NSS Program

N01 NSS Opening Plenary I

Monday, Oct. 31 08:30-10:15 Schweitzer

Session Chairs: **Eckhard Elsen**, CERN,
Rolf-Dieter Heuer, Member of the Advisor Committee for Research with the European Commissioner for Research, Science and Innovation and former CERN Director-General, Germany
Susanne Kuehn, University of Freiburg, Germany and CERN, Germany

N01-1 (08:30, invited) Grand Welcome Opening
M. Titov, *CEA, France*

N01-2 (09:00, invited) International Research Cooperation - a View from Japan
A. Suzuki
Iwate Prefectural University and former KEK Director, Japan

N01-3 (09:30, invited) Opening of the NSS Symposium
E. Elsen[1], S. Kuehn[2,1]
[1]CERN, Switzerland; [2]University of Freiburg, Germany, Germany

N01-4 (09:40, invited) Einstein's Gravitational Waves Observed
B. Barish, *California Institute of Technology, US*

N02 NSS Opening Plenary II

Monday, Oct. 31 10:45-12:05 Schweitzer

Session Chairs: **Susanne Kuehn**, University of Freiburg, Germany and CERN, Germany
Eckhard Elsen, CERN,

N02-1 (10:45, invited) Awards Ceremony
C. Guazzoni, *Politecnico di Milano & INFN Milano, Italy*
On behalf of the RISC Awards Committee

N02-2 (11:00, invited) The Next Generation of Large Neutrino Oscillation Experiments
M. Thomson, *University of Cambridge, UK*

N02-3 (11:35, invited) European Open Science Cloud
B. Jones, *CERN, Switzerland*

N03 Advanced computing and software for experiments - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: TBD

N03-1 Development of the Application for Fitting Functions Using Expression Parsing
K. Neichi, *Tohoku Gakuin University, Japan*

N03-2 Magnetic Shield Optimization of PMTs Exposed to Constant Quadripolar Fringe Fields
E. Bouquerel, P. Peaupardin, O. Dorvaux, S. Kihel, M. Krauth, *IPHC, UNISTRA, CNRS, France*; M. Ciemala, *The Niewodnicza´nski Institute of Nuclear Physics, Poland*

N03-4 Geant4 Maintainability Assessed with Respect to Software Engineering References
E. Ronchieri[1], M. G. Pia[2], T. Basaglia[3], F. Giacomini[1]
[1]INFN CNAF, Italy; [2]INFN Genova, Italy; [3]CERN, Switzerland

N03-5 Optimised Lambda Architecture for Monitoring WLCG Using Spark and Spark Streaming
U. Suthakar[1], L. Magnoni[2], D. R. Smith[1], A. Khan[1]

[1]*Brunel University London, UK;* [2]*European Organisation for Nuclear Research (CERN), Switzerland*

N03-6 **Metal Artefact Reduction in Spectral CT Imaging for the Inspection of Tyres**
C. Fournier[1,2], F. Mathy[1,2], V. Moulin[1,2], V. Rebuffel[1,2], L. Verger[1,2]
[1]*Univ. Grenoble Alpes, France;* [2]*LETI MINATEC Campus, France*

N03-7 **A New Geant4 Modeling Solution Based on CAD and Unstructured Mesh Geometries**
Y. Qiu, U. Fischer, L. Lu
Karlsruhe Institute of Technology, Germany

N03-8 **Photo-Nuclear Interaction Simulations with Geant4 and FLUKA: Validation and Comparison**
L. Quintieri[1], M. G. Pia[2], M. Augelli[3], P. Saracco[2], M. Capogni[1], G. Guarneri[4]
[1]*ENEA Centro Ricerche Casaccia, Italy;* [2]*INFN, Italy;* [3]*CNES, France;* [4]*ENEA Centro Ricerche di Portici, Italy*

N03-9 **Dynamic Derivative Convolution Algorithm for Prompt Gamma Neutron Activation Spectra**
M. J. Neuer[1], T. Szczeniak[2], H. Zastawny[3], E. Jacobs[1], M. Grodzicka[2]
[1]*innoRIID, Germany;* [2]*National Centre of Nuclear Research, Poland;* [3]*Syskon, Poland*

N03-10 **Sensor Fusion of Spectroscopic Data and Gyroscope Accelerations for Direction Indication in a Handheld Radiation Detection Instrument**
C. Henke, E. Jacobs, N. Teofilov, P. Henke, M. J. Neuer
innoRIID, Germany

N03-11 **A Cluster Software Architecture Written in Python to Control and Monitor the Liquid Kripton Electromagnetic Calorimeter Level 0 Trigger System for the NA62 Experiment at CERN**
R. Ammendola[1], M. Barbanera[1], M. Bizzarri[2], V. Bonaiuto[3], A. Ceccucci[4], B. Checcucci[1], N. De Simone[4], R. Fantechi[4], L. Federici[1], A. Fucci[4], M. Lupi[1], G. Paoluzzi[1], A. Papi[1], M. Piccini[1], V. Ryjov[4], A. Salamon[1], G. Salina[1], F. Sargeni[3], S. Venditti[4]
[1]*INFN, Italy;* [2]*University of Perugia, Italy;* [3]*University of Roma Tor Vergata, Italy;* [4]*CERN, Switzerland*

N03-12 **Implementation of Position and Angle Uncertainties in the Muon Reconstruction of the CMS Experiment and Impact on the Performance**
G. Abbiendi, S. S. Chhibra, *INFN, Sezione di Bologna, Italy*

N03-13 **Efficient Implementation of Iterative Tomographic Reconstruction Routines**
M. P. Pichotka[1,2], J. Jakubek[2], D. Vavrik[1,2]
[1]*IEAP, CTU Prague, CZ;* [2]*Czech Academy of Sciences, CZ*

N03-14 **Underwater Nuclide Identification Strategy Using a Multi-Agent System with a Dedicated Scattering and Attenuation Agent**
M. J. Neuer, E. Jacobs, C. Henke, *innoRIID, Germany*

N03-15 **Control Command, DAQ & Monitoring: Experience with Go and HTML5**
S. Binet, *IN2P3/CNRS, France*

N03-16 **Fads: a Go-Based, Concurrency Friendly, Fast Detector Simulation Toolkit**
S. Binet, *IN2P3/CNRS, France*

N04 Astrophysics and space - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: **Andrii Nagai**, University of Geneva,

N04-1 **Design of the Photomultiplier Tube Base with High Dynamic Range for LHAASO**
X. Zhao, Z. Tang, C. Li, K. Jiang, M. Shao
University of Science and Technology of China, China

N04-2 **Gamma-Ray Detection with a DSSSD in the MeV Range**
G. Brulin[1], B. Genolini[1], J.-J. Dormard[1], T. Faul[1], E. Rauly[1], R. Phillipe[1,2], N. de Sï¿½rï¿½ville[1], A. Torrento[1], V. Le Ven[1], E. Wanlin[1]
[1]*Institut de Physique Nucliï¿½aire d'Orsay, France;* [2]*Institut de minï¿½ralogie, de physique des matï¿½riaux et de cosmochimie, France*

N04-3 **XIPE Mission Focal Plane Gas Mixture Optimization**
R. M. Curado da Silva[1], J. M. Maia[2], J. Escada[1], B. Conceição[1], T. H. Dias[1], F. P. Santos[1]
[1]*Laboratório de Instrumentação e Física Experimental de Partículas, Portugal;* [2]*University of Beira-Interior, Portugal*

N04-4 **Evaluation of a Bread Board Model Gamma-Ray Burst Polarimeter Toward Installation on the International Space Station**
Y. Oikawa, S. Gunji, T. Nakamori, M. Takakura, T. Ueda, T. Kishikawa, *Yamagata University, Japan*; S. Daigle, J. Gaskin, B. Ramsey, C. Wilson-Hodge, *NASA/MSFC, U.S.A.*; R. Preece, *University of Alabama Huntsville, U.S.A.*; M. McConnell, P. Bloser, J. Legere, *University of New Hampshire, U.S.A.*; D. Yonetoku, *Kanazawa University, Japan*; T. Mihara, *Riken, Japan*; K. Hayashida, *Osaka University, Japan*; Y. Kishimoto, S. Kishimoto, *KEK, Japan*; H. Takahashi, *Hiroshima University, Japan*; Y. Yatsu, *Tokyo kogyo University, Japan*; K. Toma, *Tohoku University, Japan*; T. Sakamoto, *Aoyama Gakuin University, Japan*

N04-6 **Space X-Ray Polarimeter POLAR - Possible Fields for Cooperation**

R. M. Marcinkowski, *Paul Scherrer Institute, Switzerland*
On behalf of the POLAR

N04-7 **Si and CdTe Detector Readout ASIC in 0.35µm CMOS for Energetic Electron Spectroscopy for Space Application**
K. W. Wong, G. Orttner, O. Chassela, M. Bassas, G. Roudil, P. Devoto, P. L. Blelly, J. A. Sauvaud, *IRAP CNRS, France*; F. Bouyjou, *cea, france*; O. Bernal, H. Tap, *LAAS CNRS, France*

N04-8 **Development of an Elpasolite Planetary Science Instrument**
L. C. Stonehill, D. D. S. Coupland, K. E. Mesick
Los Alamos National Laboratory, USA

N04-9 **A New Technique for Assembling Broad Band Laue Lenses**
E. Virgilli[1], N. Auricchio[2], E. Caroli[2], C. Ferrari[3], F. Frontera[1], P. Rosati[1], J. B. Stephen[2]
[1]University of Ferrara, Italy; [2]INAF/IASF-Bologna, Italy; [3]CNR/IMEM, Italy

N05 Circuits for readout and triggering - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: TBD

N05-1 **CDS4C: A Novel CDS ASIC for a Multi-Readout X-Ray CCD with a 0.032% INL**
B. Lu[1,2,3], Y. Chen[1,3], Y. J. Yang[1], W. W. Cui[1], H. N. Liu[2], Y. M. Zhou[2,3]
[1]Institute of High Energy Physics, Chinese Academy of Sciences, China; [2]Institute of Microelectronics, Chinese Academy of Sciences, China; [3]University of Chinese Academy of Sciences, China

N05-2 **A Combination of Multiple Channels of FPGA Based Time-to-Digital Converter for High Time Resolution**
Y. Wang, Q. Cao, C. Liu
University of Science and Technolgy of China, China

N05-3 **Input Mezzanine Card for the Fast Tracker at ATLAS**
T. Iizawa, *Waseda University, Japan*
On behalf of the ATLAS Collaboration

N05-5 **Design and Characterization of the Full Size AGIPD Readout Chips**
X. Shi, *Paul Scherrer Institut, Switzerland*
On behalf of the AGIPD Consortium

N05-6 **Ultra-Low Power Fast 10-Bit ADC for Multi-Channel Readout of Particle Physics Detectors**
M. Idzik, S. Bugiel, R. Dasgupta, M. Firlej, T. Fiutowski, J. Moron, K. Swientek
AGH University of Science and Technology, Poland

N05-7 **Development of an Asynchronous Readout ASIC for GEM Detectors**
E. Malankin, E. Atkin, I. Bulbakov, P. Ivanov, D. Normanov, V. Shumikhin, I. Sagdiev, O. Shumkin, S. Vinogradov, A. Voronin, *National Research Nuclear University, Russia*; V. Samsonov, V. Ivanov, *Petersburg Nuclear Physics Institute National Research Centre Kurchatov Institute, Russia*

N05-8 **The Development of High-Performance Front-End Electronics for the ATLAS TileCal Upgrade**
A. P. White, *University of Texas at Arlington, USA*
On behalf of the ATLAS Tile Calorimeter System

N05-9 **FATALIC, a Very-Front-End ASIC for the ATLAS Tile Calorimeter in the Context of the HL-LHC**
A. White, *University of Texas at Arlington, USA*
On behalf of the ATLAS Tile Calorimeter System

N05-11 **Building Blocks of a Read-Out Chip for a High Granularity Electromagnetic Calorimeter**
J.-B. Cizel, *Weeroc, France*; R. Cornat, *LLR, France*

N05-12 **CAD-II: the Second Version Current-Mode Preamplifier-Dsicriminator ASIC for MRPC-TOF Detectors**
Z. Yuan[1,2], Z. Deng[1,2]
[1]Tsinghua University, China; [2]Key Laboratory of Particle & Radiation Imaging, China

N05-13 **High Performance Readout Module Based on ZYNQ with Giga Bit Ethernet**
T. Xue, G. Gong, J. Li, *Tsinghua University, China*

N05-14 **Level-1 Data Driver Card of the ATLAS New Small Wheel Upgrade Compatible with the Phase II 1 MHz Readout Scheme**
P. Gkountoumis, *NTU Athens, GREECE*
On behalf of the ATLAS Muon Collaboration

N05-15 **Experimental Results with TOFPET2 ASIC**
A. Di Francesco[1], R. Bugalho[2], L. Oliveira[3], A. Rivetti[4], L. Pacher[4], M. Rolo[4,2], J. C. Silva[1,2], R. Silva[2], J. Varela[1,2]
[1]LIP, Portugal; [2]PETsys Electronics, Portugal; [3]CTS-UNINOVA, Portugal; [4]INFN, italy

N05-16 **A Prototype 32 Channel Front-End Electronic Readout System for an UV Imaging Detector.**

A. Seljak[1], G. S. Varner[1], J. Vallerga[2], R. Raffanti[3], H. S. Cumming[1]
[1]University of Hawai'i at Manoa, Hawaii; [2]University of California,, California; [3]Techne Instruments, California

N05-17 Performance Evaluation of Digital Pixel Readout Chip Architecture Operating at Very High Rate Through a Reusable UVM Simulation Framework
E. Conti[1], S. Marconi[1,2,3], T. Hemperek[4], J. Christiansen[1], P. Placidi[2,3]
[1]CERN, Switzerland; [2]University of Perugia, Italy; [3]INFN Perugia, Italy; [4]University of Bonn, Germany

N05-18 Upgrades to the CSC Cathode Strip Chamber Electronics for HL-LHC
D. M. Morse, *Northeastern University, USA*
On behalf of the CMS Collaboration

N05-19 Study of PMOS Front-End Solution with Signal Compression for XFEL MiniSDD X-Ray Detectors
A. Grande[1,2], C. Fiorini[1,2], F. Erdinger[3], P. Fischer[3], M. Porro[4]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Universität Heidelberg, Germany; [4]European XFEL, Germany

N05-20 The Waveform Digitizer System for the MU2E Experiment: Conceptual Design and First Prototype Results
F. Spinella[1], S. Donati[2], S. Di Falco[1], F. Cervelli[1], L. Morescalchi[3], E. Pedreschi[2], G. Pezzullo[1]
[1]Italian Institute for Nuclear Physics - section of Pisa, Italy; [2]Physics Department, University of Pisa, Italy; [3]Physics Department, University of Siena, Italy

