentrum, Germany

R20-1 (16:30) CdZnTe Electro-Optic Response to Nuclear Reactor Pulsing
K. A. Nelson[1], K. R. Arpin[1], J. A. Geuther[1], J. L. Neihart[1], T. A. Riedel[1], R. A. Rojeski[2], D. S. McGregor[1]
[1]Kansas State University, USA; [2]Cymer, Inc., USA

R20-2 (16:45) Electroless Plating of Au, Pt, or Ru Thin Film Layers on CdZnTe
Q. Zheng[1], F. Dierre[1], V. Corregidor[2], J. Crocco[1], H. Bensalah[1], J. L. Plaza[1], E. Alves[2], E. Dieguez[1]
[1]Universidad Autonoma de Madrid, Spain; [2]Unidade de Fisica e Aceleradores, Portugal

R20-3 (17:00) Defect Analysis on MTPVT Grown CdZnTe Crystals by PICTS
V. Perumal[1,2], A. Lohstroh[1], P. J. Sellin[1], M. Ayoub[2], A. Pym[2], T. Wright[2]
[1]University of Surrey, UK; [2]Kromek Ltd, UK

R20-4 (17:15) Deep Trap Analysis in CdZnTe:In by Thermally Simulated Current and Thermoelectric Effect Spectroscopy
L. Xu, W. Jie, T. Feng, R. Nan, G. Zha, Y. Xu, T. Wang
Northwestern Polytechnical University, China

MIC15.S MIC Posters 3

Friday, Oct. 28 11:00-13:00 Sorolla, Gran Recati

Session Chairs: **Scott D. Metzler**, University of Pennsylvania, United States
Freek J. Beekman, Delft University of Technology, Netherlands
Johan L. Nuyts, K.U.Leuven, Belgium

MIC15.S-2 Tracking Coincidence Events in PET Even When Count Rates Are Extremely High: the Lost-Event Tally Packet Concept
W. F. Jones, J. E. Breeding, J. H. Reed, W. Luk, A. Moor, M. E. Casey
Siemens Medical Solutions, USA

MIC15.S-5 Analyzing the Effect of Timing Accuracy on NECR Performance for Dedicated Breast PET
K. Saha[1], Y. Chen[1,2], S. J. Glick[1]
[1]University of Massachusetts Medical School, USA; [2]Henry M Jackson Foundation for the Advancement of Military Medicine, USA

MIC15.S-8 Investigation of Respiratory Motion Correction With and Without Motion Correction of Attenuation Map in Cardiac SPECT/CT
J. Dey[1], W. P. Segars[2], P. H. Pretorius[1], M. A. King[1]
[1]University of Massachusetts Medical School, MA; [2]Duke University, NC

MIC15.S-11 Variations on the NEMA NU4-2008 Testing Procedures and Effect on the Performance Measurement Results
E. Elhami, J. Boulding, *University of Winnipeg, Canada*; A. L. Goertzen, *University of Manitoba, Canada*

MIC15.S-14 Extending QuickSilverTM Electronics for PET Insert Integration
D. Hu, S. B. Siegel, *Siemens Medical Solutions USA, Inc., USA*; H. Wu, J. Wen, B. Ravindranath, Y.-C. Tai, *Washington University in St. Louis,, USA*

MIC15.S-17 Dual-Headed SPECT for Awake Animal Brain Imaging
S. Lee, D. G. Weisenberger, B. Kross, J. McKisson, *Thomas Jefferson National Accelerator Facility, US*; J. S. Goddard, J. S. Baba, *Oak Ridge National Laboratory, US*; M. F. Smith, *University of Maryland, US*

MIC15.S-20 Evaluation of a Resistor Network Charge Division Multiplexing Circuit for a 16 Pixel SiPM Array
A. L. Goertzen[1], M. M. McClarty[1,2], C. J. Thompson[3], F. Retiere[4], P. Kozlowski[5], L. Ryner[6], G. Stortz[5], V. Sossi[5]
[1]University of Manitoba, Canada; [2]University of Winnipeg, Canada; [3]McGill University, Canada; [4]TRIUMF, Canada; [5]University of British Columbia, Canada; [6]National Research Council Canada, Canada

MIC15.S-23 A Low Cost High Performance Planar Detector for Positron Emission Tomography
F. Retiere[1], A. L. Goertzen[2], P. Kozlowski[3], M. McClarty[2], L. Ryner[4], V. Sossi[3], G. Stortz[3], C. J. Thompson[5]
[1]TRIUMF, Canada; [2]University of Manitoba, Canada; [3]University of British Columbia, Canada; [4]National Research Council, Canada; [5]McGill University, Canada

MIC15.S-26 Study of Readout for Groups of Position Sensitive Avalanche Photodiodes Used in a 1 mm³ Resolution Clinical PET System
P. D. Reynolds, F. W. Y. Lau, A. Vandenbrouke, C. S. Levin
Stanford University, USA

MIC15.S-29 Design and Initial Performance Evaluation of DbPET2, an Intermediate Generation Breast PET Prototype
A. Ferrero[1], F. Godinez[1], A. J. Chaudhari[1], Q. Peng[2], C. Vu[2], W.-S. Choong[2], W. W. Moses[2], R. D. Badawi[1]
[1]University of California, Davis, USA; [2]Lawrence Berkeley Nat. Lab. , USA

MIC15.S-32 Optimal Design of Fan Beam Collimation for Pixelated Breast Imaging Systems
R. M. Capote, P. M. Almeida
Institute of Biophysics and Biomedical Engineering, Portugal

MIC15.S-35 Development of High-Sensitivity CdTe SPECT System with 4-Pixel Matched Collimator and Its Clinical Applicability
Y. Morimoto[1], A. Suzuki[1], T. Ishitsu[1], Y. Ueno[1], K. Kobashi[1], N. Kubo[2], T. Shiga[3], Y. Kuge[2], N. Tamaki[3]
[1]Central Research Laboratory, Hitachi Ltd., Japan; [2]Central Institute of Isotope Science, Hokkaido University, Japan; [3]Graduate School of Medicine, Hokkaido University, Japan

MIC15.S-38 Resolution Improvement by Interpolation of Charge Sharing Event Position in 350µm Pitch Pixelated CdZnTe Detectors
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MIC15.S-41 Comparison of Analog Signal Multiplexing Methods for SiPM Based Position Sensitive PET Block Detectors
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MIC15.S-44 Development of Compact ToT Based LuAG-APD PET
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MIC15.S-47 Validation of a voxel-based statistical analysis method for FP-CIT PET in a Parkinsons disease rat model
A. R. Yu[1,2], J. S. Kim[1], J. S. Moon[3], K. M. Kim[1], J. G. Kim[1], J. A. Park[1], S. K. Woo[1], H. J. Kim[2], S. M. Lim[1]
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MIC15.S-50 MPPC Arrays in PET Detectors with LSO and BGO Scintillators
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MIC15.S-53 The Electronics Hardware Aspects of a Prototype of an Experimental SPECT System
G. Panjkovic, M. Dimmock, *Monash University, Australia*

MIC15.S-56 Study of TOF-PET Capability with LFS and MPPC
M. Yamazaki, T. Takeshita, *Shinshu University, Japan*

MIC15.S-59 ClearPEM Scanners: Performance Results and Studies in Preclinical Environment
C. Ortigao[1], P. Almeida[2], F. Botelho[2,3], R. Bugalho[1], S. Carvalho[4], C. S. Ferreira[1,2], N. C. Ferreira[3], M. V. Martins[2], N. Matela[2], J. A. Neves[1], A. Rodrigues[4], A. S. Rodrigues[1], J. C. Silva[1], R. Silva[1], J. Varela[1]
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MIC15.S-62 Investigation of Pseudo 3D Imaging Method for Small Objects Using a Stationary Gamma Camera
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MIC15.S-65 Evaluation of APD and SiPM Matrices as Sensors for Monolithic PET Detector Blocks
P. Garcia de Acilu Laa, P. Rato Mendes, M. Canadas, I. Sarasola, R. Cuerdo, L. Romero, C. Willmott
CIEMAT, Spain

MIC15.S-68 Preclinical Studies Using a Prototype High-Resolution PET System with Depth of Interaction
M. Safavi-Naeini[1], D. R. Franklin[2], M. Lerch[1], M. Petasecca[1], G. Moorhead[3], R. Kirkham[3], P. Dunn[3], G. O'keefe[4], G. Degeronimo[5], A. B. Rosenfeld[1]
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MIC15.S-71 Long Term Quantitative Stability of the MR Compatible BrainPET Insert
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MIC15.S-74 Position Decoding Using Gaussian Mixture Model for a Monolithic Scintillator-Based PET Detector
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MIC15.S-77 Design of DOI PET Detector Modules Using Phoswich and SiPMs
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MIC15.S-80 Monolithic LaBr3:Ce Crystals on Silicon Photomultiplier Arrays: Towards the Optimum Time-of-Flight PET Detector
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MIC15.S-83 First Performance Measurements of Monolithic Scintillators Coupled to Digital SiPM Arrays for TOF-PET
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Delft University of Technology, Netherlands

MIC15.S-86 Time Resolution Measurements of Minidetectors for a PET-TOF Prostate Probe
L. Cosentino[1], R. Perrino[2], F. Cusanno[3], R. De Leo[4], P. Finocchiaro[1], M. Foresta[4], A. Gabrielli[5], F. Garibaldi[6], F. Giorgi[5], F. Giuliani[7], M. Gricia[7], F. Loddo[4], M. Lucentini[7], F. Meddi[6], P. Musico[8], E. Monno[9], A. Pappalardo[8], A. Ranieri[4], C. Tamma[4], M. Turisini[10]
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MIC15.S-89 A Novel Shaped Pinhole Geometry for Optimal Detector Usage Without Multiplexing and Without Additional Shielding (the Lofthole)
K. Deprez, R. Van Holen, S. Vandenberghe
University of Ghent, Belgium

MIC15.S-92 A Pair Production Upgrade for a Compton Imager for in-Vivo Dosimetry at Therapeutic Proton and Ion Beams
C. Golnik[1], U. Dersch[1], F. Fiedler[2], T. Kormoll[1], H. Rohling[1], W. Enghardt[1]
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MIC15.S-95 Generation and Evaluation of the Simultaneous Cardiac and Respiratory Gated Rb-82 PET Simulation
M. J. Park, S. Chen, T. S. Lee, G. S. K. Fung, M. A. Lodge, B. M. W. Tsui
Johns Hopkins University, USA

MIC15.S-98 Characterization of the VATA241 Front-End ASIC for the BrainPET Scanner
I. Sarasola, R. Cuerdo, J. Navarrete, P. Garcia de Acilu, P. Rato Mendes, L. Romero, C. Willmott
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MIC15.S-101 Acquisition Strategies of a Dual Head Rotating 4-Segment Slant-Hole (R4SSH) SPECT System for Improved Myocardial Perfusion SPECT Imaging
A. J. Rittenbach, J. Xu, B. M. W. Tsui, *Johns Hopkins University, USA*

MIC15.S-104 Timing Resolution of Improved LGSO Crystal for TOF PET Imaging
C. L. Kim, D. L. McDaniel, *GE Healthcare, USA*

MIC15.S-107 Evaluation of a PET Prototype Using LYSO:Ce Monolithic Detector Blocks
R. Cuerdo, I. Sarasola, P. Garcia de Acilu, J. Navarrete, M. Canadas, J. C. Oller, J. M. Cela, P. Rato Mendes, L. Romero, C. Willmott
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MIC15.S-110 Study of Silicon Photomultipliers for Time -of -Flight Applications

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MIC15.S-113 Waveform-Sampling Electronics/DAQ for TOF PET Scanner

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MIC15.S-116 Characterisation of a Position Sensitive 256 Anode Photomultiplier and Related Electronics

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MIC15.S-119 Development of a Functional Plant PET Imager with Flexible Geometry and Controlled Environment

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MIC15.S-122 Assessment of DOI Resolution in a Fully Mounted PEM Scanner

N. Matela[1], C. S. Ferreira[1,2], M. V. Martins[1,3], R. Bugalho[2], J. A. Neves[2], C. Ortigao[2], N. Oliveira[1], J. Varela[2,4], P. Almeida[1]
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MIC15.S-125 Assessing Possible Use of CZT Technology for Application to Brain SPECT

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MIC15.S-128 PET Calibration Method of Nonlinear Position Estimation Algorithms for Continuous NaI(Tl) Crystals

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MIC15.S-131 Characterizing the Spatial Resolution Performance of Large Continuous Thick Crystals

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MIC15.S-134 Study of Silicon Photomultipliers for New Generation of PET

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MIC15.S-137 The Digital SiPM: Initial Evaluation of a New Photosensor for Time-of-Flight PET

D. R. Schaart, H. T. van Dam, G. J. van der Lei, S. Seifert
Delft University of Technology, The Netherlands

MIC15.S-140 A Fast Charge to Pulse Width Converter for PET Optimized for Monolithic Scintillator Readout
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MIC15.S-143 Simulations of a Silicon Photomultiplier-Based Gamma Camera for Use in MR/SPECT Imaging
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MIC15.S-146 Simulation Guided Optimization of Dual Layer Offset Detector Block Design for Use in Small Animal PET
G. Stortz[1], C. J. Thompson[2], X. Zhang[3], A. L. Goertzen[3], F. Retiere[4], P. Kozlowski[1], L. Ryner[5], V. Sossi[1]
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MIC15.S-149 Evaluation of the SensL SPMMatrix for Use as a Detector for PET and Gamma Camera Applications
C.-Y. Liu, A. L. Goertzen, *University of manitoba, Canada*