N05-21 Performances of the Calorimetric Trigger Processor of the NA62 Experiment at CERN SPS
R. Ammendola[1], M. Barbanera[1], M. Bizzarri[2], V. Bonaiuto[3], A. Ceccucci[4], B. Checcucci[1], N. De Simone[4], R. Fantechi[4], L. Federici[1], A. Fucci[4], M. Lupi[1], G. Paoluzzi[1], A. Papi[2], M. Piccini[2], V. Ryjov[4], A. Salamon[1], G. Salina[1], F. Sargeni[3], S. Venditti[4]
[1]INFN, Italy; [2]University of Perugia, Italy; [3]University Rome Tor Vergata, Italy; [4]CERN, Switzerland

N05-22 A 32-Channel Read-Out ASIC for PET Application
H. Xu, M. Perenzoni, N. Massari, A. Gola, A. Ferri, C. Piemonte, D. Stoppa
Fondazione Bruno Kessler, Italy

N05-23 A MAPMT Compact Read-Out Based on CIAC, a Dedicated ASIC
M. Galasso, A. Fabbri, V. Orsolini Cencelli, *INFN Sezione Roma Tre, Italy*; F. De Notaristefani, *Roma Tre University, Italy*

N05-24 MATRIX: a Novel Two-Dimensional Resistive Interpolation 15 Ps Time-to-Digital Converter ASIC
J. Mauricio, D. Gascon, D. Ciaglia, S. Gómez, G. Fernández, A. Sanuy
University of Barcelona, Spain

N05-25 SENSROC10: a 64-Channel Analog Front-End ASIC Dedicated to CZT Detector for SPECT Imaging
W. Gao, *Northwestern Polytechnical University, China*

N05-26 Design, Characterization and Test of the Associative Memory Chip AM06 for the Fast TracKer System
R. Stamen, *Kirchhoff-Institut für Physik, Germany*
On behalf of the FTK Collaboration

N05-27 Design and Development of Radiation Hardened 2.5GHz Clock Multiplier Unit with 0.18ï¿½m Technology for CBM-MUCH Detector Electronics
H. K. Pandey[1], T. K. Bhattacharya[2], J. Saini[1]
[1]INDIAN INSTITUTE OF TECHNOLOGY, INDIA; [2]VARIABLE ENERGY CYCLOTRON CENTRE, INDIA

N05-28 BASIC64: a New Mixed-Signal Front-End ASIC for SiPM Detectors
P. Calò, F. Ciciriello, F. Corsi, C. Marzocca, G. Matarrese, *Politecnico di Bari, Italy*; M. G. Bisogni, *Università di Pisa, Italy*

N05-29 Characterization of ASIC-Based Detectors for Limited Angle Tomography TOF-PET
A. Aguilar[1], J. M. Monzo[1], A. J. Gonzalez[1], A. Gonzalez-Montoro[1], G. Cañizares[1], L. F. Vidal[1], L. Hernandez[1], R. Colom[1], D. Grau-Ruiz[1], J. P. Rigla[1,2], E. Diaz-Caballero[1,2], P. Bellido[1], P. Conde[1], A. Iborra[1], L. Moliner[1], M. J. Rodriguez-Alvarez[1], S. Sanchez[1], M. Seimetz[1], A. Soriano[1], F. Sanchez[1], J. J. Garcia-Garrigos[1], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular Imaging, Spain; [2]Tesoro Imaging S.L., Spain

N05-30 A New Vertical JFET Technology for the Powering Scheme of the ATLAS Upgrade Inner Tracker
P. Fernández-Martínez, D. Flores, S. Hidalgo, D. Quirion, M. Ullán
Instituto de Microelectrónica de Barcelona, IMB-CNM (CSIC), Spain

N05-31 A 64 Channel Mixed-Signal ASIC for the Readout of GEM Detectors in the BESIII Experiment
C. Leng[1,2,3], J. Chai[1,2,3], H. Li[2,4], A. Di Francesco[5], R. Bugalho[6], M. Maggiora[2,7], S. Marcello[2,7], A. Rivetti[2], M. Rolo[2], J. Varela[5,6]
[1]Politecnico di Torino, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]University of Chinese Academy of Sciences, China; [4]IHEP, Chinese Academy of Sciences, China; [5]LIP, Portugal; [6]PET-Sys Electronics, Portugal; [7]Università di Torino, Italy

N05-32 Development of a Low-Cost, Compact, Multi-Channel, FPGA-Based Digital Pulse Processor
E. M. Becker[1], A. T. Farsoni[1], C.-S. Lee[2], M. Mannino[1]
[1]Oregon State University, USA; [2]BigML, Inc., USA

N05-33 A Multi-Channel CCD Clock Driver ASIC for Space-Based Applications
Q. Morrissey, S. Bell, L. Jones, N. Waltham, M. Clapp
STFC Rutherford Appleton Laboratory, United Kingdom

N05-34 Development and Evaluation of Multichannel Readout ASIC for the Development of SiPM Based PET
K. Park, Y. Choi, J. Choi, D. J. Kwak, G.-C. Ahn, J. Bong, M. S. Kim

Sogang University, Korea

N05-35 An ASIC Architecture for Dead Time-Less, Multichannel Current Pulse Acquisition with Extended Input Range
D. Mazur[1], V. Herrero Bosch[1], R. J. Aliaga[2], J. M. Monzó Ferrer[1], R. Gadea Gironés[1], R. J. Colom Palero[1]
[1]Universitat Politècnica de València, España; [2]Instituto de Física Corpuscular, España

N05-36 Analog Pixel Front-End for VIPIC-Large Detector
G. Deptuch[1], F. Fahim[1], P. Grybos[2], P. Kmon[2], P. Maj[2], R. Szczygiel[2], T. Zimmerman[1]
[1]Fermi National Accelerator Laboratory, USA; [2]AGH University of Science and Technology, Poland

N05-37 Evaluation of the Spectroscopic Performance of the Integrated Multi-Channel Charge-Sensitive Preampli?er of TRACE with a Silicon Detector Prototype
S. Capra[1,2], A. Pullia[1,2], R. J. Aliaga[3], D. Mengoni[4,5], P. R. John[4,5], A. Gadea[3], V. Herrero[6]
[1]University of Milano, Italy; [2]INFN of Milano, Italy; [3]Instituto de Fisica Corpuscolar, Spain; [4]INFN of Padova, Italy; [5]University of Padova, Italy; [6]Universitat Politecnica de Valencia, Spain

N05-38 uTRiG: a Mixed Signal Silicon Photomultiplier Readout ASIC with High Timing Resolution and Gigabit Data Link
H. Chen, K. Briggl, T. Harion, H.-C. Schultz-Coulon, W. Shen
KIP, Heidelberg University, Germany

N05-39 Design of Low Power and Low Area 12-Bit 40MSPS SAR ADCs with a Redundancy Algorithm and Digital Calibration for High Dynamic Range Calorimeter Readout
D. K. Dzahini, M. Zeloufi, *IN2P3-LPSC, France*

N05-40 Design Considerations for Embedded Real-Time Processing for 3D Digital SiPMs with Multiple TDCs
W. Lemaire, F. Nolet, A. Corbeil Therrien, J.-F. Pratte, R. Fontaine
Université de Sherbrooke, Canada

N05-41 VIPRAM3D: a Multi-Tier 3D Architecture for Pattern Recognition-Based Track Finding
J. R. Hoff, G. Deptuch, S. Joshi, T. Liu, A. Shenai
Fermilab, USA

N05-42 A Novel High Rate Readout Method for CdTe/CZT Detectors for X-Ray Photon-Counting Applications
Z. Deng[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

N05-43 Pixel Back-End of the VIPIC-Large Chip for Dead-Time-Less Registration of X-Ray Photons
G. W. Deptuch, F. Fahim, *Fermilab, USA*; P. Grybos, P. Kmon, P. Maj, R. Szczygiel, *AGH-UST, Poland*

N05-44 A GHz Waveform Recorder and Digitizer ASIC
J. Qin, L. Zhao, Y. Lu, B. Cheng, S. Liu, Q. An
University of Science and Technology of China, Hefei, 230026, China, China

N05-45 The Front End Electronics of T0 Detector in the External Target Experiment of CSR in HIRFL
P. Deng, L. Zhao, P. Xia, J. Lu, S. Liu, Q. An
University of Science and Technology of China, China

N05-46 Implementation of Broadband Mismatch Correction in a 1.6-Gsps TIADC System
X. Gao, L. Zhao, Z. Jiang, S. Liu, Q. An
University of Science and Technology of China, China

N05-47 Measurement of the Power Spectral Density of Noise Produced by a Large Integrated Feedback Resistor for Charge-Sensitive Preamplifiers
S. Capra[1,2], A. Pullia[1,2]
[1]University of Milan, Italy; [2]INFN of Milan, Italy

N05-48 Evaluation of the Prototype Front End Electronics of WCDA in LHAASO
S. Chu
University of Science and Technology of China, China

N06 Data acquisition, trigger and analysis - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: **Ralf Engels**, Forschungszentrum Juelich GmbH, Germany

N06-1 High-Speed Recorder Based on SCA Technology for Thomson Scattering Diagnostic on ITER
E. A. Puryga[1], S. V. Ivanenko[1,2], A. D. Khilchenko[1,2], A. N. Kvashnin[1], P. V. Zubarev[1,2], D. V. Moiseev[1]
[1]Budker Institute of Nuclear Physics, Russia; [2]Novosibirsk State Technical University, Russia

N06-2 Hardware Tracking R&D for the ATLAS at the High Luminosity LHC TDAQ System
A. Tavares Delgado, *LIP, Portugal*

On behalf of the ATLAS Collaboration

N06-3 Performance of the ATLAS Calorimeter High-Level Trigger in the LHC Run 2 Data Taking Period
T. Bold, *AGH UST, Poland*

N06-4 Scalable Control and Data Acquisition Software for the PERCIVAL Detector
U. K. Pedersen, N. Tartoni, H. Yousef, *Diamond Light Source, United Kingdom*; H. Graafsma, C. B. Wunderer, J. Correa, P. Göttlicher, H. Hirsemann, S. Lange, A. Marras, M. Niemann, S. Reza, I. Shevyakov, S. Smoljanin, J. Supra, M. Tennert, Q. Xia, M. Zimmer, *Deutsches Elektronen-Synchrotron, Germany*; R. Turchetta, I. Sedgwick, N. Guerrini, B. Marsh, T. Nicholls, *Science & Technology Facilities Council, United Kingdom*; R. Menk, L. Stebel, G. Cautero, D. Giuressi, A. Khromova, G. Pinaroli, *ELETTRA Sincrotrone Trieste, Italy*; S. Rah, H. Hyun, K. Kim, *Pohang Accelerator Laboratory, South Korea*

N06-5 Trapezoidal Shaping Algorithm Based on Digital Penalized LMS Method
Y. Huang, H. Gong, J. Li, *Tsinghua University, China*

N06-6 An IMPI-Compliant Control System for the ATLAS TileCal Phase II Upgrade PreProcessor Module
A. White, *University of Texas at Arlington, USA*
On behalf of the ATLAS Tile Calorimeter System

N06-7 Fast DAQ system for recording profiles of Thomson scattering ns pulses
S. V. Ivanenko[1,2], E. A. Puryga[1], A. D. Khilchenko[1,2], A. N. Kvashnin[1], P. V. Zubarev[1,2], V. K. Ovchar[1]
[1]Institute of Nuclear Physics, Russia; [2]Novosibirsk State Technical University, Russia

N06-8 Development of a Fast Framing Detector for Electron Microscopy
I. Johnson[1], K. Bustillo[1], J. Ciston[1], E. Dart[1], B. Draney[2], P. Ercius[1], E. Fong[1], C. Grace[1], J. Joseph[1], J. Lee[2], A. Minor[1], C. Ophus[1], D. Skinner[2], T. Stezelberger[1], C. Tindall[1], P. Denes[1]
[1]Lawrence Berkeley National Laboratory, USA; [2]National Energy Research Scientific Computing Center, USA

N06-9 Single-Chain 4-Channels High-Resolution Multi-Hit TDC in FPGA
N. Lusardi, M. Luciani, A. Geraci
Politecnico di Milano, Italy

N06-10 The Real-Time Processor for the CMS Fast Beams Condition Monitor Implemented in FPGA
A. A. Zagozdzinska, *WUT (Warsaw University of Technology), Poland*
On behalf of the CMS Collaboration

N06-11 Modelling of DEPFET Based X-Ray Detectors for Athena's Wide Field Imager
S. Ott[1], R. Andritschke[1], A. Bähr[1], N. Meidinger[1], J. Müller-Seidlitz[1], M. Plattner[1], W. Stechele[2], W. Treberspurg[1]
[1]Max-Planck-Institut für extraterrestrische Physik, Germany; [2]Technische Universität München, Germany

N06-12 Fully-Migratable TDC Architecture for FPGA Devices
N. Lusardi, A. Palmucci, A. Geraci
Politecnico di Milano, Italy

N06-13 99.26% Gigabit Ethernet Link Efficiency for Distributed Data Acquisition Systems
F. T. Abu-Nimeh, W.-S. Choong
Lawrence Berkeley National Laboratory, USA

N06-14 Development of Flexible, Scalable, Low Cost Readout for Beam Tests of High Granularity Calorimeter for the CMS Endcap
P. Rubinov, *Fermi National Accelerator Laboratory, USA*
On behalf of the CMS

N06-15 DQM4HEP : a Generic Data Quality Monitoring for High Energy Physics
R. Eté[1], A. Pingault[2], L. Mirabito[1]
[1]CNRS/IN2P3, France; [2]Ghent University, Belgium

N06-16 MADA Board: a 32 Channel, Open-Firmware, ASIC Readout System with Integrated MCA
A. Abba, F. Caponio, A. Cusimano
Nuclear Instruments, Italy

N06-17 Sub-Ns Detection System Emulator with Integrated Digital Pulse Processor
A. Abba, F. Caponio, A. Cusimano
Nuclear Instruments, Italy

N06-18 DANTE, a Compact and Low-Power Digital Pulse Processor to Exploit CUBE Preamplifier Ultimate Energy Resolution and High-Count Rate Capability
L. Bombelli, M. Manotti, R. Alberti, T. Frizzi
XGLab S.R.L. – Spinoff del Politecnico di Milano, Italy

N06-19 Integration of GBTx Emulator with XYTER and Data Processing Board (DPB) for CBM Experiment
S. Mandal[1], S. Sau[2], J. Saini[1], A. Byszuk[3], W. F. J. Mueller[4], A. Chakrabarti[2], W. Zabolotny[3], S. Chattopadhyay[1]
[1]Variable Energy Cyclotron Center, India; [2]University of Calcutta, India; [3]Warsaw University of Technology, Poland; [4]GSI, Germany

N06-20 X-Ray Digital Radiography of Operating Aero-Engines with a Universal Trigger Module
Y. Xiao[1,2], Z. Chen[1,2], M. Chang[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

N06-21 **Dual Threshold Time-over-Threshold Nonlinearity Correction for PET Imaging**
E. Gaudin, L. Arpin, C. Thibaudeau, R. Fontaine, R. Lecomte
Université de Sherbrooke, Canada

N06-22 **Bootstrapped Uncertainties in Coded-Aperture Images**
M. C. Fleenor, *Roanoke College, USA*; K. P. Ziock, M. A. Blackston, *Oak Ridge National Laboratory, USA*