MIC15.S-152 Simplied PET Performance Measures for Routine System Evaluation
T. G. Turkington, J. M. Wilson
Duke University Medical Center, USA

MIC15.S-155 Continuous DOI Determination by Gaussian Modelling of Linear and Non Linear Scintillation Light Distributions
R. Pani[1,2], S. Nourbakhsh[1,2], P. Pani[1,2], P. Bennati[3,2], S. Lo Meo[4], M. N. Cinti[1,2], R. Pellegrini[1,2], B. Cassano[1], M. Bettiol[5], R. Scafe[1,2]
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MIC15.S-158 Imaging Study of a Clinical PET Scanner Design Using an Optimal Crystal Thickness and Scanner Axial FOV
S. Surti, E. Lee, M. E. Werner, J. S. Karp
University of Pennsylvania, USA

MIC15.S-161 New Position Arithmetic for Scintillation Camera Based on Floating Weight System
R. Pani[1,2], M. N. Cinti[1,2], P. Bennati[3,2], R. Pellegrini[1,2], R. Scafe[1,2], S. Lo Meo[4], A. Fabbri[3,2]
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MIC15.S-164 Proposal of a New PET Positron Detector for Intestinal Cancers
M. Wada, H. Kawai, Y. Kishi, M. Kubo, K. Mase, H. Nakayama, M. Ono, T. Sato, K. Shima
Chiba University, Japan

MIC15.S-167 The Design of Optimal Multipinhole Collimators for a Seamless SPECT Ring Detector
A. J. Rittenbach[1], J. Xu[1], J. Hugg[2], B. M. W. Tsui[1]
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MIC15.S-170 New Fast Photomultiplier Tubes with LYSO for Time-of-Flight PET
M. Ito, J. P. Lee, J. S. Lee
Seoul National University, Korea

MIC15.S-173 Large-Area Position-Sensitive Solid-State Photomultipliers: Prospects for a PET Detector with 220 μm X 220 μm Scintillation Elements
J. Schmall[1], E. Roncali[1], M. McClish[2], P. Dokhale[2], C. Stapels[2], E. Johnson[2], J. Christian[2], K. Shah[2], S. Cherry[1]
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MIC15.S-176 Performance Evaluation of High QE PSPMT (H10966A-100) for High Resolution Time-of-Flight PET Application
G. B. Ko, M. Ito, J. S. Lee
Seoul National University, Korea

MIC15.S-179 Progress on the Development of a MR-Compatible SiPM PET Scanner
J. S. Lee, H. S. Yoon, G. B. Ko, S. I. Kwon, M. Ito, C. M. Lee, I. C. Song, D. S. Lee, *Seoul National University, Korea*; S. J. Hong, *Eulji University, Korea*

MIC15.S-182 Simulation Study Analyzing DOI Impact on Timing in PET Detectors
S. Cho, D. Henseler, R. Grazioso, M. Schmand
Siemens Molecular Imaging, USA

MIC15.S-185 High Resolution Fast Sterotactic Prostate PET Imager for Prostate Biopsy
S. Majewski[1], A. V. Stolin[1], J. Proffitt[2], E. Delfino[1], P. Martone[1]
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MIC15.S-188 Multibeam Healing for Laser Micromachining of Scintillator Arrays
B. Singh[1], R. Akarapu[2], A. E. Segall[2], V. V. Nagarkar[1]
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MIC15.S-191 Comparison of External Motion Tracking Systems for PET Listmode Reconstruction
O. V. Olesen[1,2,3,4], R. R. Paulsen[1], L. Hjoegaard[2], B. Roed[3], R. Larsen[1]
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MIC15.S-194 Cardiac and Brain Phantom Measurements with a Multipinhole SPECT Collimator
J. D. Bowen[1], Q. Huang[2], G. T. Gullberg[3], Y. Seo[1]
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MIC15.S-197 Experimental Evaluation of the Second Generation Energy-Resolved Photon-Counting CdTe and CZT Detectors for Future Emission Tomography Applications
L.-J. Meng, L. Cai, N. Li
University of Illinois at Urbana-Champaign, USA

MIC15.S-200 Effect of Temperature on Performance of Brain PET Using GAPD
Y. Huh[1,2], Y. Choi[1], J. H. Jung[1], K. J. Hong[1], J. Kang[1,2], W. Hu[1,2], S. Kim[1], J. W. Jung[1], B.-T. Kim[2]
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MIC15.S-203 Conceptual Design of High Spatial-Resolution SPECT System for Human Brain
T. Zeniya[1], Y. Hirano[1], T. Tominaga[2], Y. Hori[1], H. Watabe[3], T. Sakimoto[2], A. Sohlberg[1], K. Minato[2], J. Hatazawa[3], H. Iida[1]
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MIC15.S-206 Fast Multiple Information Retrieval Algorithm for X-Ray Grating-Based Imaging
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MIC15.S-209 Reducing Metal Artifacts by Pre-Processing Projection Data in Dental CBCT with a Half-Size Detector
Q. Wang, L. Li, L. Zhang, Z. Chen, Y. Xing, K. Kang
Tsinghua University, China

MIC15.S-212 Measurement and Analysis of Geometric Effects on Partial Iso-centric X-ray Tomosynthesis System
H. H. Hsieh, M. L. Jan, Y. C. Ni, F. P. Tseng, T. H. Tsai
Institute of Nuclear Energy Research, Taiwan ROC

MIC15.S-215 A Novel Phantom for Accurate Performance Assessment of Bone Mineral Measurement Techniques: DEXA and QCT
A. Emami[1], H. Ghadiri[1], M. R. Ay[1], S. Akhlaghpoor[1], A. Eslami[1], P. Ghafarian[2], S. Taghizadeh[1]
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MIC15.S-218 Sparse Sampling MR Image Reconstruction Using Bregman Iteration: A Feasibility Study at Low Tesla MRI System
D. H. Lee[1,2], C. P. Hong[1], M. W. Lee[2], H. J. Kim[2], J. H. Jung[2], W. H. Shin[1], J. G. Kang[1], S. J. Kang[1], B. S. Han[1]
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MIC15.S-221 Evaluation of Velocity Measurements for Keyhole Imaging Combined Phase Contrast MR Angiography
D. H. Lee[1,2], C. P. Hong[1], M. W. Lee[2], H. J. Kim[2], J. H. Jung[2], W. H. Shin[1], J. G. Kang[1], S. J. Kang[1], B. S. Han[1]
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MIC15.S-224 Comparison of K-Edge Versus Standard Absorption Imaging Using the XPAD3 Hybrid Pixel Detector
F. Cassol Brunner[1], C. Kronland-Martinet[1], A. Bonissent[1], Y. Boursier[1], J.-C. Clemens[1], M. Dupont[1], H. Ouamara[1], F. Debarbieux[2], C. Morel[1]
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MIC15.S-227 Improving the Temporal Resolution of 3D Phase Contrast MR Angiography Using Keyhole Technique at Low Tesla Open-MRI System
D. H. Lee[1,2], C. P. Hong[1], M. W. Lee[2], H. J. Kim[2], J. H. Jung[2], W. H. Shin[1], J. G. Kang[1], S. J. Kang[1], B. S. Han[1]
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MIC15.S-230 X-Ray Differential Phase Contrast Tomography on a Compact Industrial Micro CT Scanner
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MIC15.S-233 High-Resolution Dynamic Cardiac MRI on Small Animals Using Reconstruction Based on Split Bregman Methodology
P. Montesinos[1], J. F. Perez-Juste Abascal[1], J. Chamorro[1], C. Chavarrias[1], M. Benito[1], J. J. Vaquero[2], M. Desco[1,2]
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MIC15.S-236 Prototype Photon Counting CT System for Carotid Plaque Imaging
A. M. Alessio, L. MacDonald, *University of Washington, USA*

MIC15.S-239 RF Coil Design for Low and High Field MRI: Numerical Methods and Measurements
R. Stara[1], N. Fontana[1], A. Monorchio[1], G. Manara[1], A. Retico[2], A. del Guerra[1], G. Tiberi[3], L. Biagi[4], M. Alfonsetti[5], A. Galante[5], A. Vitacolonna[5], M. Alecci[5], M. Tosetti[4]
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MIC15.S-242 CT Dose Reduction Using Dynamic Collimation
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MIC15.S-245 SNR Comparisons of Absorption and Fluorescence Modes of Edge-Subtraction Imaging
P. J. La Riviere, D. S. Rigie
The University of Chicago, USA

MIC15.S-248 Objective Assessment of Low Contrast Detectability for Real CT Phantom and in Simulated Images Using a Model Observer
I. Hernandez-Giron[1], J. Geleijns[2], A. Calzado[3], M. Salvado[1], R. Joemai[2], W. J. H. Velkamp[2]
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MIC15.S-251 Computed Tomography System Using a MHSP in Multi-Slice Operation
L. F. N. D. Carramate[1], C. A. B. Oliveira[1], A. L. M. Silva[1], C. D. R. Azevedo[1], A. M. da Silva[2], J. F. C. A. Veloso[1]
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MIC15.S-254 Detection of Calcification Using High-Pass Filtered Phase Image in Breast Magnetic Resonance Imaging
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MIC15.S-257 Regularized Phase Retrieval for X-Ray Differential Phase Contrast Imaging
T. Thuering, P. Modregger, B. R. Pinzer, Z. Wang, M. Stampanoni
Paul Scherrer Institute, Switzerland

MIC15.S-260 Comparison of Performance Parameters of Three 64-Slice CT Scanner
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MIC15.S-263 Detectors for Region of Interest Fluoroscopy to Facilitate an Order of Magnitude of Radiation Dose Reduction
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MIC15.S-266 Development of a GEM-Based Dose Imaging Detector with Optical Readout for Radiotherapy
A. V. Klyachko, D. F. Nichiporov, *Indiana University Cyclotron Operations, USA*; K. A. Solberg, *Indiana University Integrated Science and Accelerator Technology Hall, USA*; V. P. Moskvin, *Indiana University School of Medicine, USA*

MIC15.S-269 An optimized in-situ TOF-PET Imaging System for Proton Therapy Quality Assurance
D. C. Oxley[1], A. K. Biegun[2], S. Brandenburg[1], P. Cambraia Lopes[2], F. Diblen[3], D. R. Schaart[2], S. Vandenberghe[3], P. Dendooven[1]
[1]University of Groningen, The Netherlands; [2]Delft University of Technology, The Netherlands; [3]Ghent University-IBBT-IBiTech, Belgium

MIC15.S-272 Development of a PET dedicated for in-situ proton therapy monitoring
Y. Shao, R. X. Zhu, X. Sun, C. J. Bircher, A. K. Lan, *The University of Texas M.D. Anderson Cancer Center, USA*; X. Zhu, J. Wu, Y. Xia, M. Tianyu, *Tsinghua University, China*

MIC15.S-275 Simulation Design of a Single-Ring OpenPET for in-Beam PET
S. Kinouchi[1,2], T. Yamaya[2], H. Tashima[2], E. Yoshida[2], F. Nishikido[2], H. Haneishi[1], M. Suga[1]
[1]Chiba University, Japan; [2]National Institute of Radiological Sciences, Japan

MIC15.S-278 A Prototype Compton Camera for In-Vivo Dosimetry of Ion Beam Cancer Irradiation
T. Kormoll[1], F. Fiedler[2], C. Golnik[1], K. Heidel[2], M. Kempe[2], S. Schne[2], K. Zuber[1], W. Enghardt[1,2]
[1]Technische Universitt Dresden, Germany; [2]Helmhotz-Zentrum Dresden Rossendorf, Germany

MIC15.S-281 Fast Data Acquisition in Heavy Ion CT Using Intensifying Screen - EMCCD Camera System
H. Muraishi[1], S. Abe[2], H. Satoh[2], H. Hara[1], T. Mogaki[3], S. Hara[4], S. Miyake[5], N. Yasuda[6], Y. Watanabe[1], Y. Koba[7]
[1]Kitasato University, Japan; [2]Ibaraki Prefectural University of Health Sciences, Japan; [3]National Cancer Center East, Japan; [4]Yamanashi Gakuin University, Japan; [5]Tokiwa University, Japan; [6]Gifu University of Medical Science, Japan; [7]National Institute of Radiological Sciences, Japan

MIC15.S-284 Simulation Study of in-Beam PET System for Dose Verification in Carbon Ion Therapy
C.-H. Baek[1,2], S. J. An[1,2], H.-I. Kim[1,2], C. Y. Lee[1,2], W.-G. Jung[3], Y. H. Chung[1,2]
[1]College of Health Science, Yonsei University, Republic of Korea; [2]Institute of Health Science, Yonsei University, Republic of Korea; [3]Korea Institute of Radiological and Medical Sciences, Republic of Korea

MIC15.S-287 Real-Time Bragg Peak Position Monitoring with a Slit Camera
V. R. Bom, L. Joulaeizadeh, F. J. Beekman, *Delft Univ. of Technology, Netherlands*

MIC15.S-290 Range and Density Variations Monitoring During Proton Therapy Based on Time-of-Flight Detection of Prompt Gamma Radiation

A. K. Biegun[1], P. Cambraia Lopes[1,2,3], P. Dendooven[4], D. Oxley[4], K. Parodi[3], M. Pinto[2], I. Rinaldi[3,5], D. R. Schaart[1], E. Seravalli[6], F. Verhaegen[6], P. Crespo[2,7]
[1]Delft University of Technology, The Netherlands; [2]Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [3]Heidelberg Ion Beam Therapy Center, University Clinic of Heidelberg, Germany; [4]Kernfysisch Versneller Instituut, University of Groningen, The Netherlands; [5]German Cancer Research Center, Germany; [6]Maastro Clinic, The Netherlands; [7]Coimbra Institute of Engineering, Portugal

MIC15.S-293 95MeV/u 12C Nuclear Fragmentation for Hadrontherapy Purposes: Measurements and Comparisons with Nuclear Models Included in the Geant4 Simulation Toolkit.
M. Labalme[1], B. Braunn[1,2], G. Ban[1], J. Colin[1], D. Cussol[1], J. M. Fontbonne[1], F. Haas[3], M. Rousseau[3], M. Chevallier[4], D. Dauvergne[4], F. Le Foulher[4], C. Ray[4], E. Testa[4], M. D. Salsac[2]
[1]LPC Caen, France; [2]CEA/Saclay, DSM/Irfu/SPhN, France; [3]IPHC, France; [4]IPNL, France

MIC15.S-296 Design of a Compton Camera for Hadrontherapy On-line Control Using Geant4
M.-H. Richard[1,2], D. Dauvergne[1], M. Dahoumane[1], N. Freud[2], P. Henriquet[1], J. M. Letang[2], J. Krimmer[1], G. Montarou[3], C. Ray[1], E. Testa[1], A. H. Walenta[1]
[1]Institute of Nuclear Physics, France; [2]Creatis, France; [3]LPC, France

MIC15.S-299 Evaluation of Timepix as dE/dx-Detector for Hadron Therapy
B. Hartmann[1,2], C. Granja[3], L. Opalka[3], J. Jakubek[3], O. Jaekel[1,2,4], M. Martisikova[1]
[1]German Cancer Research Center (DKFZ), Germany; [2]Universitaetsklinikum Heidelberg, Germany; [3]Czech Technical University in Prague, Czech Republic; [4]Heidelberger Ionenstrahl-Therapiezentrum (HIT), Germany

MIC15.S-302 Monte Carlo PET Camera Modelling for Proton Range Evaluation in Proton Therapy
C. Van Ngoc Ty[1], L. De Marzi[2], S. Jan[1], L. Lestand[3], C. Comtat[1], R. Ferrand[2], R. Trebossen[1]
[1]CEA, France; [2]Institut Curie, France; [3]IN2P3, France

MIC15.S-305 Tomographic Images by Proton Computed Tomogrphy System for Proton Therapy Applications
V. Sipala[1,2], M. Brianzi[3], M. Bruzzi[3,4], M. Bucciolini[3,4], G. A. P. Cirrone[5], C. Civinini[3], G. Cuttone[5], D. Lo Presti[1,2], S. Pallotta[4], N. Randazzo[1], M. Scaringella[3,4], C. Stancampiano[1], C. Talamonti[3,4], M. Tesi[4]
[1]INFN Catania, Italy; [2]University of Catania, Italy; [3]INFN Florence, Italy; [4]University of Florence, Italy; [5]INFN, Italy

MIC15.S-308 Hodoscope Coincidence Imaging for Hadron Therapy Using a Compton Camera
J. E. Gillam, I. Torres-Espallardo, C. Lacasta, P. Solevi, J. Barrio, G. Llosa, M. Rafecas, *IFIC (CSIC - Universitat de Valencia), Spain*

MIC15.S-311 Measurement of Activity Produced by Low Energy Proton Beam in Metals Using off-Line PET Imaging
P. M. G. Corzo[1], J. Cal-Gonzalez[1], E. Picado[1], S. Espana[2], J. L. Herraiz[1], E. Herranz[1], E. Vicente[1,3], J. M. Udias[1], J. J. Vaquero[4], A. Munoz-Martin[5], L. M. Fraile[1]
[1]Universidad Complutense Madrid, Spain; [2]Ghent University Hospital, Belgium; [3]Consejo Superior de Investigaciones Cientificas (CSIC), Spain; [4]Universidad Carlos III de Madrid, Spain; [5]Universidad Autonoma de Madrid, Spain

MIC15.S-314 Image Reconstruction for Compton Camera Applied to 3D Prompt Gamma Imaging During Ion Beam Therapy
X. Lojacono[1], M.-H. Richard[1,2], D. Dauvergne[2], E. Testa[2], C. Ray[2], N. Freud[1], J.-M. Letang[1], V. Maxim[1], R. Prost[1]
[1]Universite de Lyon, CNRS, Inserm, INSA-Lyon, CREATIS, France; [2]Universite de Lyon, CNRS/IN2P3, France

MIC15.S-317 Measurement of Charged and Neutral Particles Production from an 80 MeV/A Hadron Therapy Carbon Beam Fragmentation
A. Sarti[1,2], V. Patera[1,2], A. Sciubba[1,2], A. Paoloni[1], L. Piersanti[2], R. Faccini[2,3], F. Ferroni[2,3], C. Voena[2,3], F. Bellini[2,3], A. Di Domenico[2,3], S. Fiore[2,3], P. Gauzzi[2,3], G. Cuttone[4], C. Agodi[4], F. Romano[4], G. Cirrone[4]
[1]INFN - LNF, Italy; [2]Universita' di Roma, Italy; [3]INFN - Roma1, Italy; [4]INFN - LNS, Italy

MIC15.S-320 Proton Therapy Dose Verification Using Compton Imaging
L. Mihailescu[1], K. Vetter[1], L. Supic[1], J. Miller[2], D. Bond[2], M. Bandstra[2], I.-Y. Lee[1], M. Descovic[3], S. Gros[3], R. Donahue[1]
[1]Lawrence Berkeley National Laboratory, USA; [2]UC Berkeley, USA; [3]UC San Francisco, USA

MIC15.S-323 Simulation Study of Resistive-Plate-Chamber Based PET for Hadrontherapy Monitoring
I. Torres-Espallardo, J. E. Gillam, P. Solevi, J. Cabello, M. Rafecas
IFIC (Universidad de Valencia / CSIC), Spain

MIC15.S-326 A Dose Determination Procedure by PET Monitoring in Proton Therapy
M. Aiello[1,2], F. Attanasi[1,2], N. Belcari[1,2], V. Rosso[1,2], A. Del Guerra[1,2]
[1]INFN, Italy; [2]University of Pisa, Italy

MIC15.S-329 First Coincidence Tests of a Compton Telescope Based on Continuous LaBr3 Crystals and SiPMs for Dose Monitoring in Hadron Therapy
J. Barrio[1], J. Cabello[1], C. Lacasta[1], M. Rafecas[1,2], C. Solaz[1], V. Stankova[1], G. Llosa[1], S. Callier[3], C. de la Taille[3], L. Raux[3]
[1]Instituto de Fisica Corpuscular (Universitat de Valencia/CSIC), Spain; [2]Departamento de Fisica Atomica, Molecular y Nuclear, Universitat de Valencia, Spain; [3]Laboratoire de l'Accelerateur Lineaire (LAL), France

MIC15.S-332 Iterative Procedure for the Reduction of Artefacts in Optoacoustic Reconstructions Due to Acoustic Reflections or Scattering
X. L. Dean-Ben, D. Razansky, V. Ntziachristos
Institute of Biological and Medical Imaging, Germany

MIC15.S-335 Characterization of the Partial Volume Effect in Positron Emission Mammography (PEM)
W. Luo, X. Lu, *Naviscan Inc., USA*

MIC18.M MIC Posters 4

Friday, Oct. 28 16:30-18:30 Meliá, Room A&B

Session Chairs: **Georges El Fakhri**, Harvard Medical School and Massachusetts General Hospital, United States
Paul K. Marsden, King's College London, England, United Kingdom
Albert Cot, Universitat de Barcelona, Spain

MIC18.M-2 Methods for Increasing the Sensitivity of Simultaneous Multi-Isotope Positron Emission Tomography
E. Gonzalez, P. D. Olcott, M. Bieniosek, C. S. Levin
Stanford University, USA

MIC18.M-4 Development of a Digital Baseline Restorer for High-Resolution PET Detectors
J. Ohi, M. Satoh, M. Furuta, K. Kitamura
SHIMADZU Corporation, Japan

MIC18.M-6 Partial Volume Effect and a Partial Volume Correction for the NanoPET/CT™ Pre-Clinical PET/CT Scanner
I. Szanda[1], L. Livieratos[1,2], G. Patay[3], C. Tsoumpas[1], K. Sunassee[1], G. E. Mullen[1], G. Nemeth[3], P. Major[3], P. K. Marsden[1]
[1]King's College London, United Kingdom; [2]Guys and St Thomas Hospitals, United Kingdom; [3]Mediso Ltd., Hungary

MIC18.M-8 Maximum Likelihood Based Positioning and Energy Correction for Pixelated Solid State PET Detectors
C. W. Lerche[1], T. Solf[1], P. Dueppenbecker[1], P. K. Marsden[2], V. Schulz[1]
[1]Philips Research Europe, Germany; [2]Kings College, UK

MIC18.M-10 The Design and Initial Calibration of an Optical 3D Acquisition System for Head Motion Tracking
P. J. Noonan[1], W. A. Hallett[2], T. Cootes[1], R. Hinz[1]
[1]University of Manchester, UK; [2]GlaxoSmithKline, UK

MIC18.M-12 Improvement in Spatial Resolution of Dual-Ended Readout of 100 mm Long LYSO Crystals Through Use of Systematic Crystal Surface Roughing
F. ur-Rehman[1], Y.-C. Tai[2], A. L. Goertzen[1]
[1]University of manitoba, Canada; [2]Washington University in St. Louis, USA

MIC18.M-14 Development of a Breast Imaging System Using Energy Dispersive X-Ray Diffraction
S. M. Kumari Maini, R. D. Speller,
University College London, United Kingdom

MIC18.M-16 Selection of Point Source Configuration for Multi-Pinhole SPECT Calibration
L. Zhou, K. Vunckx, J. Nuyts, *K.U.Leuven, Belgium*

MIC18.M-18 A 55µmx55µm Charge-Integration Digital Pixel Sensor for Digital Direct Mammography in 0.18µm CMOS Technology
R. Figueras, L. Teres, F. Serra-Graells
IMB-CNM(CSIC), Spain

MIC18.M-20 Development of a PET Prototype with Continuous LYSO Crystals and Monolithic SiPM Matrices
G. Llosa[1], J. Barrio[1], J. Cabello[1], C. Lacasta[1], J. F. Oliver[1], M. Rafecas[1,2], C. Solaz[1], P. Barrillon[3], C. de la Taille[3], S. Bondil-Blin[3], C. Piemonte[4], M. G. Bisogni[5,6], A. Del Guerra[5,6]
[1]Instituto de Fisica Corpuscular (IFIC-CSIC/UVEG), Spain; [2]Universitat de Valencia, Spain; [3]Laboratoire de l'Accelerateur Lineaire, France; [4]FBK-irst, Italy; [5]University of Pisa, Italy; [6]INFN, Italy

MIC18.M-22 Development of a Gamma Camera Prototype Using Wavelength Shifting Fibers and Silicon Photomultipliers
I. F. Castro, J. F. Veloso, A. J. Soares, L. M. Moutinho, *i3n, Portugal*

MIC18.M-24 Energy Sensitive Single Grating Phase Contrast X-ray Imaging
F. Krejci, J. Jakubek, M. Kroupa, *IEAP, Czech Republic*

MIC18.M-26 Performance of Siemens Inveon Small Animal SPECT Scanner for Different Collimators and Radius of Rotation
Y. Yang, D. J. Rowland, S. St. James, S. R. Cherry
University of California at Davis, USA

MIC18.M-28 Measuring 511 keV Photon Interaction Locations in Three Dimensional Position Sensitive Scintillation Detectors
A. Vandenbroucke, F. W. Y. Lau, P. D. Reynolds, C. S. Levin
Stanford University, USA

MIC18.M-30 Image Quality Evaluation of Small Animal PET Scanners with Different System Designs
X. Li, A. M. Alessio, T. H. Burnett, T. K. Lewellen, R. S. Miyaoka
University of Washington, USA

MIC18.M-32 A Pre-Clinical PET Scanner with a Novel Detector Layout Optimized for High Resolution and Sensitivity
M. T. Rissi[1], E. Bolle[1], M. Boeck[1], J. Bjaalie[2], J. I. Buskenes[1], O. Dorholt[1], K. E. Hines[1], O. Rhoene[1], A. Skretting[3], S. Stapnes[1]
[1]Universitetet i Oslo, Norway; [2]Department of Anatomy & CMBN, Norway; [3]Department of Medical Physics, Rikshospitalet-Radiumhospitalet Medical Cente, Norway

MIC18.M-34 Camera-Based Tracking System for Freely Moving Mice Inside a Small Animal PET Scanner
D. Essig[1], S. Schmid[1,2], M. Dawood[1], X. Jiang[2], K. P. Schaefers[1]
[1]European Institute for Molecular Imaging, Germany; [2]Institute for Computer Science, Germany

MIC18.M-36 Evaluation of Scatter Fraction and Count Rate Performance of Two Small-Animal PET Scanners Using Dedicated Phantoms
R. Prasad, H. Zaidi
Geneva University Hospital, Switzerland