N06-23 **Fast Algorithms for Multi-Level Threshold Dispersion and Gain Corrections**
P. Maj, P. Kmon, A. Koziol, A. Lisicka
AGH University of Science and Technology, Poland

N06-24 **High-Resolution TDL-TDC System for MTCA.4 Standard**
N. Lusardi, A. Geraci, *Politecnico di Milano University, Italy*; J. Marjanovic, S. Farina, M. Guštin, *CAEN ELS d.o.o., Slovenia*

N06-26 **Single Photon Counting Through Multi-Channel TDC in Programmable Logic**
N. Lusardi[1], F. Garzetti[1], G. Bulgarini[2], R. B. M. Gourgues[2], J. W. N. Los[2], A. Geraci[1]
[1]Politecnico di Milano, Italy; [2]Single Quantum B.V., The Netherlands

N06-27 **Towards a Low-Resources 10 Ps FPGA Time-Marker for (S)PE(C)T Applications**
N. Chevillon, B. Humbert, C. Fuchs, F. Boisson, D. Brasse
IPHC / CNRS-IN2P3, Universite de Strasbourg, FRANCE

N06-28 **Signal Processing for MicroBooNE Experiment**
Y. Li, *Brookhaven National Laboratory, 11973*
On behalf of the MicroBooNE collaboration

N06-29 **List Mode Regression for Low Count Detection**
J. Jin[1], K. Miller[1], D. J. Sutherland[1], S. Labov[2], K. Nelson[2], A. Dubrawski[1]
[1]Carnegie Mellon University, USA; [2]Lawrence Livermore National Laboratory, USA

N06-30 **Respiratory Motion Gating Using True Event Distribution in PET/CT**
J. He[1,2], L. Fu[1], R. Cui[1]
[1]Kunming University of Science and Technology, China; [2]The University of Chicago, US

N06-31 **High-Rate Gamma Spectroscopy: A Sensitivity Study**
A. J. Gilbert, J. E. Fast, M. J. Myjak, B. A. VanDevender, L. S. Wood
Pacific Northwest National Lab, USA

N06-32 **Digital Strategies for Time and Energy Measurement for Ultra Fast Scintillators**
V. Sanchez-Tembleque[1], V. Vedia[1], M. Carmona[1], L. M. Fraile[1], S. Ritt[2], J. M. Udías[1]
[1]Universidad Complutense de Madrid, Spain; [2]Paul Scherrer Institute, Switzerland

N07 High energy physics instrumentation - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: TBD

N07-1 **TPX Luminosity Measurement of LHC Proton-Proton Collisions at 13 TeV**
A. Sopczak[1], J. Begera[1], B. Bergmann[1], T. Billoud[2], P. Burian[1], I. Caicedo[1], D. Caforio[1], J. Janecek[1], C. Leroy[2], P. Manek[1], J. Pacik[1], C. Papadatos[2], M. Platkevic[1], S. Polansky[1], S. Pospisil[1], M. Suk[1], Z. Svoboda[1]
[1]Czech Technical University, Czech Republic; [2]University of Montreal, Canada

N07-2 **Testbeam Results from Pre and Post Irradiated Modules for the Upgrade of the ATLAS Strip Tracking Detector**
A. J. Blue, *University Of Glasgow, Scotland*
On behalf of the ATLAS Collaboration

N07-3 **Silica Aerogel Radiator System for Belle II RICH Counter**
I. Adachi[1,2], R. Dolenec[3], K. Hataya[4], S. Iori[5], S.-I. Iwata[4], H. Kakuno[4], R. Kataura[6], H. Kawai[7], H. Kindo[2], T. Kobayashi[6], S. Korpar[8,9], P. Krizan[3,9], T. Kumita[4], M. Mrvar[9], S. Nishida[1,2], K. Ogawa[6], S. Ogawa[5], R. Pestotnik[9], L. Santelj[1], T. Sumiyoshi[4], M. Tabata[7], M. Yonenaga[4], Y. Yusa[6]
[1]KEK, Japan; [2]SOKENDAI, Japan; [3]University of Ljubljana, Slovenia; [4]Tokyo Metropolitan University, Japan; [5]Toho University, Japan; [6]Niigata University, Japan; [7]Chiba University, Japan; [8]University of Maribor, Slovenia; [9]Jozef Stefan Institute, Slovenia

N07-4 **The Construction of the Fiber-SiPMT Beam Monitor System of the R484 and R582 Experiments at RiKEN RAL Muon Facility**
M. Bonesini, R. Bertoni, F. C. Chignoli, R. Mazza, *Sezione INFN Milano Bicocca, Dipartimento di Fisica G. Occhialini, Italy*; T. Cervi, A. De Bari, A. Menegolli, M. Rossella, *Sezione INFN Pavia, Dipartimento di Fisica, Italy*; L. Tortora, *Sezione INFN Roma Tre, Italy*; R. Carbone, D. Guffanti, E. Mocchiutti, A. Vacchi, E. Vallazza, *Sezione INFN Trieste, Italy*

N07-5 **CMS Resistive Plate Chambers Performance at 13 TeV**
B. Pavlov, *University of Sofia, Bulgaria*
On behalf of the CMS RPC collaboration

N07-6 Neutron Detection in the SoLid Experiment
S. Vercaemer, *University of Antwerp, Belgium*
On behalf of the SoLid collaboration

N07-7 Development of Resistive Plate Chambers for the Upgrade of the CMS Muon System
I. Laktineh, ,
On behalf of the CMS RPC collaboration

N07-9 Slow Scintillation Component and Radiation Induced Readout Noise in CsI Crystals
F. Yang, L. Zhang, R. Zhu
California Institute of Technology, USA

N07-10 Module Assembly Procedures for the Silicon Vertex Detector of the Belle II Experiment
H. Jeon, *Kyungpook National University, South Korea*
On behalf of the Belle II SVD collaboration

N07-11 Strip Detector for the ATLAS Detector Upgrade for the High-Luminosity LHC
D. Sperlich, *HU Berlin, Germany*
On behalf of the ATLAS Collaboration

N07-12 CLAWS - a Plastic Scintillator / SiPM Based Detector to Measure Backgrounds at SuperKEKB
M. Gabriel, M. Kattau, C. Kiesling, F. Simon, H. Windel
Max-Planck-Institut für Physik, Germany

N07-13 The Phase-II ATLAS Pixel Tracker Upgrade: Layout and Mechanics
A. Sharma, *University of Oxford, United Kingdom*
On behalf of the ATLAS Collaboration

N07-14 DSiMPl - Utilisation of the SiMPl Concept for Tracking Applications in Particle Physics Experiments
S. Petrovics[1], L. Andricek[1], I. Diehl[2], K. Hansen[2], K. Krueger[2], R. Lehmann[1], J. Ninkovic[1], C. Reckleben[2], R. Richter[1], G. Schaller[1], F. Schopper[1], F. Sefkow[2], X. Wang[2]
[1]Semiconductor Laboratory of the Max-Planck Society, Germany; [2]DESY, Germany

N07-15 SiPM Readout for the SHiP Timing Detector
R. Bruendler, *University of Zurich, Switzerland*
On behalf of the SHiP Collaboration

N07-16 Instrumentation of the Detectors and DAQ Performance in the NOvA Experiment
J. Zalesak, *Institute of Physics, CAS, Czech Republic*
On behalf of the NOvA Collaboration

N07-17 The LHCb VELO Upgrade
P. Collins, *CERN, Switzerland*

N07-18 Cosmic Ray Telescop at Orsay
L. Burmistrov, *LAL, France*

N07-19 3D Electron Tracking and Vertexing with Single Plane Pixel Detectors
G. Blaj, A. Dragone, P. Hansson, C. Hast, R. Herbst, C. Kenney, T. Smith
SLAC National Accelerator Laboratory, U.S.A.

N07-20 3D Avalanche Pixel for Precision Vertexing
N. D'Ascenzo, Q. Xie
Huazhong University of Science and Technology, Cina

N07-21 Production and Testing of a High-Performance, Low-Cost Readout System for the Belle II Upgrade: KL and Muon (KLM) Scintillator Sub-Detector
I. Mostafanezhad, G. Varner, B. Edralin
University of Hawaii at Manoa, USA

N07-22 Design of Data Aggregation Unit for High Energy Physics Experiment
J. Mitra, *PhD Scholar, INDIA*; T. K. Nayak, *ALICE India Co-ordinator, INDIA*

N08 Instrumentation for Security - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: **Sara Pozzi**, University of Michigan, United States

N08-1 Design of the Rapidly Relocatable Tagged Neutron Inspection System of the C-BORD Project

A. Sardet, B. Perot, C. Carasco, *CEA, DEN, Cadarache, France*; G. Sannie, *CEA, DRT, LIST, France*; S. Moretto, G. Nebbia, C. Fontana, *INFN, Italy*; M. Moszynski, P. Sibczynski, K. Grodzicki, L. Swiderski, *National Centre for Nuclear Research, Poland*; A. Iovene, C. Tintori, *CAEN S.p.A, Italy*

N08-2 Characterization and Simulation of Soft Gamma-Ray Mirrors for Their Use with Spent Fuel Rods at Reprocessing Facilities
J. Ruz, M. J. Pivovaroff, M.-A. Descalle, *Lawrence Livermore National Laboratory, United States of America*; D. L. Chichester, S. M. Watson, *Idaho National Laboratory, United States of America*; K. P. Ziock, *Oak Ridge National Laboratory, United States of America*

N08-3 Sensitivity Image Compensation of ASIC Artifacts and Event Loss in Pixelated 3-D Position Sensitive CdZnTe Detectors
B. Williams, Z. He, *University of Michigan, United States*

N08-4 The Method to Improve the Angular Resolution of the Portable Gamma Camera with Pinhole Collimator
O. Ivanov, V. Potapov, I. Semin
National Research Centre Kurchatov Institute, Russia

N08-5 The Image Processing for Improvement of Angular Resolution and Sensitivity of the Portable Gamma Camera with Medipix Detector
O. Ivanov, V. Potapov, V. Stepanov, *National Research Centre Kurchatov Institute, Russia*; Y. Martynyuk, *Scientific and Producing Company Doza, Russia*

N08-6 Design Study on Differential Die-Away Technique in an Integrated Active Neutron NDA System for Non-Nuclear Proliferation
A. Ohzu, M. Maeda, M. Komeda, H. Tobita, M. Kureta, M. Koizumi, M. Seya
Japan Atomic Energy Agency, Japan

N08-7 Development of a nasal monitor to evaluate an activity of plutonium in the nasal cavity
Y. Morishita[1], S. Yamamoto[2], T. Momose[1], J. H. Kaneko[3], N. Nemoto[1]
[1]Japan Atomic Energy Agency, Japan; [2]Nagoya University Graduate School of Medicine, Japan; [3]Hokkaido University Graduate School of Engineering, Japan

N08-9 Simplified Simulation Method for Modelling Illicit Materials Detection System Based on EDXRD
T.-Y. YangDai[1,2], L. Zhang[1,2]
[1]Tsinghua University, China; [2]Key Laboratory of Particle & Radiation Imaging, China

N08-11 Application of LaBr3(Ce) Detectors in a Mobile Spectrometric System
F. Finkel, I. Krainukovs, V. Gostilo
Baltic Scientific Instruments, Latvia

N08-12 Detection of High-Energy Delayed Gamma-Rays and Delayed Neutrons from Photofission Using Large Size Plastic Scintillators and 3He Counters
A. Grabowski, J.-M. Bourbotte, F. Carrel, G. Corre, H. Hamrita, V. Kondrasovs, F. LainÃ©, A. Sari
CEA, LIST, France

N08-13 X-Ray Fluorescence Measurements of Toxic Metal Content in Ash from Municipal Solid Waste Incineration
B. Norlin[1], S. Reza[1,2], C. Fröjdh[1]
[1]Mid Sweden University, Sweden; [2]Deutsches Elektronen-Synchrotron (DESY), Germany

N08-14 Design of a Novel Instrument for Active Neutron Interrogation of Unknown Objects
C. Bélanger-Champagne[1], H. Vainionpää[2], P. Peura[1], H. Toivonen[3], P. Eerola[1], P. Dendooven[1]
[1]Helsinki Institute of Physics, Finland; [2]JHV Physics Oy, Finland; [3]HT Nuclear Oy, Finland

N08-15 Simulation and Implementation of Mobile Sensor Networks for Radiation Detection
J. Zhao, K. A. Roth, C. J. Sullivan
University of Illinois at Urbana-Champaign, USA

N08-16 Discrimination of High-Z Materials with Muon Scattering Tomography
L. Frazao, J. Velthuis, C. Thomay, *University of Bristol, UK*; C. Steer, *AWE, UK*

N08-17 Comparison of Prompt and Delayed Photofission Neutron Detection Techniques Using Different Types of Radiation Detectors
P. Sibczynski, L. Swiderski, M. Moszynski, A. Syntfeld-Kazuch, K. Grodzicki, A. Dziedzic, M. Matusiak, T. Kosinski, S. Korolczuk, *National Centre for Nuclear Research, Poland*; F. Carrel, M. Hamel, A. Sari, A. Grabowski, F. Laine, *CEA LIST, France*; A. Iovene, C. Tintori, *CAEN S.p.A., Italy*

N08-18 Peak Quantification with Neural Networks for Low-Resolution NaI Spectra
M. M. Kamuda, J. Stinnett, C. J. Sullivan
University of Illinois, USA

N08-19 Personal Dosimetry Geolocalized System for Radiation Monitoring
R. Chil[1], G. Konstantinou[1], L. M. Fraile[2], J. Vaquero[3], C. Rodriguez[3], S. Borromeo[2], M. Desco[1,4], J. M. Udías[2], J. J. Vaquero[1,4]
[1]Universidad Carlos III de Madrid, Spain; [2]Universidad Complutense de Madrid, Spain; [3]Universidad Rey Juan Carlos, Spain; [4]Instituto de Investigación Sanitaria Gregorio Marañón, Spain

N08-20 Urban Source Detection with Mobile Sensor Networks Enhanced with Machine Learning Algorithms
Z. Liu, C. J. Sullivan
University of Illinois at Urbana–Champaign, The United States

N08-21 Development of Nuclide Identifying Algorithm for PVT-Based Gate Monitor
Y. Kim[1], H. Yoo[1], J. Kim[1], E. Lee[1], S. Lee[1], M. Moon[2], G. Cho[1]
[1]Korea Advanced Institute of Science and Technology, Republic of Korea; [2]Korea Atomic Energy Research Institute, Republic of Korea

N08-22 Identification of ^{90}Sr and ^{40}K Based on Cherenkov Radiation at Lower Background Suppressed Cosmic Rays

H. Ito, A. Kobayashi, H. Kawai, S. Kodama, T. Mizuno, M. Tabata
Graduate School of Science, Chiba University, Japan

N08-23 Preliminary Results of a Nuclear Material Monitoring System Using Multiple Spectroscopes and Anger Method
H. Song[1,2], H.-I. Kim[3], S.-J. Lee[1,2], C. Y. Lee[1,2], C. W. Park[1,2], Y. H. Chung[1,2]
[1]College of Health Science, Yonsei university, Korea; [2]Institute of Health Science, Yonsei University, Korea; [3]Korea Institute of Nuclear Safety, Korea