MIC18.M-38 Feasibility Studies of Animal SPECT Imaging with a Stationary Multi-Pinhole Collimator Inserted to Animal PET Detector Ring
J. Wu, T. Ma, T. Dai, H. Liu, S. Wang, Y. Liu, J. Cheng
Tsinghua University, China

MIC18.M-40 Experimental Comparison of Entrance-Surface Versus Exit-Surface Readout of a Monolithic Scintillation Detector
W. C. J. Hunter[1], J. J. Griesmer[2], X. Li[1], R. Zahn[2], L. Shao[2], R. S. Miyaoka[1], T. K. Lewellen[1]
[1]University of Washington, USA; [2]Philips Healthcare, USA

MIC18.M-42 Preliminary Results on a Simultaneous Beta-and-Coincidence-Gamma Plant Imaging System
J. Wen, H. Wu, L. Sobotka, R. Dirks, J. Schaefer, Y.-C. Tai
Washington University in St. Louis, United States

MIC18.M-44 NEMA NU-04 Based Performance Characteristics of the LabPET-8 Small Animal PET Scanner
R. Prasad, H. Zaidi
Geneva University Hospital, Switzerland

MIC18.M-46 Calibration, Image Reconstruction and Optimization of SiliSPECT Using Experimental Data
S. Shokouhi[1], B. S. McDonald[2], T. E. Peterson[1]
[1]Vanderbilt University Institute of Imaging Science, USA; [2]Pacific Northwest National Laboratory, USA

MIC18.M-48 Design of a Time-of-Flight PET Imaging Probe
R. S. Miyaoka, X. Li, W. C. Hunter, P. Muzi, T. K. Lewellen
University of Washington, USA

MIC18.M-50 A Trapezoidal Slat Crystal (TSC) PET Detector
R. S. Miyaoka, X. Li, W. C. Hunter, T. K. Lewellen
University of Washington, USA

MIC18.M-52 Algorithms That Exploit Multi-Interaction Photon Events in Sub-Millimeter Resolution CZT Detectors for PET
G. Chinn[1], C. S. Levin[1,2]
[1]Stanford School of Medicine, USA; [2]Stanford University, USA

MIC18.M-54 Resolution Enhancement in PET Reconstruction Using Collimation
S. D. Metzler, S. Matej, J. S. Karp
University of Pennsylvania, USA

MIC18.M-56 Study on Analytical System Matrix Constructions for a Stationary Multipinhole SPECT System
S.-I. Chang, Y.-J. Tsai, I.-T. Hsiao
Chang Gung University, Taiwan

MIC18.M-58 On the Fundamental Limits of the Position Resolution of Position-Sensitive Scintillation Detectors Using Continuous Crystal
J. Gal, J. Imrek, G. Kalinka, B. Kiraly, F. Nagy, B. Nyako, J. Molnar, I. Valastyan, *Institute of Nuclear Research of the Hungarian Academy of Sciences, Hungary*; L. Balkay, S. A. Kis, *Institute of Nuclear Medicine at Medical and Health Science Center, University of Debrecen, Hungary*

MIC18.M-60 Progress in Development of a High-Resolution PET Prostate Imaging Probe
N. Clinthorne[1], S. Majewski[2], A. Stolin[2], R. R. Raylman[2], J. Carr[1], Z. Chen[1], E. Salomonsson[1], A. Yande[1], S. S. Huh[1], H. Kagan[3], S. Smith[3], K. Brzezinski[4], A. Studen[5]
[1]University of Michigan, USA; [2]West Virginia University, USA; [3]Ohio State University, USA; [4]IFIC/CSIC-University of Valencia, Spain; [5]Insitut Jozef Stefan, Slovenia

MIC18.M-62 Initial Tumor Imaging Results in Rats with a Beta Imaging Probe Based on Silicon Pad Detectors
N. Clinthorne[1], E. Cochran[2], S. S. Huh[1], H. Kagan[2], C. Lacasta[3], V. Linhart[3], M. Piert[1], M. Mikuz[4], S. Smith[2], A. Studen[4], P. Weilhammer[5]
[1]University of Michigan, USA; [2]Ohio State University, USA; [3]IFIC/CSIC-University of Valencia, Spain; [4]Institute Jozef Stefan, Slovenia; [5]CERN, Switzerland

MIC18.M-64 Time-over-Threshold Based Crystal Identification in Phoswich Detectors
H. Bouziri, K. Koua, S. Panier, M. W. Ben Attouch, L. Arpin, M. Abidi, C. Paulin, C. M. Pepin, M. Bergeron, R. Lecomte, J.-F. Pratte, R. Fontaine
Universite de Sherbrooke, Canada

MIC18.M-66 Application of Factor Analysis on the Genisys Preclinical PET System
F. Daver, M. Dahlbom, C. Schiepers
U.C.L.A. Ahmanson Translational Imaging Center, U.S.A.

MIC18.M-68 Initial Tests of a SPECT Detector Module Prototype Using 8x8 SiPM Array Readout and 50x50 mm2 Monolithic Scintillator.
A. Iglesias[1], P. Aguiar[1,2], C. Lois[1], B. Couce[1]
[1]Universidade de Santiago de Compostela, Spain; [2]Fundacion IDICHUS, Comnplexo Hospitalario Universitario de Santiago de Compostela, Spain

MIC18.M-70 Adaptive Tumor Rim Segmentation and Metabolic Profiling for FDG-PET Based Early Response Assessment in Human Sarcoma
E. Wolsztynski, F. O'Sullivan, J. O'Sullivan, *University College Cork, Ireland*; E. U. Conrad, J. F. Eary, *University of Washington, USA*

MIC18.M-72 Sparsity Constrained Sinogram Inpainting for Metal Artifact Reduction in X-Ray Computed Tomography
A. Mehranian[1], M. R. Ay[1], A. Rahmim[2], H. Zaidi[3]
[1]Tehran University of Medical Sciences, Iran; [2]Johns Hopkins University, USA; [3]Geneva University Hospital, Switzerland

MIC18.M-74 Quantitative Analysis of Myocardial Infarct Region in PET and MRI Image Using Multi Gaussian Mixture Model
S.-K. Woo, J. W. Yu, S. M. Kim, W. H. Lee, Y. J. Lee, M. H. Kim, K. M. Kim, J. S. Kim, J. A. Park, J. H. Kang, B. I. Kim, C. W. Choi, S. M. Lim
Korea Institute of Radiological and Medical Science, Korea

MIC18.M-76 An Adaptive Genetic Algorithm for Misalignment Estimation (AGAME) in Spiral, Sequential and Circular Cone-Beam Micro-CT
S. Sawall, M. Knaup, M. Kachelriess
University of Erlangen-Nürnberg, Germany

MIC18.M-78 Estimation of Striatal Binding Ratio in Parkinson's Disease: Dual-Head Vs. High-Sensitivity SPECT Systems
M.-A. Park[1], S. C. Moore[1], S. P. Muller[2], S. J. McQuaid[1], M. F. Kijewski[1]
[1]Brigham and Women's Hospital & Harvard Medical School, USA; [2]Universittsklinikum, Germany

MIC18.M-80 Automatic Monte-Carlo Based Scatter Correction for X-Ray Cone-Beam CT Using General Purpose Graphic Processing Units (GP-GPU): a Feasibility Study
A. Sisniega[1], M. Abella[1], E. Lage[2], M. Desco[1], J. J. Vaquero[1]
[1]Universidad Carlos III de Madrid, Spain; [2]Fundacion para la Investigacion Biomedica del Hospital Gregorio Maranon, Spain

MIC18.M-82 Grey Matter Segmentation of 7T MR Images
M. Strumia, D. Feltell, N. Evangelou, P. Gowland, C. Tench, L. Bai
University of Nottingham, UK

MIC18.M-84 Absolute Quantification for Small-Animal PET
V. Keereman, R. Van Holen, C. Vanhove, P. Mollet, S. Vandenberghe
Ghent University-IBBT-IBiTech, Belgium

MIC18.M-86 Absolute Quantification in Multi-Pinhole Micro-SPECT Using Multiple Isotopes
B. Vandeghinste[1], C. Vanhove[1], J. De Beenhouwer[1,2], R. Van Holen[1], S. Vandenberghe[1], S. Staelens[1,2]
[1]University Ghent - IBBT, Belgium; [2]University of Antwerp, Belgium

MIC18.M-88 Effects of Attenuation in Single Slow Rotation Dynamic SPECT
T. D. Humphries[1], A. M. Celler[2], M. R. Trummer[1]
[1]Simon Fraser University, Canada; [2]University of British Columbia, Canada

MIC18.M-90 A Physics-Based Fast Approach to Scatter Correction for Large Cone Angle Computed Tomophraphic Systems
Y. Zou, M. D. Silver, B.-S. Chiang, *Toshiba medical research institute USA, Inc., USA*; S. Oishi, Y. Uebayashi, Y. Noshi, S. Nakanishi, *Toshiba Medical Systems Corp., Japan*

MIC18.M-92 True 3D Iterative Scatter Correction for Small Bore Long Axial
I. Hong, Z. Burbar, C. Michel, *Siemens Medical Solutions, USA*

MIC18.M-94 Combined Partial Volume and Cardiac Motion Correction with Nonlinearly Penalized Optical Flow
M. Dawood, F. Buther, K. P. Schafers
University of Munster, Germany

MIC18.M-96 Evaluation and Optimization of MR-Based Attenuation Correction Methods in Combined Brain PET/MR
F. Mantlik[1,2], M. Hofmann[1,2,3], I. Bezrukov[1,2], H. Schmidt[1], A. Kolb[1], T. Beyer[4], M. Reimold[5], B. Schoelkopf[2], B. J. Pichler[1]
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MIC18.M-98 Randoms from Singles Estimation for Long PET Scans
C. W. Stearns, *GE Healthcare, USA*; A. H. Lonn, *GE Healthcare, UK*

MIC18.M-100 Derivation of Input Function in Mice from Dynamic FDG-PET Images: a Comparative Study
O. Sarrhini, J. A. Rousseau, J.-F. Beaudoin, C. Mathieu, M. Bentourkia
Université de Sherbrooke, Canada

MIC18.M-102 Sparse Recovery in Myocardial Blood Flow Quantification via PET
R. Engbers[1], M. Benning[1], P. Heins[1], K. Schaefers[2], M. Burger[1]
[1]Institute for Computational and Applied Mathematics, Germany; [2]European Institute for Molecular Imaging, Germany

MIC18.M-104 Incorporating Count-Rate Dependence into Model-Based PET Scatter Estimation
C. W. Stearns, *GE Healthcare, USA*; R. M. Manjeshwar, *GE Global Research, USA*

MIC18.M-106 MRI Investigation of the Linkage Between Respiratory Motion of the Heart and Markers on Patients Abdomen and Chest: Implications for Respiratory Amplitude Binning List-Mode PET and SPECT Studies.
P. Dasari[1,2], C. Connolly[1], K. Johnson[1], J. Dey[1], J. M. Mukherjee[1], S. Zheng[1], M. King[1]
[1]Univ of Mass Med School, USA; [2]Worcester Polytechnic Institute, USA

MIC18.M-108 An Adaptive Generation of a Digital Mask to Improve the Activity Distribution in SPECT Images
S. Shcherbinin, A. Celler
The University of British Columbia, BC

MIC18.M-110 Comparison of Dual-Window Scatter Correction and Effective Attenuation Coefficients for Quantification in Dedicated Breast SPECT
S. Mann[1,2], K. Perez[1,2], M. Tornai[1,2]
[1]Duke University, United States; [2]Duke University Medical Center, United States

MIC18.M-112 Do Template-Based Partial Volume Effect Corrections Inherently Presume Homogeneous Uptakes?
S. Shcherbinin, A. Celler
The University of British Columbia, Canada

MIC18.M-114 Internal Motion Prediction Using Kernel Density Estimation and General Canonical Correlation Model
M. Alnowami[1], E. Lewis[1], M. Guy[2], K. Wells[1]
[1]University of Surrey, UK; [2]Southampton General Hospital., UK

MIC18.M-116 Atlas- and Pattern Recognition Based Attenuation Correction on Simultaneous Whole-Body PET/MR
I. Bezrukov[1,2], H. Schmidt[3,2], F. Mantlik[1,2], N. Schwenzer[3], M. Hofmann[2,1,4], B. Schoelkopf[2], B. J. Pichler[1]
[1]Dept. of Preclinical Imaging and Radiopharmacy, Eberhard-Karls University, Germany; [2]Max Planck Institute for Intelligent Systems, Germany; [3]Eberhard-Karls University, Germany; [4]Department of Engineering Science, United Kingdom

MIC18.M-118 Activity Estimation in Small Volumes with Non-Uniform Radiotracer Uptake Using a Local Projection-Based Fitting Approach
S. Southekal[1,2], S. J. McQuaid[1,2], S. C. Moore[1,2]
[1]Brigham and Women's Hospital, USA; [2]Harvard Medical School, USA

MIC18.M-120 Dual-Isotope PET Data Acquisition and Analysis
R. S. Miyaoka[1], W. C. Hunter[1], A. Andreyev[2], T. K. Lewellen[1], A. Celler[2], P. E. Kinahan[1]
[1]University of Washington, USA; [2]University of British Columbia, Canada