N08-24 X-Ray Linear Laminography System for Void Inspection in Aluminum Welding
M. Park[1], M. Lee[1], K. Kim[1], S. U. Hwang[2], S. Y. Jin[2], H. Kim[1], S. Cho[1], G. Cho[1]
[1]Korea Advanced Istitute of Science and Technology, KOREA; [2]Samsung SDI, Korea

N08-25 Development of Hybrid L-edge/XRF Densitometer: Fabrication and Evaluation
S. Park, U.-R. Park, S.-W. Kwak, A.-R. Lee, *Korea Institute of Nuclear Nonproliferation and Control, Republic of Korea*; J. Park, *ISP Co., Ltd., Republic of Korea*

N08-26 Neutron Activation in an Active Interrogation System
M. Cassinelli, C. Clemett, B. Campbell, C. Steer, *AWE, UK*

N08-27 Development of Portable SNMs Detection System Based on Threshold Energy Neutron Analysis
T. Misawa, Y. Kitamura, Y. Takahashi, K. Masuda, *Kyoto University, Japan*; S. Fujimoto, *Pony Industry Co., Ltd., Japan*

N08-28 A New Method for the Determination of 241Am Activity for Large Site Contamination
E. Wilhelm[1], N. Arbor[2], S. Gutierrez[1], S. Ménard[1], A.-M. Nourreddine[2]
[1]CEA, France; [2]CNRS, France

N08-29 Cylindrical Multi-Layer Neutron Monitor Using B4C Thin Film
C. H. Lim, J.-W. Park, J. H. Lee, *Korea Research Institute of Ships & Ocean Engineering, Republic of Korea*; J. Kim, S. Lee, J. H. Lee, M. K. Moon, *Korea Atomic Energy Research Institute, Republic of Korea*

N08-30 SPIR-Ace: a Novel Handheld Radio-Isotope Identifier
A. P. Fallu-Labruyere, F. Schulcz, J. Fellinger
Mirion Technologies (MGPI) SA, FRANCE

N08-31 Surface Contamination Monitor, with Separate Alpha, Beta and Gamma Counting, Utilising Silicon Photomultipliers
I. C. Della-Rocca, *Symetrica Security Ltd., UK*

N08-32 Neutron Spallation to Enhance Muon Scattering Tomography
C. Eldridge, *AWE plc, United Kingdom*

N08-34 Strategies to Alleviate Aliasing in Coded Aperture Imagers
P. E. Vanier, I. Dioszegi, C. Salwen
Brookhaven National Laboratory, USA

N08-35 Development of Continuous Scanning for Fixed Type Container X-Ray Inspection System
J. H. Lee, J. W. Park, C. H. Lim, *KRISO, Korea*

N08-36 A Radiation Sensor Network with the Ability to Localize the Radiation Source
A. Kyriakis[1], G. Fragkos[2], I. Kaissas[3], K. Karafasoulis[4], C. P. Lambropoulos[5], C. Papadimitropoulos[5], C. Potiriadis[3]
[1]NCSR "DEMOKRITOS", Greece; [2]Hellenic Army Genneral Staff, Greece; [3]Greek Atomic Energy Commission, Greece; [4]Hellenic Army Academy, Greece; [5]Technological Educational Institute of Sterea Ellada, Greece

N08-37 Characterization of the ^{11}B(d,nγ)^{12}C Monochromatic Photon Source for Active Interrogation
P. B. Rose Jr, A. S. Erickson
Georgia Institute of Technology, USA

N08-38 Minimization of the Impact of Sensor Velocity on the Probability of Source Detection Using Geographically Weighted Methods
M.-H. Jeong[1], C. J. Sullivan[2], M. Cheng[1], S. Wang[1]
[1]National Center for Supercomputing Applications, United States; [2]University of Illinois at Urbana-Champaign, United States

N08-39 A Comparison of Radiological Dispersal Device Deposition Characterization Techniques
L. S. Erhardt, *Defence Research and Development Canada, Canada*; L. E. Sinclair, R. Fortin, *Natural Resources Canada, Canada*

N08-40 Compact Neutron Scatter Camera Search Applications
M. D. Gerling, J. E. M. Goldsmith, J. S. Brennan
Sandia National Laboratories, USA

N08-41 Image Reconstruction of Radioactive Sources with a SCoTSS Compton Gamma Imaging Device
P.-L. Drouin[1], R. Ueno[1], L. Erhardt[1], J. Hovgaard[2], B. Krupskyy[2], A. MacLeod[3], P. Saull[3], L. Sinclair[4], D. Waller[1]
[1]Defence Research and Development Canada, Canada; [2]Radiation Solutions Inc, Canada; [3]National Research Council Canada, Canada; [4]Natural Resources Canada, Canada

N08-42 Monte Carlo Simulations of a Physical Cryptographic Warhead Verification Protocol Using Nuclear Resonance Fluorescence
J. R. Vavrek, A. Danagoulian, E. Immerman, R. S. Kemp, R. C. Lanza, R. R. Macdonald, B. Osmanov
Massachusetts Institute of Technology, USA

N08-43 MEBCIS: Multi-Energy-Betatron-Based Cargo Inspection System
A. Arodzero[1,2], S. Boucher[1], S. V. Kutsaev[1], R. C. Lanza[2], V. Palermo[3], F. O'Shea[1], V. Ziskin[1,2]

[1]RadiaBeam Technologies, LLC, USA; [2]Massachusetts Institute of Technology, USA; [3]Vertilon, Corp., USA

N08-44 **Uncertainty Quantification for Coded Aperture Quantitative Imaging**
A. M. Bevill, W. R. Martin
University of Michigan, United States

N08-45 **Design of a Rotational Modulation Collimator Utilizing Asymmetric Masks for the Gamma-Ray/Neutron Dual Imaging Technique**
H. S. Kim[1], G. Lee[2], S.-J. Ye[1], G. Kim[3]
[1]*Graduate School of Convergence Science and Technology, Seoul National University, Korea;* [2]*Seoul National University of Science and Technology, Korea;* [3]*Sejong University, Korea*

N08-46 **Unfolding Large Plastic Scintillator Pulse-Height Data**
N. E. Hertel, *Georgia Institute of Technology, USA*; E. A. Burgett, *Idaho State University, USA*

N08-47 **Comparing the Performance of Portable Gamma Spectrometry Systems Based on the Quad-CdZnTe Array**
A.-R. Lee[1], J.-K. Shin[2], U. R. Park[1], Y. Kim[3], S.-W. Kwak[1], H. Chung[1]
[1]*Korea Institute of Nuclear Nonproliferation and Control, Republic of Korea;* [2]*Korea Institute of Nuclear Safety, Republic of Korea;* [3]*NuCare Medical Systems, Inc., Republic of Korea*

N08-48 **Assessment of near-Monoenergetic Photon Sources for Nuclear Security Applications**
B. Ludewigt, C. G. Geddes, J. D. Valentine, *Lawrence Berkeley National Laboratory, USA*; M.-A. Descalle, *Lawrence Livermore National Laboratory, USA*; G. Warren, *Pacific Northwest National Laboratory, USA*; M. T. Kinlaw, *Idaho National Laboratory, USA*; C. A. Miller, *University of Michigan, USA*

N08-49 **Detection Capabilities of KSr2I5:Eu2+**
E. Lukosi, C. Melcher, M. Rust
University of Tennessee, USA

N08-50 **Cylindrical Coded Moderator for Neutron Detection and Localization at Standoff**
E. Lukosi, C. Haseler, *University of Tennessee, USA*

N08-51 **Low Dose Source Trajectory Tracing Using Dynamic List Mode Reconstruction Algorithm Based on Dual-Modality Camera Setup**
Q. Wang[1,2], S. Chen[3], S. Wang[1,2,3], Y. Liu[1,2,3], T. Ma[1,2,3]
[1]*Institute of medical physics, China;* [2]*Key Laboratory of Particle & Radiation Imaging, China;* [3]*Beijing Novel Medical Equipment Ltd, China*

N08-52 **Optimization of a Silicon Beta Cell via Simulation**
M. F. Mayer[1], M. P. Foxe[1], C. B. Sivels[2], J. C. Hayes[1], J. I. McIntyre[1], R. Suarez[1]
[1]*Pacific Northwest National Laboratory, USA;* [2]*University of Michigan, USA*

N08-53 **Low-Background Radioxenon Detector System**
M. P. Foxe, J. L. Burnett, M. F. Mayer, J. I. McIntyre, C. B. Sivels
Pacific Northwest National Laboratory, USA

N08-54 **A New Square-Hole Based Coded Aperture Imaging Method**
L. Shuai[1,2], Z. M. Zhang[1,2], Y. W. Zhang[1,2], T. T. Hu[1,2], L. Wei[1,2]
[1]*Institute of High Energy Physics Chinese Academy of Sciences, China;* [2]*Beijing Engineering Research Center of Radiographic Techniques and Equipment, China*

N08-55 **Uranium Enrichment Determination Method for Quad_CZT Gamma-Ray Detector**
S.-W. Kwak[1], A.-R. Lee[1], J.-K. Shin[2], U. R. Park[1], J. Lee[1], H. Chung[1]
[1]*Korea Institue of Nuclear Non-proliferation and Control, South Korea;* [2]*Korea Institue of Nuclear Safety, South Korea*

N09 Instrumentation for experimental reactors and nuclear power plants - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: TBD

N09-1 **Development of a Gamma Detector Using Single Crystal Diamond for a Severe Environment**
K. Ueno, T. Tadokoro, K. Sasaki, *Hitachi, Ltd., Japan*; M. Tsubota, J. H. Kaneko, *Hokkaido University, Japan*; R. Ohtani, S. Koizumi, *National Institute for Materials Science, Japan*

N09-2 **The CdZnTe Detector with a Slit Collimator for Measure Distribution of the Specific Activity of Radionuclides in the Ground**
V. E. Stepanov, A. G. Volkovich, V. N. Potapov, I. A. Semin, A. V. Stepanov, I. N. Simirskii
NRC Kurchatov Institute, Russian Federation

N09-3 **Coordinated Control of HTR-PM Plant: From Design to Verification**
Z. Dong, X. Huang, *Tsinghua University, China*

N09-5 **Intense Fusion Neutron Source: DT Neutrons for Fusion and Beyond**
P. Agostini, M. Angelone, D. Bernardi, P. Console Camprini, M. Frisoni, A. Pietropaolo, M. Pillon, A. Pizzuto, S. Fiore
ENEA, Italy

N09-6 **Development of Compact Gamma Camera for Real-Time Radiation Monitoring at Nuclear Power Plants**
D. Jang, Y. Choi, Y. K. Kim, D. Kim, J. H. Jung
Sogang University, Korea

N09-7 **Compact HPGe Probe for Harsh Environment and in-Situ Spectroscopy**
J. Clauss, M. Ginsz, J. Flamanc, B. Pirard, J.-B. Legras, V. Marian, P. Quirin, M.-O. Lampert
Canberra Specialty Detectors, France

N09-8 **Asymptotic Limits of a Realistic Oklo Reactor Model Criticality**
S. Bentridi[1], B. Gall[2], F. Gauthier-lafaye[1]
[1]Laboratory of Energy and Smart Systems, University of KHEMIS MILIANA, Algeria; [2]Institut Pluridisciplinaire Hubert Curien, France

N09-9 **On the Design of a Remotely-Deployed Detection System for Reactor Assessment at Fukushima Daiichi**
A. R. Jones[1], A. Griffiths[2], M. J. Joyce[1], S. Kamada[3], J.-I. Katakura[4], M. Katoh[3], B. Lennox[2], K. Okumura[5], K. Nishimura[3], D. Potts[2], K.-I. Sawada[3], S. Watson[2]
[1]Lancaster Univeristy, UK; [2]University of Manchester, UK; [3]National Maritime Research Institute, Japan; [4]Nagoaka University of Technology, Japan; [5]Japanese Atomic Energy Agency, Japan

N10 Nuclear Physics Instrumentation - Poster session I

Monday, Oct. 31 14:00-16:00 Etoile

Session Chair: TBD

N10-1 **Hydrogen Beam Extraction of Penning Ion Source for Compact Neutron Generator**
C. H. Lee[1], D.-S. Chang[2], B.-H. Oh[2], J. Son[1], Y.-K. Kim[1]
[1]Hanyang University, South Korea; [2]Korea Atomic Energy Research Institute, South Korea

N10-3 **Conversion Electron-Gamma Discrimination in Thick Silicon Detector by Signal Processing**
B. Genolini, G. Andrea, V. David
IPN Orsay (CNRS-IN2P3-Univ. Paris South), France

N10-4 **Silicon Pixel Telescope (SPT) Latest Developments and Results**
J. M. Jose[1], N. I. Rukhadze[2], Y. A. Shitov[2], L. Fajt[1], I. Stekl[1]
[1]Institute of Experimental and Applied Physics, Czech Republic; [2]Joint Institute for Nuclear Research, Russia

N10-5 **Improvement of the performance of gamma-ray Broad Energy Germanium (BEGe) detectors using the pulse shape analysis for environmental applications**
N. A. Ali, *University of Liverpool, United Kingdom*

N10-6 **Diffusion Length of Rn-222 in Home-Stored CDs/DVDs –Influence on Rn-222 and Rn-220 Measurement**
I. S. Dimitrova, S. B. Georgiev, D. S. Pressyanov, K. K. Mitev, T. A. Boshkova, *Sofia University, Faculty of Physics, Bulgaria*; P. L. Vassileva, *National Center of Radiobiology and Radiation Protection, Bulgaria*

N10-8 **Module Architecture and Slow Control System of the FARCOS Telescopes**
A. Castoldi[1,2], C. Guazzoni[1,2], T. Parsani[1,2], D. L. Romeri[1], C. Boiano[2], G. Cardella[2], G. Sacca'[2], L. Acosta[3,2], C. Serrano-Baza[4]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Universidad Nacional Autï¿½noma de Mï¿½xico, Mexico; [4]Unidad CulhuacÁ¡n, Mexico

N10-9 **A CMOS Frontend for CsI(Tl) Scintillators Readout by Photodiodes for Nuclear Physics Experiments**
A. Castoldi[1,2], C. Guazzoni[1,2], T. Parsani[1,2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy

N10-10 **Radioprotection Study for Radioisotope Production with a Laser-Based Proton Accelerator**
P. Bellido[1,2], M. Seimetz[1], R. Lera[3], A. Ruiz-de la Cruz[3], M. Galán[3], F. Sánchez[2], J. M. Benlloch[2], L. Roso[1]
[1]Centro de Láseres Pulsados (CLPU), Spain; [2]Institute for Instrumentation in Molecular Imaging (I3M), Spain; [3]Proton Laser Applications S.L., Spain

N10-11 **Directional Reconstruction of Reactor Antineutrinos via Electron Scattering in Gd-Doped Water Cherenkov Detectors**
D. Hellfeld, *University of California, Berkeley, USA*; S. Dazeley, A. Bernstein, *Lawrence Livermore National Laboratory, USA*; C. Marianno, *Texas A&M Univeristy, USA*