MIC18.M-122 Investigating the Use of Non-Attenuation Corrected PET Images for the Attenuation Correction of PET Data in PET/MR Systems
T. Chang, J. W. Clark, *Rice University, USA*; O. Mawlawi, *MD Anderson Cancer Center, USA*

MIC18.M-124 Partial Volume Compensation for Cardiac PET with Regional Myocardial Wall Thinning
Y. Du, P. E. Bravo, G. S. K. Fung
Johns Hopkins University, USA

MIC18.M-126 Iterative-Based Partial Volume Effects Correction with Wavelet-Based Regularization for Quantitative PET Imaging
A. Reilhac[1], W. Lehnert[2], L. Jianyu[2], S. R. Meikle[2], M.-C. Gregoire[1]
[1]ANSTO, Australia; [2]University of Sydney, Australia

MIC18.M-128 Phased Attenuation Correction and Respiratory Motion Compensation of PET Image by Using a CT Image and Multiple Respiratory-Phase MR Images
W. H. Nam, D. Lee, I. J. Ahn, K. Y. Jeong, J. H. Kim, J. B. Ra
KAIST, Republic of Korea

MIC18.M-130 Low Dose, Non-Tomographic Technique to Estimate Lesion Position and Trace Element Concentration in NSECT.
G. A. Agasthya, J. Shah, B. P. Harrawood, A. J. Kapadia
Duke University, USA

MIC18.M-132 Investigation of Quantitative Errors Due to LOR Rebinning Motion Correction for Freely Moving Small Animals with microPET
M. Akhtar[1], A. Kyme[1], R. Fulton[1,2], S. Meikle[1]
[1]The University of Sydney, Australia; [2]Westmead Hospital, Australia

MIC18.M-134 Evaluation of Monte Carlo-Based Compensation for Scatter and Crosstalk in Simultaneous In-111/Tc-99m SPECT-CT Imaging of Infection
M. Cervo[1], S. C. Moore[1,2]
[1]Brigham and Women's Hospital, USA; [2]Harvard Medical School, USA

MIC18.M-136 Comparative Study of Partial Volume Correction Methods in Small Animal Positron Emission Tomography (PET) of the Rat Brain
W. Lehnert[1], M.-C. Gregoire[2], A. Reilhac[2], S. R. Meikle[1]
[1]University of Sydney, Australia; [2]ANSTO, Australia

MIC18.M-138 Object Size Dependency of Noise Strength and Correlation Patterns for TOF and Non-TOF PET
E. Asma, S. Ahn, R. M. Manjeshwar
General Electric Global Research, USA

MIC18.M-140 A Method of Motion Tracking During CT for Motion Correction
J.-H. Kim[1], J. Nuyts[2], R. Fulton[1,3]
[1]University of Sydney, Australia; [2]Katholieke Universiteit Leuven, Belgium; [3]Westmead Hospital, Australia

MIC18.M-142 Attenuation Correction in SPECT Without Attenuation Map
K. Kacperski
The Maria Sklodowska - Curie Memorial Cancer Centre and Institute of Oncology, Poland

MIC18.M-144 Regional Kinetic Summaries of Dynamic PET Time-Course Data: Model the Average or Average the Model?
D. Hawe[1], F. Hernandez Fernandez[1], J. Huang[1], M. Muzi[2], F. O'Sullivan[1]
[1]University College Cork, Ireland; [2]University of Washington, USA

MIC18.M-146 Kinetic Analysis of Dynamic FDG and 15O-H2O PET Studies by Parametric and Nonparametric Methods: a Statistical Analysis
F. R. Hernandez Fernandez, D. Hawe, F. O'Sullivan, *University College Cork, Ireland*; M. Muzi, K. A. Kenneth, *University of Washington, US*

MIC18.M-148 Anatomical Markov Prior-based Multimodality Image Registration
K. Vunckx, F. Maes, J. Nuyts, *K.U. Leuven, Belgium*

MIC18.M-150 Signal Recovery Algorithm for Accelerated Data Acquisition in Water Activation Studies
J. Verhaeghe, A. J. Reader
McGill University, Montreal Neurological Institute, Canada

MIC18.M-152 Investigation of the Low Count Detectability in Nuclear Medicine Images Using Human and Model Observer
I. Lajtos, S. A. Kis, M. Emri, G. Opposits, L. Balkay
University of Debrecen, Institute of Nuclear Medicine, Hungary

MIC18.M-154 Assessment of Bootstrap Resampling Accuracy for PET Data
P. J. Markiewicz[1], A. J. Reader[2], G. I. Angelis[1], F. Kotasidis[1], W. R. Lionheart[1], J. C. Matthews[1]
[1]University of Manchester, UK; [2]McGill University, Canada

MIC18.M-156 Brain Tissues Segmentation for Diagnosis of Alzheimer-Type Dementia
M. Ito[1], K. Sato[2], M. Fukumi[1], I. Namura[3]
[1]Institute of Technology and Science, The University of Tokushima, Japan; [2]Faculty of Systems Science and Technology, Akita Prefectural University, Japan; [3]Akita University Health Center, Japan

MIC18.M-158 Evaluation of Classifiers for Computer-Aided Detection in Computed Tomography Colonography
B. Song, H. Zhu, W. Zhu, Z. Liang
Stony Brook University, USA

MIC18.M-160 Measurement of Rest/stress Myocardial Blood Flow with Single-Scan Dynamic PET
Y.-H. Fang, N. Alpert, G. El Fakhri
Massachusetts General Hospital, USA

MIC18.M-162 Estimation of Myocardial Strain from MRI by Using a Deformable Mesh Model
F. M. Parages[1], M. N. Wernick[1], T. S. Denney Jr[2], J. G. Brankov[1]
[1]Illinois Institute of Technology, United States; [2]Auburn University, United States

MIC18.M-164 Generalized Inter-Frame and Intra-Frame Motion Correction in Dynamic PET Imaging
H. Mohy-ud-Din[1], N. Karakatsanis[1], M. R. Ay[2], D. F. Wong[1], A. Rahmim[1]
[1]The Johns Hopkins University, Baltimore, Maryland, USA, USA; [2]Tehran University of Medical Sciences, Iran

MIC18.M-166 Computer-Aided Detection of Splenic Enlargement Using Pattern Analysis in Abdominal CT Images
W. Seong, J. Y. Kang, J. H. Kim, J. W. Park
Chungnam National University, South Korea

MIC18.M-168 Validation and Optimization of a Novel Dynamic Multi-Bed Clinical FDG PET Acquisition Scheme
N. A. Karakatsanis[1], M. A. Lodge[1], Y. Zhou[1], J. Mhlanga[1], M. Chaudhry[1], W. P. Segars[2], R. L. Wahl[1], A. Rahmim[1]
[1]Johns Hopkins University, USA; [2]Duke University, USA

MIC18.M-170 Formation of Parametric Images with Bayesian Estimation for 11C-Altropane PET Studies
Y.-H. Fang, G. El Fakhri, N. Alpert
Massachusetts General Hospital, USA

MIC18.M-172 Automatic Generation of Myocardial Contour Using Contrast Enhanced Cardiac MRI for Myocardial Perfusion Analysis
T. Natsume, T. Ichihara, *Fujita Health University, Japan*; K. Kitagawa, M. Ishida, H. Sakuma, *Mie University Hospital, Japan*

MIC18.M-174 Model-Independent Plot of Dynamic PET Data Facilitates Data Interpretation and Model Selection
O. L. Munk, *Aarhus University Hospital, Denmark*

MIC18.M-176 A New Data Path Design for PET Data Acquisition System: A Packet Based Approach
E. Kim, P. D. Olcott, C. S. Levin
Stanford University, US

MIC18.M-178 PET Event-Time Determination by Waveform Analysis
C.-M. Kao, H. Kim, C.-T. Chen
The University of Chicago, USA

MIC18.M-180 Variable Preprocessing Applied to Neural Network Position Estimators for 2-D PET
F. Mateo, *European Organization for Nuclear Research (CERN), Switzerland*; C. W. Lerche, *Philips Technology GmbH, Germany*; J. D. Martinez, R. Gadea, *Instituto de Instrumentacion para Imagen Molecular (I3M), Universitat Politecnica de Valencia, Spain*

MIC18.M-182 An Operator-Passive Thoracic Impedance Approach for Respiratory Motion Gating in Myocardial Perfusion SPECT
R. Conwell, C. Bai, J. Kindem, H. Babla, D. Solis, R. De Los Santos, M. Gurley
Digirad Corporation, USA

MIC18.M-184 PETLINK Stream Buffer: Using an FPGA-Based RAID Controller with Solid-State Drives to Achieve Lossless, High Count-Rate 64-Bit Coincidence Event Acquisition for 3-D PET
J. E. Breeding, W. F. Jones, J. H. Reed, *Siemens Medical Solutions USA, Inc., USA*; T. Sangpaithoon, *Design Gateway Company Ltd, THAILAND*

MIC18.M-186 Development of a 64-Channel Front-End ASIC for Accurate and Robust Crystal Identification of High-Resolution PET Detectors
T. Furumiya, J. Ohi, K. Kitamura
Shimadzu Corporation, Japan

MIC18.M-188 Device-Less Gating for PET/CT Using Principal Component Analysis
K. Thielemans, *Hammersmith Imanet, GE Healthcare, UK*; S. Rathore, *Imperial College, UK*; F. Engbrant, P. Razifar, *Uppsala ASL, GE Healthcare, Sweden*

MIC18.M-190 Position Reconstruction in Detectors Based on Continuous Crystals Coupled to Silicon Photomultiplier Arrays
J. Cabello[1], J. Barrio[1], C. Lacasta[1], M. Rafecas[1,2], G. Llosa[1]
[1]Instituto de Fisica Corpuscular (IFIC), Universitat de Valencia/CSIC, Spain; [2]Departamento de Fisica Atomica, Molecular y Nuclear, Universitat de Valencia, Spain

MIC18.M-192 Evaluation of Image Signal-to-Noise Ratio in Time-of-Flight PET
E. Clementel[1], S. Vandenberghe[1], J. S. Karp[2], S. Surti[2]
[1]Ghent University, Belgium; [2]University of Pennsylvania, United States

MIC18.M-194 Singles and Coincidence Processing for a Digital Preclinical PET/MR System Using SiPM Detectors
B. Goldschmidt[1,2], T. Solf[1], A. Salomon[1,3], V. Schulz[1,3]
[1]Philips Research Europe, Germany; [2]RWTH Aachen University, Germany; [3]King's College, UK

MIC18.M-196 Use of the High Speed Domino Ring Sampler (DRS) for Readout of PET Block Detectors
M. S. Judenhofer, J. Du, Y. Yang, S. R. Cherry
University of California, Davis, USA

MIC18.M-198 Comparison of ECG Derived Respiratory Motion Signals and Pneumatic Bellows for Respiratory Motion Tracking
A. Konik[1], J. Mitra[1], K. L. Johnson[1], E. Helfenbein[2], L. Shao[2], M. A. King[1]
[1]Umass Medical School, United States; [2]Philips, United States

MIC18.M-200 Whole Body PET Imaging Using Variable Acquisition Times
A. Krizsan, J. Czernin, M. Dahlbom
David Geffen School of Medicine at UCLA, USA

MIC18.M-202 Imaging with an SSPM Array and a High-Speed Multi-Channel Readout ASIC
M. Janecek[1], P. J. McVittie[1], J.-P. Walder[1], B. Zheng[1], H. von der Lippe[1], M. McClish[2], P. Dokhale[2], C. J. Staples[2], J. F. Christian[2], K. S. Shah[2], W. W. Moses[1]
[1]Lawrence Berkeley National Laboratory, USA; [2]Radiation Monitoring Devices, Inc., USA

MIC18.M-204 Computerized Detection of Low SNR Cases in NSECT: an ROC-Based Sensitivity Analysis
G. A. Agasthya, J. Shah, B. P. Harrawood, L. W. Nolte, A. J. Kapadia
Duke University, USA