N11 Scintillators I: Crystal growth

Monday, Oct. 31 16:30-18:15 Schweitzer

Session Chairs: **Paul Lecoq**, CERN, Switzerland
Richard Williams, Wake Forest, United States

N11-1 (16:30, invited) In-Situ Diagnostics of Melting/Solidification and Segregation During Growth of Scintillator Crystals by Energy-Resolved Neutron Imaging
A. S. Tremsin[1], D. Perrodin[2], E. D. Bourret-Courchesne[2], G. A. Bizarri[2], S. C. Vogel[3], A. S. Losko[1,3], T. Shinohara[4], J. J. Derby[5]
[1]University of California at Berkeley, USA; [2]Lawrence Berkeley National Laboratory, USA; [3]Los Alamos National Laboratory, USA; [4]Japan Atomic Energy Agency, Japan; [5]University of Minnesota, USA

N11-2 (17:00) Direct Interpretation of Bridgman Growth of Scintillator Crystals via Finite-Element Modeling and Neutron Imaging
J. H. Peterson[1], C. Zhang[1], Y. Wu[1], A. S. Tremsin[2], D. Perrodin[3], G. A. Bizarri[3], E. D. Bourret[3], A. S. Losko[4], S. Vogel[4], M. Bourke[4], J. J. Derby[1]
[1]University of Minnesota, USA; [2]University of California, USA; [3]Lawrence Berkeley National Laboratory, USA; [4]Los Alamos National Laboratory, USA

N11-3 (17:15) Impact of Post-Growth Temperature Treatment on the Triple Doped NaI: Tl, Eu and Ca Scintillation Properties
I. Khodyuk, D. Perrodin, E. Bourret, G. Bizarri
Lawrence Berkeley National Laboratory, USA

N11-4 (17:30) High Throughput Growth of Scintillators by the EFG Method
G. D. Calvert[1], S. E. Swider[2], M. R. Overholt[2], R. S. Feigelson[1]
[1]Stanford University, USA; [2]CapeSym, Inc., USA

N11-5 (17:45) Bulk Crystal Growth and Scintillation Properties of 2 Inch Ce:La-GPS Single Crystal
A. Yoshikawa[1,2,3], Y. Shoji[1,3], S. Kurosawa[2], K. Kamada[2], R. Murakami[3], T. Horiai[1], M. Yoshino[1,3], Y. Yokota[2], Y. Ohashi[1], M. Arakawa[2], M. Nikl[4], V. V. Vladimir V.Kochurikhin[3,5]
[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku University, Japan; [3]C&A Corporation, Japan; [4]Institute of Physics AS CR, Czech Republic; [5]General Physics Institute, Russia

N11-6 (18:00) Directionally Solidified Ce Doped La(Br,Cl)3/AE(Br,Cl)2 (AE=Mg, Ca, Sr) Eutectic Scintillator for High Resolution Radiation Imaging.
K. Kamada[1,2], H. Chiba[1], Y. Shoji[2,1], S. Kurosawa[1], Y. Yokota[1], Y. Ohashi[1], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A corp., Japan

N11-7 (18:15) High Granularity Scintillating Fibre Trackers Based on Silicon Photomultiplier
A. Papa, F. Barchetti, M. Hildebrandt, G. Rutar, *Paul Scherrer Institute, Switzerland*; E. Ripiccini, *CERN, Switzerland*; D. Grigoriev, Y. Yudin, *Novosibirsk State University, Russia*

N12 High energy physics instrumentation I: Silicon

Monday, Oct. 31 16:30-18:30 Madrid

Session Chairs: **Hajime Nishiguchi**, KEK, Japan,
Luis A. Perez Perez, IPHC - CNRS, France

N12-1 (16:30) Micro-Channel Cooling for Silicon Detectors
N. Flaschel, *DESY, Hamburg*

N12-2 (16:45) The SiD Detector for the International Linear Collider
A. White, *University of Texas at Arlington, USA*
On behalf of the The SiD Consortium

N12-3 (17:00) The Timepix3 Telescope and Sensor Development for the LHCb VELO Upgrade
P. Collins, *CERN, Switzerland*
On behalf of the LHCb

N12-4 (17:15) FE65-P2: a Prototype Pixel Readout Chip in 65nm Technology for HL-LHC Upgrades
R. Carney[1], M. Garcia-Sciveres[1], D. Gnani[1], C. A. Gottardo[2], T. Heim[1], T. Hemperek[2], L. Kashif[3], H. Krüger[2], A. Mekkaoui[1], V. Wallangen[1]
[1]Lawrence Berkeley National Lab, USA; [2]University of Bonn, Germany; [3]University of Wisconsin-Madison, USA

N12-5 (17:30) The Phase-1 Upgrade of the CMS Pixel Detector
H. Weber, *Fermi National Lab, USA*
On behalf of the CMS Collaboration

N12-6 (17:45) Module and Electronics Developments for the ATLAS ITK Pixel System
C. Nellist, *LAL-Orsay, France*
On behalf of the ATLAS Collaboration

N12-7 (18:00) The Upgrade of the ALICE Inner Tracking System with the Monolithic Active Pixel Sensor ALPIDE
M. Mager, *CERN, Switzerland*
On behalf of the ALICE Collaboration

N12-8 (18:15) Characterization and Beam Test of the First Full-Sized DEPFET Modules for the Belle II Pixel Detector PXD
L. Andricek, *MPG Halbleiterlabor, Germany*
On behalf of the DEPFET Collaboration

N13 Neutron detectors : Thermal Neutron Convertors

Monday, Oct. 31 16:30-18:30 Londres

Session Chairs: **Richard J. Hall-Wilton**, European Spallation Source ESS AB, Sweden
Ralf Engels, Forschungszentrum Juelich GmbH, Germany

N13-1 (16:30) Fast Neutron Detectors Based on Solid-State Single Crystalline and Multilayer Composite Scintillators
V. D. Ryzhikov[1], S. V. Naydenov[2], G. M. Onyshchenko[1], L. A. Piven[1], T. Pochet[3], C. F. Smith[4]
[1]Institute for Scintillation Materials, Ukraine; [2]Institute for Single Crystals, Ukraine; [3]DETEC-Europe, France; [4]Naval Postgraduate School, USA

N13-2 (16:45) Development of a High Counting Rate 3He Curved MWPC for Neutron Diffraction
B. Guerard, J.-C. Buffet, L. Chapon, J.-F. Clergeau, S. Cuccaro, A. Léandri, J. Marchal, G. Manzin, J. Pentenero, P. Van Esch, J.-A. Rodriguez-Velamazan
ILL, France

N13-3 (17:00) Performance of a Large Area MCP Neutron Detector System
R. A. Riedel[1], W. B. Feller[2], V. N. Sedov[1], X. Zhang[1]
[1]Oak Ridge National Lab, USA; [2]NOVA Scientific Inc., USA

N13-4 (17:15) Cold Neutron Beam Conditioning with New Stacked Assemblies of Gd-Doped Glass Micron-Capillary Arrays for a Micron-Order Resolution Cold Neutron Microscope
H. Qiao[1], C. Wan[1], E. M. Michael[2], J. Pan[3], Y. Yang[4], P. H. Jason[2,5], X. Zhang[1,2]
[1]Lanzhou University, china; [2]University of Tennessee, USA; [3]North Night Vision Technology Ltd. Co., China; [4]Department of Engineering Physics, China; [5]Oak Ridge National Laboratory, USA

N13-5 (17:30) Neutron Imaging Detector Based on Multiple Layers of Boron-Coated Straws
J. L. Lacy, M. Regmi, A. Athanasiades, C. S. Martin, G. J. Vazquez-Flores, *Proportional Technologies, Inc., USA*; G. Ehlers, *Oak Ridge National Laboratory, USA*

N13-6 (17:45) The Multi-Blade Boron-10-based Neutron Detector for High Intensity Neutron Reflectometry at ESS
F. Piscitelli[1], M. Anastasopoulos[1], T. Brys[1], F. Chicken[1], E. Dian[2], J. Fuzi[3], R. Hall-Wilton[1,4], C. Höglund[1,5], G. Kiss[3], F. Messi[6], J. Orban[3], P. Pazmandi[3], L. Rosta[3], S. Schmidt[1,5], D. Varga[3], T. Zsiros[3]
[1]European Spallation Source ERIC, Sweden; [2]Hungarian Academy of Sciences Centre for Energy Research, Hungary; [3]Wigner Research Centre for Physics, Hungary; [4]Mid-Sweden University, Sweden; [5]Linköping University, Sweden; [6]Lund University, Sweden

N13-7 (18:00) Tailoring the Coating Properties for Use in Boron-Based Neutron Detector Applications
C. Höglund[1,2], S. Schmidt[1,2], J. Birch[2], L. Hultman[2], M. Imam[1,2], L. M. S. Margato[3], H. Pedersen[2], R. Hall-Wilton[1,4]
[1]European Spallation Source ERIC, Sweden; [2]Linköping University, Sweden; [3]Universidade de Coimbra, Portugal; [4]Mid-Sweden University, Sweden

N13-8 (18:15) Design and Testing of the Multi-Grid Boron-10 Demonstrator on the Time-of-Flight Spectrometer CNCS
A. Khaplanov[1], M. Anastasopoulos[1], R. Bebb[1], J. Birch[2], T. Brys[1], F. Chicken[1], J.-F. Clergeau[3], J.-C. Buffet[3], G. Ehlers[4], P. Van Esch[3], B. Guerard[3], R. Hall-Wilton[1,5], I. Lopes-Higuera[1], L. Hultman[2], C. Hoglund[2], I. Iruretagoiena[1], F. Issa[1], F. Piscitelli[1], L. Robinson[1], S. Schmidt[1,2], I. Stefanescu[1]
[1]European Spallation Source, Sweden; [2]Linkoping University, Sweden; [3]Institute Laue Langevin, France; [4]Spallation Neutron Source, USA; [5]Mid-Sweden University, Sweden

N14 Synchroton radiation and FEL instrumentation I

Monday, Oct. 31 16:30-18:00 Churchill

Session Chairs: **Gabriella A. Carini**, SLAC National Accelerator Laboratory, United States
Andrea Castoldi, Politecnico di Milano and INFN, Italy

N14-1 (16:30) The DSSC Detector for the European XFEL: Overview and Experimental Results on the Prototype System
M. Porro, *European X-Ray Free-Electron Laser Facility GmbH, Germany*
On behalf of the DSSC Collaboration

N14-2 (16:45) PFM2: a 32x32 Readout Chip for the PixFEL X-Ray Imager Demonstrator
L. Lodola, *University of Pavia, Italy*
On behalf of the PixFEL Collaboration

N14-3 (17:00) Soft X-Ray and High Resolution Imaging Using the 25 mum Pitch MÅ–NCH Detector
A. Bergamaschi, M. BrÃ¼ckner, S. Cartier, R. Dinapoli, E. FrÃ¶jdh, D. Greiffenberg, D. Mezza, A. Mozzanica, M. Ramilli, S. Redford, C. Ruder, L. Schaedler, B. Schmitt, X. Shi, D. Thattil, G. Tinti, J. Zhang
Paul Scherrer Institut, Switzerland

N14-4 (17:15) The Large Pixel Detector for XFEL.EU - Build and Commissioning of the 1M System

M. D. Hart[1], D. Beckett[1], P. Brentnall[1], B. Cline[1], J. Coughlan[1], M. French[1], M. Kuster[2], J. Lipp[1], T. Nicholls[1], P. Seller[1], D. Sole[1], M. C. Veale[1], P. Lang[2]
[1]STFC - Rutherford Appleton Laboratory, United Kingdom; [2]The European XFEL, Germany

N14-5 (17:30) The First Adaptive Gain Integrating Pixel Detector for the Beam Line SPB at the European XFEL
A. Allahgholi, *Deutsches Elektronensynchrotron, Germany*
On behalf of the AGIPD Colaboration

N14-6 (17:45) Design and Characterization of the tPix Prototype: a Spatial and Time Resolving Front-End ASIC for Electron and Ion Spectroscopy Experiments at LCLS
B. Markovic, P. Caragiulo, A. Dragone, C. Tamma, T. Osipov, C. Bostedt, M. Kwiatkowski, J. Segal, J. Hasi, C. Kenney, G. Haller
SLAC National Accelerator Laboratory, USA

N15 Scintillators II: Fundamentals & Light collection

Tuesday, Nov. 1 08:00-10:00 Cassin

Session Chairs: **Etiennette Auffray**, CERN, Switzerland
Mikhail Korjik, RINP, Minsk, Belarus

N15-1 (08:00) First-Principles Investigation of the Structure, Mobility and Optical Properties of Self-Trapped Excitons in Alkali, Lanthanum and Barium Halide Scintillators
M. Del Ben, G. Bizarri, E. D. Bourret, A. Canning
Lawrence Berkeley National Laboratory, USA

N15-2 (08:15) Study of CsI:Tl Scintillators with Different Concentration of Tl at the Temperature Range from +30°C to -70°C
Z. Mianowska, M. Moszynski, P. Sibczynski, L. Swiderski, A. Syntfeld-Kazuch, T. Szczesniak, *National Centre for Nuclear Research, Poland*; A. Gektin, S. Vasyukov, *Institute for Scintillation Materials, Ukraine*; R. T. Williams, S. Gridin, X. Lu, *Wake Forest University, USA*; M. R. Mayhugh, *LLC, USA*

N15-3 (08:30) Modeling Temperature- and Energy-Dependent Scintillation Pulse Shape and the Proportionality of Decay Components from 295 to 78 K in CsI and CsI:Tl
R. T. Williams, X. Lu, S. Gridin, *Wake Forest University, USA*; M. R. Mayhugh, *Faceted Development, LLC, USA*; L. Swiderski, Z. Mianowska, W. Czarnacki, T. Szczesniak, T. Sworobowicz, P. Sibczynski, W. Klamra, A. Syntfeld-Kazuch, M. Moszynski, *National Centre for Nuclear Research, Poland*; A. V. Gektin, S. Vasyukov, *Institute for Scintillation Materials, Ukraine*; C. Piemonte, A. Ferri, A. Gola, *Fondazione Bruno Kessler, Italy*

N15-4 (08:45) Enhanced Scintillation Light Extraction Using Nanoimprinted Photonic Crystals
B. Singh[1], M. S. J. Marshall[1], S. Waterman[1], C. Pina-Hernandez[2], K. Munechika[2], A. R. Knapitsch[3], M. Salomoni[3], P. Lecoq[3], V. V. Nagarkar[1]
[1]Radiation Monitoring Devices, Inc., USA; [2]Abeam Technologies, USA; [3]CERN, Switzerland

N15-5 (09:00) A Novel Ultra-Thin Multiple-Layer High-Reflector Film Directly Coated on LYSO Scintillators
Q. Sun[1], Q. Peng[2], Z. Wu[1], Q. Huang[3], J. Xu[1]
[1]Huazhong University of Science and Technology, China; [2]Lawrence Berkeley National Laboratory, USA; [3]Shanghai Jiaotong University, China

N15-6 (09:15) Reflectivity Quenching of ESR Multilayer Polymer Film Reflector in Optically Bonded Scintillator Arrays
F. Loignon-Houle, C. M. Pepin, S. A. Charlebois, R. Lecomte
Universite de Sherbrooke, Canada