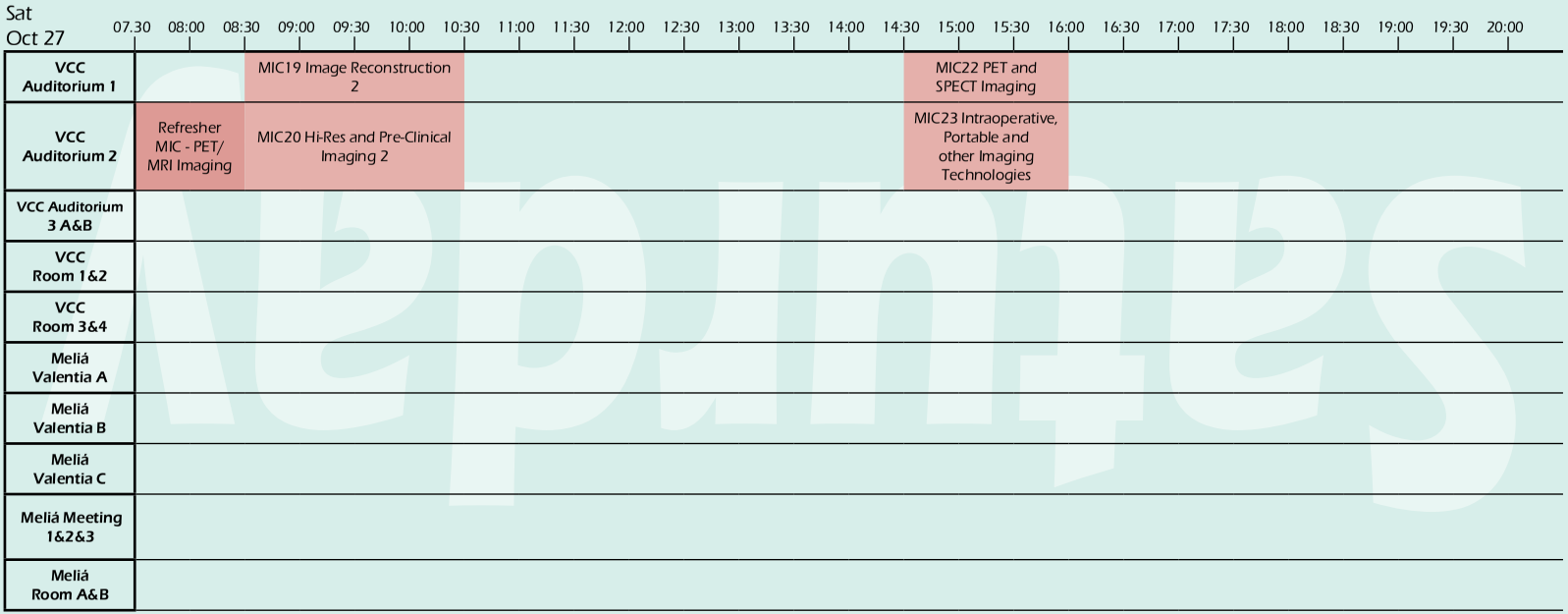
MIC18.M-206 Development of a Resistive Readout for SiPM Arrays
S. Majewski, A. Stolin, *West Virginia University, USA*; J. Proffitt, *AiT Instruments, USA*

MIC18.M-208 Functionality Test of a Readout Circuit for a 1mm^3 Resolution Clinical PET System
J. Zhai, A. Vandenbroucke, P. Reynolds, C. Levin
Stanford University, USA

MIC18.M-210 Development of a Flexible Geometry High Sensitivity SPECT System for Small Animals and Plants
G. S. Mitchell, K. L. Byrne, J. Zhou, J. Qi, S. R. Cherry
UC Davis, USA

MIC18.M-212 Evaluation of a Spline Reconstruction Technique for SPECT: Comparison with FBP and OSEM
G. A. Kastis[1], A. Gaitanis[2], A. S. Fokas[1,3]
[1]Academy of Athens, Greece; [2]Biomedical Research Foundation of the Academy of Athens (BRFAA), Greece; [3]University of Cambridge, UK

MIC18.M-214 Novel Techniques of Multiplexing Position Sensitive Solid State Photomultipliers for High Resolution PET
F. Taghibakhsh, C. S. Levin, *Stanford University, USA*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VCC Auditorium 1
MIC19 Image Reconstruction 2
MIC22 PET and SPECT Imaging
VCC Auditorium 2
Refresher MIC - PET/ MRI Imaging
MIC20 Hi-Res and Pre-Clinical Imaging 2
MIC23 Intraoperative, Portable and other Imaging Technologies
VCC Auditorium 3 A&B
VCC Room 1&2
VCC Room 3&4
Meliá Valentia A
Meliá Valentia B
Meliá Valentia C
Meliá Meeting 1&2&3
Meliá Room A&B

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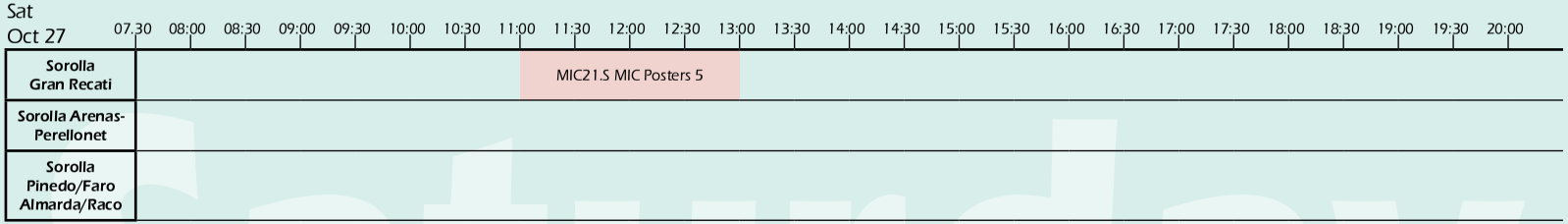

Saturday

MIC19 Image Reconstruction 2

Saturday, Oct. 29 08:30-10:30 VCC, Auditorium 1

Session Chairs: **Magdalena Rafecas**, Instituto de Fisica Corpuscular (IFIC), Universidad de Valencia - CSIC, Spain
Margaret E. Daube-Witherspoon, University of Pennsylvania, United States

MIC19-1 (08:30) Direct 3D PET Image Reconstruction into MR Image Space
P. Gravel, J. Verhaeghe, A. J. Reader
McGill University, Canada

MIC19-2 (08:45) Iterative Cone-Beam Reconstruction of Continuous Bed Motion Transmission Scans in PET
Z. Burbar, S. Siegel, I. Hong, *Siemens Healthcare, USA*

MIC19-3 (09:00) Row-Action Image Reconstruction Algorithm Using lp-Norm Distance to a Reference Image
E. A. Rashed, H. Kudo, *University of Tsukuba, Japan*

MIC19-4 (09:15) Improved Filtering for X-Ray Tomosynthesis Reconstruction
T. Nielsen, S. Hitziger, M. Grass, *Philips Research, Germany*; A. Iske, *University of Hamburg, Germany*

MIC19-5 (09:30) Image Representation by Blob and CT Reconstruction from Few Number of Projections
H. Wang, *Thales Group XRIS, France*; L. Desbat, *University Joseph Fourier, France*; S. Legoupil, *CEA Saclay, France*

MIC19-6 (09:45) Initial Experience in Image Reconstruction from Limited-Angle C-Arm CBCT Data
Z. Zhang[1], X. Han[1], J. Bian[1], J. Manak[2], E. Sidky[1], X. Pan[1]
[1]University of Chicago, USA; [2]GE Healthcare, France

MIC19-7 (10:00) FDK-Type Reconstruction Algorithms for Reverse Helical Trajectory
Z. Yu, F. Noo, *Department of Radiology, University of Utah, USA*; F. Dennerlein, G. Lauritsch, *Siemens AG, Healthcare Sector, Germany*

MIC19-8 (10:15) Motion-Compensated 4D Cone-Beam Computed Tomography
M. Brehm[1], T. Berkus[2], M. Oelhafen[2], P. Kunz[2], M. Kachelriess[1]
[1]Friedrich-Alexander University, Germany; [2]Varian Medical Systems, Switzerland

MIC20 Hi-Res and Pre-Clinical Imaging 2

Saturday, Oct. 29 08:30-10:30 VCC, Auditorium 2

Session Chairs: **Arion F. Chatziioannou**, UCLA Crump Institute, United States
Maria G. Bisogni, Dipartimento di Fisica "E. Fermi", Italy

MIC20-1 (08:30) Engineering and Performance (NEMA and Animal) of a Lower-Cost Higher-Resolution Animal PET-CT Using PMT-Quadrant-Sharing Detectors.
W.-H. G. Wong, H. Li, H. Baghaei, Y. Zhang, R. Ramirez, S. Liu, C. Wang, S. An
The University of Texas M. D. Anderson Cancer Center, USA

MIC20-2 (08:45) A Prototype Small Animal PET Scanner with Spatial Resolution Approaching 0.5 mm
Y. Yang[1], J. Bec[1], M. S. Judenhofer[1], X. Bai[1], M. Rodriguez[1], Y. Wu[1], P. A. Dokhale[2], K. S. Shah[2], R. Farrell[2], J. Qi[1], S. R. Cherry[1]
[1]University of California at Davis, USA; [2]Radiation Monitoring Devices Inc., USA

MIC20-3 (09:00) Initial Performance of the Phase II MiCES Data Acquisition Electronics System
T. K. Lewellen, D. DeWitt, R. S. Miyaoka, S. Hauck
University of Washington, USA

MIC20-4 (09:15) Segmentation of X-Ray Micro-Computed Tomography Using Neural Networks Trained with Statistical Information: Application to Biomedical Images
A. A. M. Meneses[1], A. P. Almeida[2], J. Soares[1], P. Azambuja[3], M. S. Gonzalez[4], S. C. Cardoso[2], D. Braz[2], C. E. de Almeida[1], R. C. Barroso[1]
[1]State University of Rio de Janeiro, Brazil; [2]Federal University of Rio de Janeiro, Brazil; [3]Oswaldo Cruz Foundation, Brazil; [4]Fluminense Federal University, Brazil

MIC20-5 (09:30) Performance of MARS-CT Using Medipix3 for Spectral Imaging of Soft-Tissue
J. P. Ronaldson[1], R. Zainon[2], N. G. Anderson[1], A. P. Butler[1], P. H. Butler[2]
[1]University of Otago, New Zealand; [2]University of Canterbury, New Zealand

MIC20-6 (09:45) Multple-Energy Micro-CT Using Multi-Layered, Multi-Color Thin Film Scintillators
D. S. Rigie, P. J. La Rivière
University of Chicago, United States

MIC20-7 (10:00) Timing and Energy Characteristics of LaBr3(Ce) and CeBr3 Scintillators Read by FBK SiPMs
R. I. Wiener[1], S. Surti[1], C. Piemonte[2], J. S. Karp[1]
[1]University of Pennsylvania, U.S.A.; [2]Fondazione Bruno Kessler, Italy

MIC20-8 (10:15) X-Ray Cell Tracking Using Gold Nanoparticle Labeling: from Ex-Vivo to in-Vivo Experiments
A. Astolfo[1,2], R.-H. Menk[3,4], E. Schultke[5], R. Kirch[5], C. Hall[2], B. H. J. Juurlink[6], F. Arfelli[4]
[1]University of Trieste, Italy; [2]Australian Synchrotron Company, Australia; [3]Sincrotrone Trieste S.C.p.A, Italy; [4]Istituto Nazionale Fisica Nucleare, Italy; [5]Stereotaktische Neurochirurgie, Italy; [6]Alfaisal University, Kingdom of Saudi Arabia

MIC22 PET and SPECT Imaging

Saturday, Oct. 29 14:30-16:30 VCC, Auditorium 1

Session Chairs: **Brian F. Hutton**, Institute of Nuclear Medicine, UCL, London, United Kingdom
Vesna Sossi, University of British Columbia, Canada

MIC22-1 (14:30) Design of a Static Full-Ring Multi-Pinhole Collimator for Brain SPECT
K. Van Audenhaege[1], K. Deprez[1], R. Van Holen[1], J. S. Karp[2], S. Metzler[2], S. Vandenberghe[1]
[1]University of Ghent, Belgium; [2]Univ. of Pennsylvania, USA

MIC22-2 (14:45) Multiple Discriminant Analysis of SPECT Data for Alzheimer's Disease, Frontotemporal Dementia and Asymptomatic Controls
E. Stühler[1], G. Platsch[2], M. Weih[3], J. Kornhuber[3], T. Kuwert[3], D. Merhof[1]
[1]University of Konstanz, Germany; [2]Siemens Molecular Imaging EU, Germany; [3]University of Erlangen-Nuremberg, Germany

MIC22-3 (15:00) A Prototype Adaptive SPECT System with Self-Optimized Angular Sampling
L. Cai, N. Li, L. Meng, *University of Illinois at Urbana Champaign, USA*

MIC22-4 (15:15) System Performance of OPET: a Combined Optical and PET Imaging System
D. L. Prout[1], A. Douraghy[1], R. W. Silverman[1], F. R. Rannou[2], A. F. Chatziioannou[1]
[1]Crump Institute for Molecular Imaging, USA; [2]2Department de Ingenieria Informatica, Chile

MIC22-5 (15:30) The AX-PET Concept: New Developments And Tomographic Imaging
M. Rafecas, *Universidad de Valencia / CSIC, Spain*
On behalf of the AX-PET collaboration

MIC22-6 (15:45) Monte Carlo Simulation of a TOF-PET Scanner
K. M. Abushab[1], J. L. Herraiz[1], E. Vicente[1], S. Espana[2], J. J. Vaquero[3], J. M. Udias[1]
[1]Universidad Cumplotence de Madrid, Spain; [2]Ghent University Hospital, Belgium; [3]Universidad Carlos III de Madrid, Spain

MIC22-7 (16:00) Investigation of Continuous Scintillator/SiPM Detector for Local Extremely High Spatial Resolution PET
D. Xi[1,2], J. Liu[1], Y. Li[1,2], J. Zhu[1,2], M. Niu[1,2], P. Xiao[1,2], Q. Xie[1,2]
[1]Huazhong University of Science and Technology, China; [2]Wuhan National Laboratory for Optoelectronics, China

MIC22-8 (16:15) LaBr3(Ce) and NaI(Tl) Performance Comparison for Single Photon Emission Imaging
R. Pani[1,2], P. Bennati[3,2], R. Pellegrini[1,2], M. N. Cinti[1,2], R. Scafe[1,2], G. De Vincentis[1,2], E. Di Castro[1,2], S. Lo Meo[4,2], A. Fabbri[3,2], V. Orsolini Cencelli[3,2], F. de Notaristefani[3,2]
[1]Sapienza University, Italy; [2]Istituto Nazionale Fisica Nucleare - INFN, Italy; [3]Roma Tre University, Italy; [4]Alma Mater University, Italy