N15-7 (09:30) Improved Scintillation Detector Performance Using Dye-Doped Coatings
S. R. Torngа, D. T. Wakeford, J. C. Adams, O. C. Trautschold, M. P. Hehlen
Los Alamos National Laboratory, USA

N15-8 (09:45) Development of Wavelength-Shifting, Liquid-Filled Quartz Capillaries for Readout of Optically-Based Electromagnetic Calorimetry
B. W. Baumbaugh+, B. Dolezal, K. C. Ford, P. S. Link, C. M. Mohs, R. C. Ruchti, N. J. Siwietz, J. B. Taylor, M. J. Vigneault, C. Jessop
University of Notre Dame, USA

N16 Instrumentation for Security I: Active and Imaging

Tuesday, Nov. 1 08:00-10:00 Madrid

Session Chairs: **David Chichester**, Idaho National Laboratory, United States
Nolan Hertel, Georgia Institute of Technology, United States

N16-1 (08:00) Requirements for Active Interrogation Systems
R. Kouzes, G. Warren, *Pacific Northwest National Laboratory, USA*; P. Chiaro, *Oak Ridge National Laboratory, USA*

N16-2 (08:15) A Large Field-of-View Multimodal X-Ray Phase Contrast System for Security Scans and Other Applications

A. Astolfo[1], M. Endrizzi[1], B. Price[2], I. Haig[2], A. Olivo[1]
[1]University College of London, UK; [2]X-Tek Systems-Nikon, UK

N16-3 (08:30) SCoTSS Modular Survey Spectrometer and Compton Imager
A. M. L. MacLeod[1], L. E. Sinclair[2], P. R. B. Saull[1], P. L. Drouin[3], L. Erhardt[3], J. Hovgaard[3], B. Krupskyy[4], R. Ueno[3], D. Waller[3], A. McCann[2,4]
[1]National Research Council, Canada; [2]Natural Resources Canada, Canada; [3]Defence Research and Development Canada, Canada; [4]McGill University, Canada

N16-4 (08:45) Imaging of Special Nuclear Material Using Coarse and Fine Spatial Resolution Arrays Coupled with Monochromatic Photon Sources
P. B. Rose Jr[1], J. Harms[1], J. Nattress[2], M. Mayer[3,4], I. Jovanovic[3], A. S. Erickson[1]
[1]Georgia Institute of Technology, USA; [2]University of Michigan, USA; [3]The Pennsylvania State University, USA; [4]Also at Pacific Northwest National Laboratory, USA

N16-5 (09:00) Fun with Blocks, Gamma-Ray Images of Different Source Configurations
K. P. Ziock, M. A. Blackston
Oak Ridge National Laboratory, USA

N16-6 (09:15) Collimator-less 4p Gamma Imaging with 3-D Position-sensitive Detector
Q. Ye[1,2], P. Fan[1,2], Q. Wei[3], S. Wang[1,2], Y. Liu[1,2], Y. Xia[4], T. Ma[1,2]
[1]Tsinghua University, China; [2]Ministry of Education (Tsinghua University), China; [3]University of Science Technology Beijing, China; [4]Beijing Institute of Spacecraft Environment Engineering, China

N16-7 (09:30) Identification of Special Nuclear Material with Spectrum Isolation Using Stochastic Image Reconstruction
M. C. Hamel, J. K. Polack, L. O. Supic, S. D. Clarke, S. A. Pozzi
University of Michigan, USA

N16-8 (09:45) Measurement of Time Distribution of Fissions in a Chain with Fast Scintillators
M. Monterial[1,2], P. Marleau[2], S. A. Pozzi[1]
[1]University of Michigan, USA; [2]Sandia National Laboratories (CA), USA

N17 Data acquisition, trigger and analysis I (non-HEP)

Tuesday, Nov. 1 08:00-10:00 Londres

Session Chairs: **Stefan Ritt**, Paul Scherrer Institute, Switzerland
Réjean Fontaine, University of Sherbrooke, Canada

N17-1 (08:00) WaveDAQ: A New Generation of Integrated Trigger and Read Out System for the MEG II Experiment
L. Galli, D. Nicolo', F. Morsani, M. Francesconi, *Istituto Nazionale di Fisica Nucleare sezione di Pisa, IT*; S. Ritt, E. Schmid, U. Hartmann, *Paul Scherrer Institut, CH*

N17-2 (08:15) DRAC - a Fast Digitizer for the Mu2e Experiment
V. L. Rusu, *Fermilab, USA*
On behalf of the mu2e collaboration

N17-3 (08:30) The Readout and Data Acquisition Design of the sPHENIX Detector at RHIC
M. L. Purschke, *Brookhaven National Lab, USA*
On behalf of the sPHENIX Collboration

N17-4 (08:45) The SoLid anti-Neutrino Detector's Read-Out System
N. C. Ryder, *University of Oxford, UK*
On behalf of the The SoLid Collaboration

N17-5 (09:00) Development of Front-End Trigger System for COMET Experiment
Y. Fujii, S. Mihara, K. Ueno, M. Ikeno, T. Uchida, M. Shoji, E. Hamada
High Energy Accelerator Research Organization, KEK, Japan

N17-6 (09:15) Synchronization of a Trigger-Less Data Acquisition for the PANDA Experiment
M. Kavatsyuk, *KVI-CART, University of Groningen, The Netherlands*
On behalf of the PANDA collaboration

N17-7 (09:30) System on Chip Achitecture for Auger PRIME
E. E. Lagorio, *CNRS, France*
On behalf of the Pierre Auger Collaboration

N17-8 (09:45) Array of Superconducting Nanowire Single Photon Detectors Resolving the Number of Photons in a Weak Optical Pulse
N. Lusardi, A. Geraci, *Politecnico di Milano, Italy*; R. B. M. Gourgues, J. W. N. Los, G. Bulgarini, *Single Quantum BV, The Netherlands*

N18 Photodetectors I - SiPM radiation damage

Tuesday, Nov. 1 08:00-10:00 Curie 2

Session Chairs: **Massimiliano Fiorini**, Università degli Studi di Ferrara, Italy
Jelena Ninkovic, MPP Munich,

N18-1 (08:00, invited) Recent Progress in Silicon Photomultiplieres.
Y. Musienko
University of Notre Dame/INR(Moscow), Switzerland

N18-2 (08:30) Study of the Radiation Damage of SiPMs by Neutrons
M. Centis Vignali[1], V. Chmill[2], E. Garutti[1], M. Nitschke[1], R. Klanner[1], J. Schwandt[1]
[1]University of Hamburg, Germany; [2]Samara State Aerospace University, Russian Federation

N18-3 (08:45) A Comparison of Radiation Damage from Gamma Rays and Neutrons in SiPMs
G. David[1], J. Kierstead[1], T. Majoros[2], J. Molnar[3], F. Nagy[3], S. Stoll[1], B. Ujvari[2], C. Woody[1]
[1]Brookhaven National Lab, USA; [2]University of Debrecen, Hungary; [3]Atomki, Hungary

N18-4 (09:00) Impact of Local Defects on the Dark Count Rate of SiPM
E. Engelmann[1], E. Popova[2], F. Wiest[3], P. Iskra[3], S. Loebner[1], W. Gebauer[1], R. Fojt[3], E. Garutti[4], W. Hansch[1]
[1]Universitaet der Bundeswehr Muenchen, Germany; [2]National Research University Moscow Engineering Institute, Russia; [3]KETEK GmbH, Germany; [4]Universitaet Hamburg, Germany

N18-5 (09:15) Studies of 1400 Hamamatsu Production SiPM Arrays for the CMS HCAL Phase I Upgrade.
Y. Musienko[1,2], Y. Andreev[2], A. Heering[1], A. Karneyeu[1,2], V. Postoev[2], R. Ruchti[1], M. Wayne[1]
[1]University of Notre Dame, USA; [2]Institute for Nuclear Research (RAS), Russsia

N18-6 (09:30) Efficient Positioning of Silicon Photomultipliers on Large Scintillation Crystals
P. R. Menge, K. Yang, M. McLaughlin, B. Brian
Saint-Gobain Crystals, United States

N18-7 (09:45) Ultra-High-Density Silicon Photomultipliers with Improved Effective-Fill-Factor and Detection Efficiency
F. Acerbi[1], A. Gola[1], A. Ferri[1], G. Zappala[1], Y. Musienko[2], A. Heering[2], G. Paternoster[1], C. Piemonte[1], R. C. Ruchti[3], N. Zorzi[1]
[1]FBK, Italy; [2]CERN, Switzerland; [3]University of Notre Dame, France

N19 Circuits for readout of pixel detectors in photon science

Tuesday, Nov. 1 10:30-12:00 Cassin

Session Chairs: **Matteo Porro**, European X-Ray Free-Electron Laser Facility GmbH, Germany
Valerio Re, Università di Bergamo, Italy

N19-1 (10:30) Characterization of a Photon Counting CHASE Jr. Chip in a 40nm CMOS Process with the C8P1 Charge Sharing Correction Algorithm Using a Collimated X-Ray Beam.
A. Krzyzanowska[1], P. Maj[1], G. Deptuch[1,2], R. Szczygiel[1], P. Grybos[1]
[1]AGH University of Science and Technology, Poland; [2]ASIC Development Group of Electrical Engineering Department of Particle Physics Division, Fermi National Accelerator Laboratory, USA

N19-2 (10:45) IBEX: Versatile Readout ASIC with Spectral Imaging Capability and High Count Rate Capability
M. Bochenek, S. Bottinelli, C. Brönnimann, T. Loeliger, R. Schnyder
DECTRIS Ltd., Switzerland

N19-3 (11:00) A Time Interleaved, 10 Bit SAR ADC with Split Capacitor DAC for Diffraction Imaging at X-Ray FELs
L. Lodola[1,2], P. Malcovati[1,2], L. Ratti[1,2], C. Vacchi[1,2]
[1]Università di Pavia, Italy; [2]INFN, Italy

N19-4 (11:15) Counting Integrating Pixel Readout Chip for Medical and Photon Science Applications
R. Leys, R. Blanco, I. Peric
University of Karlsruhe, Germany

N19-5 (11:30) A Pixel Readout with Asynchronous Approximation of a Center of Gravity of a Charge Distribution from a Radiation Conversion Event
P. Otfinowski, G. Deptuch, P. Maj
AGH University of Science and Technology, Poland

N19-6 (11:45) Ultra Fast Single Photon Counting Chip with Through Silicon Vias
P. Grybos, K. Kasinski, P. Kmon, R. Szcztgiel, *AGH University of Science and Technology, Poland*; K. Zischke, *Fraunhofer IZM, Germany*

N20 Nuclear Physics Instrumentation I: Measurements and New Techniques

Tuesday, Nov. 1 10:30-12:00 Madrid

Session Chairs: **Maria J. Gracia Borge**, CERN, Switzerland,
Alexis G. Schubert, Stanford University, United States

N20-1 (10:30) Parallel-Plate Avalanche Counter with Optical Readout (O-PPAC): a New Detector Concept for Heavy-Ions Tracking and Imaging.
M. Cortesi, J. Yurkon, A. Stolz
National Superconducting Cyclotron Laboratory, Michigan State University, USA

N20-2 (10:45) Design of a Mezzanine Card with Bandwidth Aggregation for HPGe Gamma Spectroscopy
J. Collado, V. González, J. M. Blasco, E. Sanchis
Universitat de Valencia - ETSE, Spain

N20-3 (10:45) Characterization of New Generation Silicon Detector: SIRIUS Tunnel "Stripy-Pad" Detector
P. Brionnet, *IPHC Strabourg, France*
On behalf of the SIRIUS collaboration

N20-4 (11:00) Experimental Evaluation of the Dynamic Range of the FARCOS Microstrip Frontend with a Pulsed Proton Beam
A. Castoldi, C. Guazzoni, S. Maffessanti, T. Parsani, *Politecnico di Milano, DEIB and INFN, Sezione di Milano, Italy*; L. Carraresi, C. Czelusniak, *Università degli Studi di Firenze, Dip. Fisica e Astronomia and INFN, Sezione di Firenze, Italy, Italy*

N20-5 (11:45) Spectroscopic Measurement of L X-Rays Emitted from a ^{244}Cm Source with a TES Microcalorimeter
K. Maehata, T. Sugimoto, N. Iyomoto, K. Ishibashi, *Kyushu University, Japan*; K. Nakamura, Y. Morishita, K. Takasaki, *Japan Atomic Energy Agency, Japan*; K. Mitsuda, *Japan Aerospace Exploration Agency, Japan*

N20-6 (11:30) Measurement of the 19F(alpha,n)22Na Reaction Cross Section for Nuclear Safeguards Science
S. J. Thompson[1], W. A. Peters[2,3], M. S. Smith[2], S. T. Pittman[2], R. R. C. Clement[4], S. D. Pain[3], M. Febrarro[3,5], K. Smith[3], K. A. Chipps[2], C. Reingold[6], W. P. Tan[7], D. W. Bardayan[7], S. Ilyushkin[8], M. M. Grinder[1], J. A. Cizewski[6]
[1]Idaho National Laboratory, USA; [2]Oak Ridge National Laboratory, USA; [3]University of Tennessee, USA; [4]U.S. Airforce, USA; [5]University of Michigan, USA; [6]Rutgers University, USA; [7]University of Notre Dame, USA; [8]Colorado School of Mines, USA

N21 Calorimetry I - Calorimeters in lower-energy Experiments

Tuesday, Nov. 1 10:30-12:00 Londres

Session Chairs: **Frank Simon**, Max-Planck-Institut fuer Physik, Germany
Etiennette Auffray, CERN, Switzerland

N21-1 (10:30, invited) Status and Test Beam Results for the sPHENIX Calorimeter Systems
A. M. Sickles, *University of Illinois, US*
On behalf of the sPHENIX Collaboration

N21-2 (11:00) The Light Collection Non-Uniformity of Strongly Tapered PWO Crystals and Its Impact on the Energy Resolution of the PANDA Electromagnetic Calorimeter in the Energy Region below 1 GeV
S. Diehl, K.-T. Brinkmann, P. Drexler, V. Dormenev, R. W. Novotny, C. Rosenbaum, H.-G. Zaunick
2nd Physics Institute, University Giessen, Germany

N21-3 (11:15) The Combined Electromagnetic Calorimeter of the CMD-3 Detector.
V. F. Kazanin, *Budker Institute of Nuclear Physics, Russian Federation*
On behalf of the CMD-3 Collaboration

N21-4 (11:30) Undoped Cesium Iodide for Belle II Electromagnetic Calorimeter Upgrade: Test Beam Results with Electrons and Tagged Photons.
S. Fiore[1,2], *[1]INFN, Italy; [2]ENEA, Italy*
On behalf of the Belle II ECL Italian Group

N21-5 (11:45) Liquid Xenon Detector with VUV-Sensitive MPPCs for the MEG Experiment Upgrade
S. Ogawa, *The University of Tokyo, Japan*
On behalf of the MEG II Collaboration

N22 Gaseous detectors I: Development of Techniques I

Tuesday, Nov. 1 10:30-12:00 Curie 2

Session Chairs: **Paul Colas**, CEA/IRFU Université Paris Saclay, France
Archana Sharma, CERN, Switzerland

N22-1 (10:30) Modeling Impurity Concentrations in Liquid Argon Detectors
Y. Li, C. Thorn, X. Qian, W. Tang, J. Joshi, J. Stewart, M. Diwan, S. Kettell, W. Morse, T. Tsang, T. Rao
Brookhaven National Laboratory, 11973

N22-2 (10:45) A Novel Technique for the Measurement of the Avalanche Fluctuation of Gaseous Detectors Using Laser-Induced Tracks
T. Ogawa, *Graduate University for Advanced Studies (SOKENDAI), Japan*
On behalf of the LCTPC-Asia Collaboration

N22-3 (11:00) Performance of New High-Precision Muon Tracking Detectors for ATLAS
H. K. Kroha, O. Kortner, E. Takasugi
Max-Planck-Institut fuer Physik, Germany

N22-4 (11:15) Development of the Next-Generation Micro Pixel Chamber-Based Neutron Imaging Detector (μNID) for Energy-Resolved Neutron Imaging with High Rate and High Spatial Resolution at the J-PARC/MLF
J. D. Parker[1], M. Harada[2], H. Hayashida[1], K. Hiroi[2], T. Kai[2], Y. Matsumoto[1], K. Oikawa[2], M. Segawa[2], T. Shinohara[2], Y. Su[2], A. Takada[3], S. Zhang[1], T. Tanimori[3], Y. Kiyanagi[4]
[1]CROSS-Tokai, Japan; [2]Japan Atomic Energy Agency, Japan; [3]Kyoto University, Japan; [4]Nagoya University, Japan

N22-5 (11:30) The RD51 Collaboration – Development of Micro Pattern Gas Detectors Technology
A. White, *University of Texas at Arlington, USA*
On behalf of the RD51 Collaboration

N22-6 (11:45) Construction of Triple-GEM Detectors Using Commercially Manufactured Large GEM Foils
M. Posik, B. Surrow, *Temple University, United States*

N23 Accelerator technologies and beam line instrumentation - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N23-1 QBeRT: an Innovative Instrument for the Real-Time Qualification of a Particle Beam.
D. Lo Presti[1,2], D. L. Bonanno[2], F. Longhitano[2], D. G. Bongiovanni[2], G. Gallo[2], N. Randazzo[2], E. Leonora[2], V. Sipala[3,2], S. Reito[2]
[1]University of Catania, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]University of Sassari, Italy

N23-3 Performance Study of Little Ionization Chambers at the Large Hadron Collider
M. Kalliokoski[1], B. Dehning[1], E. Effinger[1], V. Grishin[1], E. B. Holzer[1], M. Kastriotou[1,2,3], E. Nebot Del Busto[1,2]
[1]CERN, Switzerland; [2]University of Liverpool, United Kingdom; [3]Cockcroft Institute, United Kingdom

N23-5 A Beam Pulser at the TTT-3 Tandem Accelerator of the University of Naples
F. Di Capua, L. Campajola
Università degli Studi di Napoli Federico II, Italy

N23-7 A Smart Adjustable Nuclear Interactions Counter Based on Compact Arduino Control System and Readout
F. Iacoangeli, *INFN, Italy*

N23-8 An Electron Spectrometer for Proton Driven Plasma Accelerated Electrons at AWAKE: Predicted Resolution of Energy and Emittance Measurements
L. Deacon[1], S. Jolly[1], F. Keeble[1], A. Goldblatt[2], S. Mazzoni[2], A. Petrenko[2], B. Biskup[2,3], M. Wing[1,4,5]
[1]University College London, UK; [2]CERN, Switzerland; [3]Czech Technical University, Czech Republic; [4]DESY, Germany; [5]University of Hamburg, Germany

N23-9 Hardware/software Structure of LEETECH Test Beam Facility
V. Krylov[1,2], S. Barsuk[1], O. Bezshyyko[2], L. Burmistrov[1], O. Fedorchuk[2], L. Golinka-Bezshyyko[2], V. Kubytskyi[1], R. Lopez[3], D. Sukhonos[2], M. Titov[4], D. Tomassini[3]
[1]Laboratoire de l'Accélérateur Linéaire, France; [2]Taras Shevchenko National University of Kyiv, Ukraine; [3]CERN, Switzerland; [4]IRFU, CEA, France

N24 Calorimetry - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N24-1 Commissioning of Upgrade Forward Hadron Calorimeters of CMS
B. Bilki[1,2], *[1]University of Iowa, USA; [2]Beykent University, Turkey*

On behalf of the CMS Collaboration

N24-2 **Power Pulsing of the CALICE Tile Hadron Calorimeter**
M. Reinecke, *DESY, Germany*
On behalf of the CALICE Collaboration

N24-3 **Construction and Testing of the First Prototype of the CMS High Granularity Calorimeter**
J. Freeman, *Fermilab, USA*
On behalf of the CMS HGCAL Collaboration

N24-4 **High Resolution Metallic Magnetic Calorimeters for Rare Event Search Experiments**
S.-R. Kim[1,2], H.-S. Jo[1], C. S. Kang[1], G.-B. Kim[1], H. Kim[1], I. Kim[1,2], Y.-H. Kim[1,2], C. Lee[1], H. Lee[1], M. Lee[2], S.-Y. Oh[1,2], J. So[1]
[1]Institude for Basic Science, South Korea; [2]Korea Research Institute of standard and Science, South Korea

N24-5 **Separation of Two Overlapping Electromagnetic or Electromagnetic-Hadronic Showers in CALICE Highly Granular Physical Calorimeter Prototype**
K. Shpak, *LLR / Ecole polytechnique, FRANCE*
On behalf of the CALICE Collaboration

N24-7 **Construction and Assembly of One Barrel Slice for the Electromagnetic Calorimeter of the PANDA Detector**
H.-G. Zaunick[1], S. Diehl[1], V. Dormenev[1], P. Drexler[1], T. Kuske[1], R. W. Novotny[1], P. Rosier[2], A. Ryazantsev[3], C. Rosenbaum[1], P. Wieczorek[4], A. Wilms[4], B. Wohlfahrt[1], K.-T. Brinkmann[1]
[1]2nd Physics Institute, University Giessen, Germany; [2]IPN Orsay, France; [3]IHEP Protvino, Russia; [4]GSI Helmholtzzentrum für Schwerionenforschung, Germany

N24-8 **Development of Versatile Calibration Method for Electro-Magnetic Calorimeters Using a Stopped Cosmic-Ray Beam**
H. Ito[1], K. Horie[2], H. Kawai[1], S. Kodama[1], S. Shimizu[2]
[1]Graduate School of Science, Chiba University, Japan; [2]Graduate School of Science, Osaka University, Japan

N25 Gaseous detectors - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N25-1 **Experimental and Theoretical Investigation of the Collection Efficiency of Air-Filled Ionization Chambers in Pulsed Radiation Fields of High Pulse Dose**
M. Gotz[1], L. Karsch[1], J. Pawelke[1,2]
[1]OncoRay - National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden - Rossendorf, Germany; [2]Helmholtz-Zentrum Dresden - Rossendorf, Germany

N25-2 **Construction of Large-Area Micro-Pattern Gaseous Detectors**
P. Bernhard[1], A. S. Brogna[1], S. S. Caiazza[2,1], A. Düdder[3], P. Gülker[2,1], C. Kahra[1], T. H. Lin[3], M. Schott[3], Q. Weitzel[1], E. Yildirim[3]
[1]Detector Laboratory, PRISMA Cluster of Excellence, Johannes Gutenberg University Mainz, Germany; [2]Institute of Nuclear Physics, Johannes Gutenberg University Mainz, Germany; [3]Institute of Physics, Johannes Gutenberg University Mainz, Germany

N25-3 **ORANGE: a High Sensitivity Particle Tracker Based on Optically Read Out GEM**
D. Pinci[1], M. Marafini[2], A. Sarti[3], N. Torchia[1], V. Patera[3], A. Sciubba[3], E. Spiriti[4]
[1]INFN - Sezione di Roma, Italy; [2]Museo Storico della Fisica e Centro Studi e Ricerche, Italy; [3]Sapienza Università di Roma, Italy; [4]Laboratori Nazionali dell'INFN di Frascati, Italy

N25-4 **Twin GEM-TPC Prototype (HGB4) Beam Test at GSI and Jyväskylä – a Development for the Super-FRS at FAIR**
F. Garcia, R. Turpeinen, J. Äystö, *Helsinki Institute of Physics and Department of Physcal Sciences, University of Helsinki, Finland*; T. Grahn, S. Rinta-Antila, A. Jokinen, *University of Jyväskylä, Finland*; P. Strmen, M. Pikna, B. Sitar, *Comenius University, Slovakia*; B. Voss, J. Kunkel, V. Kleipa, A. Gromliuk, H. Risch, C. Caesar, C. Simons, A. Prochazka, C. J. Schmidt, J. Hoffmann, I. Russanov, N. Kurtz, *GSI Helmholtzzentrum für Schwerionenforschung, Germany*

N25-5 **Design of the ATLAS New Small Wheel Gas Leak Tightness Station for the Micromegas Detector Modules**
A. Bruni, *INFN Bologna, Italy*
On behalf of the ATLAS Muon Collaboration

N25-6 **Studies of MicroMegas Chambers Using Cosmic Muons for the New Small Wheel**
T. Klapdor-Kleingrothaus, *University of Freiburg, Germany*
On behalf of the ATLAS Muon Collaboration

N25-7 **The INFN MicroMegas Module-0 Prototype for the Muon Spectrometer Upgrade of the ATLAS Experiment**
M. Del Gaudio, *University of Calabria, Italy*
On behalf of the ATLAS Muon Collaboration

N25-8 **Construction and QA/QC of the MicroMegas Pavia Readout Panels for the Muon Spectrometer Upgrade of the ATLAS Experiment**
A. Kourkoumeli-Charalampidi, *INFN Pavia, Italy*

On behalf of the ATLAS Muon Collaboration

N25-9 Performance of MRPC Detector for the BESIII Endcap-TOF Upgrade
R. Yang[1,2], C. Li[1,2], Y. Sun[1,2], Y. Heng[3,2], H. Dai[3,2], Z. Liu[1,2], S. Sun[3,2], Z. Wu[3,2], X. Wang[1,2]
[1]University of Science and Technology of China(USTC), China; [2]State Key Laboratory of Particle Detection and Electronics, China; [3]Institute of High Energy Physics(IHEP),Chinese Academy of Sciences, China

N25-10 Gain Uniformity and Characteristic Study of a Triple GEM Detector
R. N. Patra[1], R. N. Singaraju[1], S. Biswas[2], Z. Ahammed[1], T. K. Nayak[1], Y. P. Viyogi[1]
[1]Variable Energy Cyclotron Centre, India; [2]Bose Institute, India

N25-11 Study of Non-linear Response of a GEM Read Out with Radial Zigzag Strips
A. Zhang, M. Hohlmann, S. Colafranceschi, *Florida Institute of Technology, US*; B. Azmoun, M. L. Purschke, C. Woody, *Brookhaven National Laboratory, US*

N25-12 Study of Boron Coated Straw Detectors for Small-Angle Neutron Scattering of Compact Pulse Hadron Source
Z. G. Jiang, H. Gong, X. W. Wang, Y. Wang
Department of Engineering Physics, Tsinghua University, China

N25-13 Characterization of Neutron Beam Monitors for the European Spallation Source
F. Issa, A. Khaplanov, R. Hall-Wilton, *European Spallation Source ERIC, Sweden*; I. Llamas, M. D. Riktor, *Institute for Energy Technology, Norway*

N25-15 A New Slow Control and Run Initialization Byte-Wise Environment (SCRIBE) for the Quality Control of Mass-Produced CMS GEM Detectors
S. Colafranceschi, *Florida Institute of Technology, Florida*
On behalf of the CMS Collaboration

N25-17 A High Pressure Gaseous Detector for a Compton Camera Application
C. D. R. Azevedo[1], F. A. Pereira[1], B. Silva[1], X. Carvalho[2], F. D. Amaro[2], J. F. C. A. Veloso[1]
[1]University of Aveiro, Portugal; [2]University of Coimbra, Portugal

N25-18 Measurements of Fe-55 in Radioactive Waste with GEMPix
J. Leidner[1,2], A. Curioni[1,3], N. Dinar[1,4], F. P. La Torre[1], F. Murtas[1,5], M. Silari[1]
[1]CERN, Switzerland; [2]RWTH Aachen, Germany; [3]Politecnico di Milano, Italy; [4]Universite de Paris VII, France; [5]INFN, Italy

N25-19 Experimental Ion Mobility Measurements in Nitrogen Based Mixtures
P. M. C. C. Encarnação[1,2], A. F. V. Cortez[1,2], P. N. B. Neves[3], F. P. Santos[1,2], F. I. G. M. Borges[1,2]
[1]Department of Physics, Faculty of Science and Technology, University of Coimbra, P-3004-516 Coimbra, Portugal, Portugal; [2]LIP - Departamento de Física, Universidade de Coimbra, Rua Larga, 3004-516 Coimbra, Portugal, Portugal; [3]Closer Consultoria Lda Avenida Engenheiro Duarte Pacheco, Torre 2, 14o-C, 1070-102 Lisboa, Portugal, Portugal

N25-20 A Novel Encoding Readout Method Based on Graph Theory Model with Both Time and Spatial Resolution
J. Cang[1,2], M. Zeng[1,2], X. Yue[1,2], Z. Zeng[1,2], Y. Wang[1,2], X. Wang[1,2], J. Cheng[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

N25-21 Density–Normalized First Townsend Ionization Coefficients in a Methane–based Tissue–Equivalent Gas Mixture
A. R. Petri[1], A. Mangiarotti[2], J. A. C. Gonçalves[1,3], C. C. Bueno[1]
[1]Instituto de Pesquisas Energéticas e Nucleares, Brazil; [2]Instituto de Física – Universidade de São Paulo, Brazil; [3]Pontificia Universidade Católica de São Paulo, Brazil

N25-22 Quantum Efficiency Dependence of a CsI Photocathode with Photon Incidence Angle
F. C. Rolo[1,2], K. Saito[3], A. F. V. Cortez[1,2], F. P. Santos[1,2], C. A. N. Conde[1,2], F. I. G. M. Borges[1,2]
[1]Department of Physics, Faculty of Science and Technology, University of Coimbra, P-3004-516, Portugal; [2]LIP - Departamento de Física, Universidade de Coimbra, Rua Larga, 3004-516, Portugal; [3]High Energy Accelerator Research Organization (KEK), Japan

N25-23 Performance of the EEE Cosmic Ray Telescope Array
F. Pilo[1,2], *[1]Museo Storico della Fisica e Centro Studi e Ricerche Enrico Fermi, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy*
On behalf of the EEE Collaboration

N25-24 Characterization of 200bar 4He Neutron Scintillation Detectors with Silicon Photomultipliers
J. D. Sanders, J. T. Johnson, S. J. Thompson, D. L. Chichester
Idaho National Laboratory, USA

N25-25 Characterization of a Transparent MSGC with Optical Readout
X. Lian, Y. Mitsuya, Y. Tian, K. Shimazoe, H. Takahashi
University of Tokyo, Japan