MIC23 Intraoperative, Portable and other Imaging Technologies

Saturday, Oct. 29 14:30-16:30 VCC, Auditorium 2

Session Chairs: **Marc Kachelriess**, Institute of Medical Physics (IMP), Universität Erlangen-Nürnberg, Germany
Jose M. Benlloch Baviera, I3M (Instituto de Instrumentación para Imagen Molecular), Spain

MIC23-1 (14:30) Impact of Acquisition Geometry and Physical Model on Freehand SPECT Reconstructions
A. Hartl[1], T. Lasser[1], S. I. Ziegler[2], N. Navab[1]
[1]Technische Universitt Mnchen, Germany; [2]Klinikum rechts der Isar, Germany

MIC23-2 (14:45) Hand-Held SiPM-Based PET Imagers for Surgical Applications
A. V. Stolin, S. Majewski, R. R. Raylman, P. Martone
West Virginia University, WV

MIC23-3 (15:00) Virtual X-Ray Histology Using Metal Stains and Multi-Energy Synchrotron microCT
P. J. La Riviere[1], P. Vargas[1], X. Xu[2], D. Clark[2], X. Xiao[3], F. De Carlo[3], K. Cheng[2]
[1]The University of Chicago, USA; [2]Penn State College of Medicine, USA; [3]Argonne National Lab, USA

MIC23-4 (15:15) X-Ray Phase Contrast Imaging of Soft Tissue Specimens
C. Kottler[1], V. Revol[1], R. Kaufmann[1], C. Maake[2], S. Stuebinger[2], B. Von Rechenberg[2], P. R. Kircher[2], C. Urban[1]
[1]CSEM SA, Switzerland; [2]University of Zurich, Switzerland

MIC23-5 (15:30) Energy-resolved photon-counting X-ray imaging arrays for clinical k-edge CT
W. C. Barber[1], J. C. Wessel[2], E. Nygard[2], N. Malakhov[2], G. Wawrzyniak[2], N. E. Hartsough[1], T. Gandhi[1], J. S. Iwanczyk[1]
[1]DxRay Inc., USA; [2]Interon AS., Norway

MIC23-6 (15:45) A New Molecular Imaging Approach: Space- and Time-Resolved Imaging of Bio-Molecules Using an in-Vacuum Pixel Detector
J. H. Jungmann[1], L. MacAleese[1,2], J. Visser[3], M. J. J. Vrakking[1,4], R. M. A. Heeren[1]
[1]FOM-Institute AMOLF, The Netherlands; [2]LASIM - UMR5579 CNRS & Universit Lyon 1, France; [3]National Institute for Subatomic Physics (Nikhef), The Netherlands; [4]Max-Born-Institut, Germany

MIC23-7 (16:00) Dose Minimization for Material-Selective CT with Energy-Selective Detectors
N. Maass, S. Sawall, M. Kachelriess
University Erlangen, Germany

MIC23-8 (16:15) First Results of a Prototype Phase-Contrast Small-Animal CT Scanner

P. Bruyndonckx[1], B. Pauwels[1], A. Tapfer[2], M. Bech[2], X. Liu[1], A. Sassov[1], A. Velroyen[2], J. Kenntner[3], J. Mohr[3], M. Walter[4], J. Schulz[4], F. Pfeiffer[2]
[1]SkyScan, Belgium; [2]Technische Universitat Munchen, Germany; [3]Karlsruhe Institute of Technology, Germany; [4]Microworks, Germany

MIC21.S MIC Posters 5

Saturday, Oct. 29 11:00-13:00 Sorolla, Gran Recati

Session Chairs: **Magnus Dahlbom**, David Geffen School of Medicine at UCLA, United States
Andres Santos, Universidad Politecnica de Madrid, Spain
Gary J. Royle, University College London, United Kingdom

MIC21.S-3 Evaluation of Silicon Photomultipliers for the Development of Beta Probes Dedicated to Radio-Guided Surgery
N. Hudin, Y. Charon, M.-A. Duval, L. Pinot, D. Abi-haidar, R. Siebert, L. Menard
Laboratoire IMNC - University Paris-Diderot, France

MIC21.S-6 Portable Small FOV Lightweight Imaging System Based on Long 1D Detectors
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MIC21.S-9 Evaluation of an Imaging Gamma Probe Based on R8900U-00-C12 PSPMT
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MIC21.S-12 TRECAM, a Gamma Imaging Probe for Sentinel Node and Occult Lesion Localization
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MIC21.S-15 Evaluation of Navigated Beta-Probe Surface Imaging on a Realistic 3D Phantom
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MIC21.S-18 Development of a Mini Gamma Camera for Prostate Imaging
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MIC21.S-21 Non Invasive Arterial Monitor for Quantitative Measurement of Radiotracer Input Function
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MIC21.S-24 HelmetPET: a Wearable Brain Imager
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MIC21.S-27 Application of Anisotropic Diffusion Potential to Sparse View Reconstruction Problem
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MIC21.S-30 Modified Median Root Prior Reconstruction of PET/MR Data Acquired Simultaneously with the 3TMR-BrainPET
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MIC21.S-33 Low-Dose or Better Resolution Ultrafast Cardiac SPECT: NCAT Reconstruction Study
J. Dey, *University of Massachusetts Medical School, USA*

MIC21.S-36 Comparing Different Reconstruction Algorithms for Multiple Pinhole Cardiac SPECT Using NCAT
J. Dey, *University of Massachusetts Medical School, USA*

MIC21.S-39 Incorporation of a Cascade Gamma Ray Correction into the SRW Iterative Reconstruction for Non-Standard PET Nuclides: Towards a Unified Correction Weighted (UCW) Scheme in the Sensitivity Image
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Washington University School of Medicine, USA

MIC21.S-42 The Effect of Regularization on Image Quality and Quantification in Motion Compensated PET Image Reconstruction
C. Tsoumpas, I. Polycarpou, C. Buerger, T. Schaeffter, P. K. Marsden
King's College London, United Kingdom

MIC21.S-45 Maximum Likelihood CT Reconstruction from Material-Decomposed Sinograms using Fisher Information
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MIC21.S-48 Comparison of Motion-Compensated Reconstruction with FBP and BPF for Circular X-Ray Tomography: a Simulation Study
D. Schaefer, M. Grass, *Philips Research, Germany*

MIC21.S-51 Interior and Sparse-view Image Reconstruction in emission computed tomography (ECT) Using Anatomical Information
J. Xu, B. M. Tsui, *Johns Hopkins University, USA*

MIC21.S-54 Iterative Motion-Aware Reconstruction Algorithm for Cardiac Cone Beam CT
H. Schomberg, *Philips Research, Germany*

MIC21.S-57 FBP and the Interior Problem in 2D Tomography
A. Bilgot, L. Desbat, V. Perrier
Grenoble University, France

MIC21.S-60 Performance Evaluation of Scatter Modeling of the GPU-Based Teratomo 3D PET Reconstruction
D. Legrady, A. Cserkaszky, L. Szirmay-Kalos, M. Magdics, B. Toth, *Budapest University of Technology and Economics, Hungary*; L. Balkay, *University of Debrecen, Hungary*; B. Domonkos, D. Volgyes, G. Patay, P. Major, J. Lantos, T. Bukki, *Mediso Medical Imaging Systems Ltd., Hungary*

MIC21.S-63 Frequency-Combined Extended 3D Reconstruction for Multiple Circular Cone-Beam CT Scans
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MIC21.S-66 Empirical Cupping Correction for CT Scanners with Primary Modulation (ECCP)
R. Grimmer[1], R. Fahrig[2], W. Hinshaw[2], H. Gao[2], M. Kachelriess[1]
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MIC21.S-69 Comparing Surrogates for TV Regularization
M. Defrise, *Vrije Universiteit Brussel, Belgium*

MIC21.S-72 PET Motion Correction in LOR Space Using Scanner-Independent, Adaptive Projection Data for Image Reconstruction with PRESTO
J. J. Scheins, M. Ullisch, L. Tellmann, C. Weirich, E. Rota Kops, H. Herzog, N. J. Shah
Institute of Neuroscience and Medicine INM-4, Germany

MIC21.S-75 A Modeled Point-Spread Function for a Noise-Free System Matrix
R. Taschereau[1], F. R. Rannou[2], A. F. Chatziioannou[1]
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MIC21.S-78 PET Image Reconstruction from Finite Linogram Data via Direct Fourier and Logarithmic Barrier Method
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MIC21.S-81 Trade-off Between Contrast Recovery, Image Noise and Edge Artifacts in PET Image Reconstruction Using Detector Blurring Models
S. Ahn, E. Asma, *GE Global Research, USA*; K. Thielemans, *Hammersmith Imanet, GE Healthcare, UK*; T. W. Deller, S. G. Ross, C. W. Stearns, *GE Healthcare, USA*

MIC21.S-84 New Consistency Equation for Time-of-Flight PET
M. Defrise, *Vrije Universiteit Brussel, Belgium*; V. Panin, M. E. Casey, *Siemens Medical Solutions, USA*

MIC21.S-87 Interpolated Average CT for Attenuation Correction in PET - a Simulation Study
G. S. P. Mok, T. Sun, *University of Macau, China*; T.-H. Wu, *National Yang Ming University, Taiwan*; M.-B. Chang, T.-C. Huang, *China Medical University, Taiwan*

MIC21.S-90 A Fast CPU/GPU Ray Projector for Fully 3D List-Mode PET Reconstruction
J. Bert, D. Visvikis, *CHU Morvan, France*

MIC21.S-93 Evaluation of the HD and HD+TOF Reconstructions for Siemens Biograph-mCT TOF PET Scanner
J.-C. (. Cheng, R. Laforest, *Washington University School of Medicine, USA*

MIC21.S-96 An SVD Based Analysis of the Noise Properties of a Point Cloud Mesh Reconstruction Method
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MIC21.S-99 Cone Beam Artifact Reduction in Circular Computed Tomography
B. S. Chiang, S. Nakanishi, A. A. Zamyatin, D. Shi
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MIC21.S-102 Extension of Axial Coverage and Artifact Reduction in Iterative Reconstruction in Computed Tomography
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Toshiba Medical Research Institute USA, USA

MIC21.S-105 Streak Artifact Reduction in Helical Cone Beam CT with Redundancy Weighting
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MIC21.S-108 Streak Artifacts and Noise Reduction in Low Dose Computed Tomography
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MIC21.S-111 Multi-Scale Iterative Reconstruction
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MIC21.S-114 Iterative Image Reconstruction with Variable Resolution in CT
Z. Zhang, J. Bian, X. Han, E. Pearson, E. Sidky, X. Pan
University of Chicago, USA

MIC21.S-117 An Efficient Voxel-Driven System Model for Helical Pinhole SPECT
P.-C. Huang, C.-H. Hsu, *National Tsing Hua University, Taiwan*; I.-T. Hsiao, *Chang Gung University, Taiwan*; K. Lin, *National Health Research Institutes, Taiwan*

MIC21.S-120 Parameter Selection of Constrained Total-Variation Minimization for Gap Compensation in PET
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MIC21.S-123 Evaluation of Windowed Image Reconstruction for Time-Of-Flight PET
J. Guo[1,2], C.-M. Kao[3], Q. Xie[1,2]
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MIC21.S-126 Accuracy and Variability of Quantitative Measurements Using PET with Time-of-Flight Information and Resolution Modelling
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MIC21.S-129 List-Mode Maximum-Likelihood Reconstruction for the ClearPEM System
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MIC21.S-132 The study of an ideal observer for phased array systems in diffusive imaging
D. Kang, M. A. Kupinski, *University of Arizona, USA*

MIC21.S-135 GEANT4 Simulation of a 3D Compton Imaging Device
M. Lenti, *INFN Firenze, Italy*; M. Veltri, *Universita' di Urbino and INFN Firenze, Italy*

MIC21.S-138 Projector Model for Efficient List-Mode Reconstruction in PET Scanners with Planar Detectors
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MIC21.S-141 Incorporating Patient-Specific Variability in the OncoPET_DB Database
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MIC21.S-144 Fast GATE Fan Beam SPECT Projector
J. De Beenhouwer, *University of Antwerp, Belgium*; B. Pieters, R. Van de Walle, *Ghent University, Belgium*

MIC21.S-147 Development of a 4D Digital Phantom for Tracer Kinetic Modeling of Dynamic Perfusion PET and SPECT Simulation Studies
G. S. K. Fung[1], T. Higuchi[1], W. P. Segars[2], B. M. W. Tsui[1]
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MIC21.S-150 Long Term Stability of Imaging Characteristics of CsI-Coupled Photodiode Array Detectors
J. Han[1], S. Yun[1], S. Heo[2], T. W. Kim[2], O. Joe[1], H. K. Kim[1]
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MIC21.S-153 Normalization of Monte Carlo PET Data Using GATE
A. Pepin, S. Stute, S. Jan, C. Comtat, *CEA, France*

MIC21.S-156 A Comparison Study on Ray-Driven Approximation in Re-projection and Back-projection for CT Reconstruction
Y. Fan[1], H. Lu[2], J. Ma[1], H. Zhu[1], Y. Liu[1], Z. Liang[1]
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MIC21.S-159 Human Thorax Phantom for Simulation of Respiratory and Cardiac Motion in PET/MRI: Development and First Measurements
K. P. Schaefers, B. Koenemann, B. Czekalla, K. Bolwin, F. Buether, M. Fieseler, *European Institute for Molecular Imaging, University of Muenster, Germany*; H. Braun, S. Ziegler, H. H. Quick, *Institute of Medical Physics, University of Erlangen, Germany*

MIC21.S-162 Simulated One-Pass List-Mode : a Highly Flexible Method of Image Reconstruction for PET
J. E. Gillam, P. Solevi, J. F. Oliver, M. Rafecas
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MIC21.S-165 Monte Carlo Characterization of a Novel High Spatial Resolution Small Animal Scanner for Mouse Brain Studies
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MIC21.S-168 Short-Scan FBP Reconstruction with Filter-Based Redundancy Handling
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MIC21.S-171 System Response Matrix Denoising in Measurement Space for PET
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MIC21.S-174 Efficient Rendering of Regions of Response in List-Mode Reconstruction for PET
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MIC21.S-177 Empirical Multiple Energy Calibration (EMEC) for Material-Selective CT
N. Maass, S. Sawall, M. Kachelriess
University Erlangen, Germany

MIC21.S-180 Optimizing Algorithm Parameters Based on a Model Observer Detection Task for Image Reconstruction in Digital Breast Tomosynthesis
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MIC21.S-183 Generalization of the Image Space Reconstruction Algorithm
A. J. Reader, J. Verhaeghe, *McGill University, Canada*

MIC21.S-186 Image Fusion for Low-Dose Computed Tomography Reconstruction
J. Ma[1,2], J. Huang[2], Z. Liang[1], Y. Fan[1], H. Lu[3], H. Zhang[2], Q. Feng[2], W. Chen[2]
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MIC21.S-189 Ultra-Fast Total-Body Mouse Imaging with U-SPECT-II
P. E. B. Vaissier[1], M. C. Goorden[1], B. Vastenhouw[1,2], F. van der Have[1,2], F. J. Beekman[1,3,2]
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MIC21.S-192 Analytical Image Reconstruction Strategies for AX-PET Data
U. Tuna, *Tampere University of Technology, Finland*
On behalf of the AX-PET collaboration

MIC21.S-195 Adaptive Thresholding for Robust Iterative Image Reconstruction from Limited Views Projection Data
E. A. Rashed, H. Kudo, *University of Tsukuba, Japan*

MIC21.S-198 TOF Versus Non-TOF PET Reconstruction In Small FOV Brain Imaging
B. Zhang, *Philips Healthcare, USA*

MIC21.S-201 Statistical Iterative Reconstruction for High-Resolution Local Tomography with Blind Object Support
E. A. Rashed, Z. Wang, H. Kudo
University of Tsukuba, Japan

MIC21.S-204 Iterative Thresholding Framework for Row-Action Reconstruction from Sparse Projection Data
E. A. Rashed, H. Kudo, *University of Tsukuba, Japan*

MIC21.S-207 A Gamma Ray Compton Camera Application for GAMOS
L. J. Harkness[1], P. Arce[2], A. J. Boston[1], H. C. Boston[1], J. R. Cresswell[1], J. Dormand[1], M. Jones[1], D. S. Judson[1], P. J. Nolan[1], J. A. Sampson[1], D. P. Scraggs[1], A. Sweeney[1]
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MIC21.S-210 Performance of Liquid Xenon Time Projection Chambers as Possible PET Detectors.
M. de Prado, P. Arce, M. Canadas, L. Romero, *CIEMAT, Spain*

MIC21.S-213 Monte Carlo Simulations of a ClearPET: Scatter and Attenuation of Gamma Rays in Various Rock Formations
A. Zakhnini[1], J. Kulenkampff[1], S. Sauerzapf[2], J. Lippmann-Pipke[1], U. Pietrzyk[3]
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MIC21.S-216 Intrinsic Spatial Resolution and Sensitivity of a Simple Pair of PET Detectors: Comparisons Between Experiments and GATE Simulation
M. Rodriguez-Villafuerte[1,2], Y. Yang[1], A. Martinez-Davalos[1,2], M. S. Judenhofer[1], S. R. Cherry[1]
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MIC21.S-219 Development of a Monte Carlo Simulation Tool for the Light Transportation Inside Scintillation Crystals
X. Yang, T. Farrell, H. Peng, *McMaster University, Canada*

MIC21.S-222 Computational Modelling of Multi-Head PET/SPECT Imaging Systems
M. E. Myronakis, M. Zvelebil, D. G. Darambara
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MIC21.S-225 Segmentation of Synchrotron Radiation X-Ray µCT Images Using Energy Minimization via Graph Cuts for Quantitative Analysis
A. A. M. Meneses[1], A. Giusti[2], A. P. Almeida[3], L. P. Nogueira[3], D. Braz[3], C. E. de Almeida[1], R. C. Barroso[1]
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MIC21.S-228 System Modeling for an MR-Compatible MicroPET Insert
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MIC21.S-231 Monte Carlo Simulation of Small Animal SPECT Studies with 123-I Labeled Radiotracers Using High and Low Energy Photons in a Modified Version of SimSET.
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MIC21.S-234 Design Optimization of a Dedicated Breast PET Scanner Using TOF Imaging in a Partial Ring Geometry
E. Lee, M. E. Werner, J. S. Karp, S. Surti
University of Pennsylvania, USA

MIC21.S-237 Sensitivity-Parallax Trade-Offs in a Rectangular PET System
L. R. Macdonald, W. C. Hunter, P. E. Kinahan, R. S. Miyaoka
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MIC21.S-240 CIVA Computed Tomography Modeling
S. A. Legoupil, M. Costin, A. Leveque, *CEA, France*

MIC21.S-243 Elemental Quantification through Gamma-Stimulated Spectroscopy in GEANT4
A. J. Kapadia, Q. Ye, G. A. Agasthya, *Duke University, USA*

MIC21.S-246 Performance of an Analytical Positron Range Modeling Approach in the Context of Whole Body Small Animal and Clinical PET
W. Lehnert[1], M.-C. Gregoire[2], A. Reilhac[2], S. R. Meikle[1]
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MIC21.S-249 Initial Study Design of a Breast-Dedicated PET Scanner with Biopsy Capability Using GATE
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MIC21.S-252 PDD and OAR of Tissue Equivalent Phantom Thermoluminescence Dosimeter (TEP-TLD/SR1)
K. Shinsho, Y. Muroi, H. Saitoh, *Tokyo Metropolitan University, Japan*; A. Urushiyama, *St. Paul's (Rikkyo) University, Japan*

MIC21.S-255 Hierarchical and Adaptive Volume-Growing Methods for the PET Based Biologic Target Volume Delineation for Radiotherapy Treatment Planning
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MIC21.S-258 Dose-Free Monitoring of Radiotherapeutic Treatments with Scattered Photons: First Experimental Results at a 6-MV LINAC
M. Cunha[1], M. Pinto[1], J. Gonçalves[1], L. Sampaio[1], R. J. Ferreira[2],

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MIC21.S-261 Monte Carlo Simulations of Bremsstrahlung Production in a Carbon Target for Imaging in Radiotherapy
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MIC21.S-264 Deformation Vector Field Compression Scheme for an Efficient Adaptive Radiotherapy Workflow
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MIC21.S-267 Statistical Image Reconstruction for Sub-Millimeter Pinhole PET with Clustered Pinholes
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MIC21.S-270 A Restoration Method for Incomplete Data in DECT
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MIC21.S-273 Image Properties of Various ML-Based Reconstructions of Very Noisy HRRT Data
S. Stute[1], J. Nuyts[2], K. Van Slambrouck[2], M. Sibomana[3], F. van Velden[4], R. Boellaard[4], C. Comtat[1]
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MIC21.S-276 Wavelet-Based Regularization for Background Correction Within the Sub-Millimetre 3D EMLM List-Mode Reconstruction Process for a High Resolution Small Animal PET Data
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MIC21.S-279 Reconstruction of Dual Isotope PET Using Expectation Maximization (EM) Algorithm
A. Sitek, A. Andreyev, *Brigham and Women's Hospital and Harvard Medical School, USA*; A. Celler, *University of British Columbia, Canada*

MIC21.S-282 Complementary Reconstruction: Improving Image Quality in Dynamic PET Studies
I. Hong, S. Cho, M. Casey, C. Michel
Siemens Medical Solutions, USA

MIC21.S-285 Simultaneous Reconstruction of Emission Activity and Attenuation Coefficient Distribution from TOF Data, Acquired with Rotating External Line Source
V. Y. Panin, M. Aykac, M. E. Casey, *Siemens Healtcare, USA*

MIC21.S-288 Maximum-Likelihood Reconstruction Based on a Modified Poisson Distribution to Reduce Bias in PET
J. L. Nuyts[1], S. Stute[2], K. Van Slambrouck[1], F. van Velden[3], R. Boellaard[3], C. Comtat[2]
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MIC21.S-291 Maximum Likelihood-Based Motion Estimation in Cardiac SPECT Imaging
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MIC21.S-294 Local Models for Artefact Reduction in Iterative CT Reconstruction
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MIC21.S-297 Image Reconstruction and Motion Correction Using Object Modeling and Point Backprojection
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MIC21.S-300 3D-List-Mode Reconstruction with Integrated Event-Based Motion Correction
A. Lougovski, J. Langner, F. Hofheinz, E. Will, J. van den Hoff
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MIC21.S-303 Comparison of Geometrical and Monte Carlo Based Reconstruction for Pinhole SPECT
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MIC21.S-306 Comparison of Quantitative Accuracy for Three Edge-Preserving Image Reconstruction Strategies
S. Shcherbinin, A. Celler
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MIC21.S-309 Fast Analytical Algorithms for PET and SPECT via Radon/Hilbert Regularization
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MIC21.S-312 EMrecon: an Expectation Maximization Based Image Reconstruction Framework for Emission Tomography Data
T. Koesters, K. P. Schaefers, F. Wuebbeling
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MIC21.S-315 Comparison of the Internal Noise Models for Channelized Hotelling Observer
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The 2011 Nuclear Science Symposium, Medical Imaging Conference, and Room Temperature Semiconductor Detector Workshop would not be possible without the many hours of hard work contributed by the Organizing Committee and the numerous volunteers who graciously offered their time. The organization of an IEEE meeting outside the US presents some unique challenges, and the committee has done a superb job in resolving the issues smoothly so as to make the conference a scientific, social, and financial success. As General Chair, it has been a pleasure working with such an outstanding team and I thank them sincerely for the enriching experience. It has been especially rewarding working with my friends and colleagues from Spain and to have had the opportunity to make several visits to the beautiful city of Valencia. It should be remembered that the conference is made possible through the sponsorship of the IEEE Nuclear and Plasma Sciences Society (NPSS) and the generous support of the cooperating institutions and organizations listed in this program book and throughout the conference venue. The support from Spanish institutions has been especially encouraging. Following the submission of a record number of abstracts in all categories, the Scientific Program Chairs performed an outstanding and timely job in assembling the contributed papers so as to maximize the benefit to the attendees. I sincerely thank all the Program Chairs for their efforts.

Such an IEEE meeting would not be possible without the submission of high-level scientific contributions from authors wishing to showcase their results to the critical appraisal of their peers. I express my sincere gratitude to all the authors who submitted their abstracts in a timely manner thus ensuring the success of the meeting. It is indeed this intellectual and scientific content which has given the IEEE NSS-MIC-RTSD conference its well-justified reputation for quality and innovation. Many scientific and medical instruments and methods have been presented first at this meeting, and we are confident that the meeting in Valencia will undoubtedly continue this long standing tradition.

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2012 NSS/MIC/RTSD

Colleagues:

The first NSS was held in 1954, so we are approaching 60 years of scientific exchange amongst the attendees at this conference. The conference has continued to expand with the formation of the MIC conference and the RTSD workshop. In 2012 we will hold the conference at the refurbished Disneyland Hotel in Anaheim California. The changes at the Hotel were made specifically to accommodate conferences such as ours, and the committee was pleased to find that the location will strongly encourage the informal exchange of ideas in the surrounding spaces that is a hallmark of the NSS/MIC/RTSD.

The hotel conference area is separated from the entertainment areas of Disneyland by a pedestrian walking/shopping area known as Downtown Disney. This area offers a wide variety of restaurants, coffee shops and stores to accommodate the needs of the attendees. As one would expect, there are also a wide variety of activities for attendees who bring family members with them and the conference will be able to offer not only tours, but also some special packages for those wishing to take advantage of the Disney parks.

Our motto for 2012 is "The Wonder of Science" and the Organizing Committee is planning a program to bring together all aspects of the science in our disciplines to further the state-of-the-art and disseminate up-to-date scientific information through the oral and poster presentations. There will be several short courses and workshops before the main conferences. The popular refresher courses will be held during the week to review current topics of special interest. A commercial exhibition featuring the state-of-the-art products and services from a wide range of companies will take place during the middle part of the meeting.

On behalf of the organizing committee, I encourage you to make plans now to attend the 59th NSS conference of the IEEE Nuclear and Plasma Sciences Society as well as the not quite so old extensions of the IEEE MIC and RTSD conferences. I look forward to welcoming you to Disneyland, Anaheim in October 2012 for the NSS-MIC-RTSD.

Tom Lewellen
2012 NSS/MIC/RTSD
General Chair

Tom Lewellen

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