N25-26 Calibration of TEPC System at HIMAC with Heavy Ions
U. W. Nam[1], J. J. Lee[1], S. H. Kim[2], J. H. Pyo[1], B. K. Moon[1], W. K. Park[1], U. H. Kitamura[3], S. Kodaira[3]
[1]Korea Astronomy and Space Science Institute, Korea; [2]Cheongju University, Korea; [3]National Institute Radiological Science, Japan

N25-27 Development of WLS+SiPM Photo Detection System for Readout of THGEM in Noble Gas Filled Detectors.
I. S. Alexandrov[1], D. Y. Akimov[2], A. V. Akindinov[3], V. A. Belov[3], A. A. Burenkov[3], M. A. Kirsanov[2], A. G. Kovalenko[3], V. N. Stekhanov[3], N. M. Surin[4], S. A. Zav'yalov[5], M. Y. Yablokov[4], M. ?. Danilov[2]

[1]Tomsk Polytechnic University, Russia; [2]National Nuclear Research University «MEPHI», Russia; [3]State Scientific Centre of Russian Federation Institute for Theoretical and Experimental Physics (ITEP), Russia; [4]Enikolopov Institute of Synthetic Polymer Materials, Russia; [5]State Scientific Centre of Russian Federation Karpov Institute of Physical Chemistry, Russia

N26 New concepts in solid-state detectors and radiation damage effects - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N26-1 A Radiation-Tolerant, High Performance SPAD for SiPMs Implemented in CMOS Technology
Y.-D. Li[1], C. Veerappan[2], L. Myung-Jae[2], L. Wen[1], Q. Guo[1], E. Charbon[2]
[1]Xinjiang Technical Inst.of Physics and Chemistry of Chinese Academy Sciences, China; [2]Delft University of Technology, The Netherlands

N26-2 Time-of-Flight Ion Mass Spectrometry Using Avalanche Photodiodes
K. Ogasawara, S. A. Livi, M. I. Desai, R. W. Ebert
Southwest Research Institute, USA

N26-3 Tracking in 4 Dimensions
N. Cartiglia, *INFN, italy*; H. Sadrozinski, A. Seiden, *UCSC, United States*

N26-4 Neutron Radiation Hardness Tests of Timing Counter MEG SiPMs
T. Cervi[1], G. Boca[1], M. Bonesini[2], P. W. Cattaneo[1], M. De Gerone[3], M. Prata[4], M. Rossella[1], M. Simonetta[1]
[1]INFN Sez. Pavia & University of Pavia, Italy; [2]INFN Sez Milano Bicocca, Italy; [3]INFN Sez. Genova & University of Genova, Italy; [4]Laboratorio Energia Nucleare Applicata (L.E.N.A.) of the University of Pavia, Italy

N26-6 The Influence of Edge Effects on the Determination of the Doping Profile of Silicon Pad Diodes
R. Klanner, M. Hufschmidt, E. Garutti, I. Kopsalis, J. Schwandt
University of Hamburg, Germany

N26-7 Geiger-Mode Avalanche Pixels in a 180 Nm HV CMOS Process for a Dual-Layer Particle Detector
M. Musacci[1,2], P. Brogi[2,3], G. Collazuol[4], G. F. Dalla Betta[5,6], A. Ficorella[5,6], L. Lodola[1,2], P. S. Marrocchesi[2,3], F. Morsani[2], L. Pancheri[5,6], L. Ratti[1,2], A. Savoy-Navarro[2,7], C. Vacchi[1,2]
[1]Università di Pavia, Italy; [2]INFN, Italy; [3]Università di Siena, Italy; [4]Università di Padova, Italy; [5]Università di Trento, Italy; [6]TIFPA INFN, Italy; [7]University Paris- Diderot/CNRS, France

N26-8 Performance Study of N-in-P Active Edge Planar Pixel Sensors for ATLAS Inner Detector Upgrade
T. Rashid[1,2], A. Lounis[1,2], C. Nellist[1,2]
[1]Laboratoire de l'Accélérateur Linéaire (LAL), France; [2]University Paris-Sud, France

N26-9 Interstrip Properties of Highly Segmented Double Metal Strip Sensors
C. Fleta, M. Ullan, J. Fernandez-Tejero, D. Quirion, *Instituto de Microelectronica de Barcelona, IMB-CNM (CSIC), Spain*; K. Lohwasser, L. Poley, *DESY, Germany*

N26-10 CMOS MAPS Development Status for the ATLAS Inner Strip Tracker Upgrade at the LHC
K. Kanisauskas, *University of Glasgow, United Kingdom*
On behalf of the Strip CMOS Collaboration

N26-12 Characterization of Lateral Spatial Resolution in High Purity Germanium Double-Sided Strip Detectors as a Function of Strip-to-Gap Ratio for a Fixed Pitch
M. Folsom[1], K. Ziock[2,1], J. P. Hayward[1,2]
[1]University of Tennessee, Knoxville, US; [2]Oak Ridge National Lab, US

N26-13 Current Progress on 3D Diamond Detector Development at UTK
E. Lukosi[1], T. Wulz[1], B. Canfield[2], L. Davis[2], S. Spanier[1]
[1]University of Tennessee, USA; [2]University of Tennessee Space Institute, USA

N26-14 How to Build a Non-Depleted "fully Depleted" CMOS Monolithic Active Pixel Sensor
M. Deveaux, *Goethe University Frankfurt/M, Germany*
On behalf of the CBM-MVD collaboration

N27 Photodetectors - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N27-1 Development of Polycapillary Optics for a TES Microcalorimeter EDS System on a Scanning Transmission Electron Microscope

A. Takano, K. Maehata, N. Iyomoto, *Kyushu University, Japan*; T. Hara, *National Institute for Materials Science, Japan*; K. Mitsuda, N. Yamasaki, *Institute of Space and Astronautical Science, Japan*; K. Tanaka, *Hitachi High-Tech Science Corporation, Japan*

N27-2 Characterization of SiPM Properties at Cryogenic Temperatures
P. Achenbach, M. Biroth, A. Thomas, *Johannes Gutenberg-Universität, Germany*; E. Downie, *George Washington University, USA*

N27-3 Experimental Investigation of Excess Noise Factors in Silicon Photomultipliers
G. Kawata, J. Yoshida, K. Sasaki, R. Hasegawa
Toshiba Corporate Research & Development Center, Japan

N27-4 Two Dimensional Tetra Lateral Position-Sensitive Silicon Photomultiplier with Charge Division Mechanism
T. Zhao[1], R. Wang[1], C. Li[1], Q. Miao[1], K. Liang[1,2], R. Yang[1,2], D. Han[1,2]
[1]College of Nuclear Science and Technology, China; [2]Beijing Radiation Center, China

N27-6 Characterization of AdvanSiD and Hamamatsu SiPMs for Novel Design Cryogenic Detectors
T. Cervi[1], M. Bonesini[2], A. Falcone[3], A. Menegolli[1], G. L. Raselli[1], M. Rossella[1], M. Torti[1]
[1]INFN Sez. Pavia, Italy; [2]INFN Sez. Milano Bicocca, Italy; [3]University of Texas, United States of America

N27-7 Simulating Multi-Channel Vacuum Phototriodes Using COMSOL
S. Zahid[1], D. J. A. Cockerill[2], P. R. Hobson[1]
[1]Brunel University London, UK; [2]STFC Rutherford Appleton Laboratory, UK

N27-8 10 X 10 Micro Pixels with a Operational Voltage-Independent Bias Circuit for Positron Emission Tomography
H. Park, J. Burm, *Sogang University, South Korea*

N27-9 Towards the Standardization of SiPM Characterization on the Example of Three Recent Blue Sensitive Devices
N. Otte, *Georgia Institute of Technology, USA*

N27-10 HEPS-BPIX, the Hybrid Pixel Detector System for High Energy Photon Source in China
W. Wei[1,2], J. Zhang[1,2], J. Z. Gu[1,2,3], W. Shen[1,2,3], M. M. Chen[1,2], Z. Ning[1,2], Z. J. Li[1,2,3], L. Fan[1,2], Y. P. Lu[1,2], X. S. Jiang[1,2], A. K. Lan[2], Q. Ouyang[1,2], K. J. Zhu[1,2], Y. B. Chen[1,2], P. Liu[1]
[1]Institute of High Energy Physics, CAS, China; [2]State Key Laboratory of Particle Detection and Electronics, China; [3]University of Chinese Academy of Sciences, China

N27-11 Test and Characterization of 20 Pre-Series Hamamatsu R5916-MOD Photomultiplier Tubes for the ICARUS T600 Detector.
G. L. Raselli[1], C. Montanari[1], M. Rossella[1], T. Cervi[1,2], M. Torti[1,2], M. Spanu[1,2], M. Bonesini[3], M. Nessi[4], U. Kose[4], A. Zani[4], F. Pietropaolo[5], V. Bellini[6], F. Tortorici[6], M. Babicz[7], A. Falcone[8]
[1]INFN Sezione di Pavia, Italy; [2]Università di Pavia, Italy; [3]INFN Sezione di Milano Bicocca, Italy; [4]CERN, Switzerland; [5]INFN Sezione di Padova, Italy; [6]Università di Catania and INFN, Italy; [7]AGH University of Science and Technology, Poland; [8]University of Texas at Arlington, U.S.A.

N27-12 Design, Fabrication and Testing of Sealed Microchannel Plate Photodetectors for Time-of-Flight and Imaging Applications
J. Wang, *Argonne National Laboratory, USA*

N27-13 Comparison of SensL and Hamamatsu 4x4 Channel SiPM Arrays
M. Grodzicka, T. Szczesniak, M. Moszynski
National Centre for Nuclear Research, Poland

N27-14 Design, Fabrication and Testing of a Novel Planar Microchannel Plate Photomultiplier with Extended Photon Response
J. Xie[1], M. Chiu[2], K. Byrum[1], M. Demarteau[1], R. Wagner[1], J. Wang[1], L. Xia[1]
[1]Argonne National Laboratory, USA; [2]Brookbaven National Laboratory, USA

N27-15 Second Generation Prototype Silicon Photomultiplier Focal Plane Imaging Detector for the MAGIC Telescopes
D. J. Fink[1], A. Hahn[1], D. Mazin[2], R. Mirzoyan[1], M. Teshima[2]
[1]Max Planck Institut fuer Physik, Germany; [2]Institute for Cosmic Ray Research, Japan

N27-16 Gain Stabilization of SiPMs
I. Polak, *FZU, Institute of Physics ASCR, Prague, Czech republic*
On behalf of the CALICE

N27-17 Performance of SensL C-Series SiPM with High Photoelectron Resolution at Cryogenic Temperatures
P. Achenbach, M. Biroth, A. Thomas, W. Lauth
Institut für Kernphysik, Johannes Gutenberg-Universität, Germany

N27-18 Optimized SiPM for the Development of Intracerebral Beta Probes Dedicated to Neurosciences Studies on Freely Moving Animals
A. Nagai[1], N. Dinu[1], M.-A. Verdier[2], P. Lanièce[3], L. Ménard[2]
[1]Univ. Paris Sud, Université Paris-Saclay, France; [2]IMNC CNRS/IN2P3, France; [3]Univ. Paris Sud et Paris Diderot, France

N27-19 Investigation of Silicon Photomultipliers after Irradiation with Neutrons up to 2x10^13 N/cm^2.
A. Heering[1], A. Karneyeu[1,2], Y. Musienko[1,2], V. Postoev[2], R. Ruchti[1], M. Wayne[1]
[1]University of Notre Dame, USA; [2]Institute for Nuclear Research RAS, Russia

N27-20 Timing Resolution of Monolithic Scintillators Coupled to Large SiPM Arrays
T. Szczesniak, M. Grodzicka, M. Moszynski, D. Wolski, M. Szawlowski
National Centre for Nuclear Research, Poland

N27-21 Statistical Characterization of NUV-HD SiPMs at Low Temperature
G. Paternoster[1], F. Acerbi[1], A. Ferri[1], A. Gola[1], M. Marcante[1,2], V. Regazzoni[1,2], G. Zappalà[1,2], N. Zorzi[1], C. Piemonte[1]

[1]*Fondazione Bruno Kessler, Italy;* [2]*University of Trento, Italy*

N27-22 **A New Silicon Drift Detector Array for the Maia X-Ray Fluorescence Detector System**
W. Chen, D. Elliott, G. Giacomini, A. K. Rumaiz, D. P. Siddons, G. Smith
Brookhaven National Lab, USA

N27-23 **Single Photon Avalanche Diode Sensor Prototypes in Planar CMOS and 3D Integration Technologies**
D. Arutinov, M. Beer, W. Brockherde, Y. Celik, S. Dreiner, M. Figge, S. Gläsener, A. Göhlich, J. Heß, A. Schwinger, A. Schmidt
Fraunhofer Institute for Microelectronic Circuits and Systems, Germany

N27-24 **Operation of Silicon Photomultipliers as Photosensors of Liquid Xenon Detectors.**
M. Alfonsi[1], A. Brogna[2], C. Hils[1], U. Oberlack[1,2], D. Wenz[1]
[1]*Institut für Physik & PRISMA Exzellenzcluster, Johannes Gutenberg Universität Mainz, Germany;* [2]*PRISMA Detector Laboratory, Johannes Gutenberg Universität Mainz, Germany*

N27-25 **Dead Time Investigation of SiPMs for Application at Pulsed Muon Sources**
D. E. Pooley, S. P. Cottrell, M. S. Huzan, L. Pollastri, E. M. Schooneveld, N. J. Rhodes
ISIS, UK

N27-26 **Study of a Relationship Between the Electric Field and Dark Count Rate in a SiPM for a PET-MR Application**
K. T. Lim, M. Cho, J. Kim, G. Cho, *Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of*; W. S. Sul, *National Nanofab Center, Korea, Republic of*

N28 Neutron detectors - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: **Nigel J. Rhodes**, STFC, United Kingdom

N28-1 **Neutron Counting Type Imaging Detector with Super-Resolution Technique**
T. Kamiyama[1], S. Satoh[2], H. Sato[1], H. Hasemi[1], K. Kino[1], K. Nakajima[3]
[1]*Hokkaido University, Japan;* [2]*High Energy Accelerator Research Organization (KEK), Japan;* [3]*Kyoto University, Japan*

N28-2 **Spatial Resolution Enhancement of Neutron Radiogram by Cooperating with X-Ray Radiography**
H. Hasemi, T. Kamiyama, H. Sato, K. Kino, *Hokkaido University, Japan*; K. Nakajima, *Kyoto University, Japan*

N28-3 **Improved Neutron-Gamma Discrimination for a 3He Neutron Detector Using Subspace Learning Methods**
C. L. Wang, L. L. Funk, R. A. Riedel, K. D. Berry
Oak Ridge National Laboratory, USA

N28-4 **A New Material for Slow and Fast Neutron Detection**
L. Stuttgï¿½[1], A. Chietera[1], L. Douce[2], E. Bouajila[2], J. Fouchet[2], S. Kihel[1], C. Mathieu[1], B. Benoï¿½t[2]
[1]*IPHC-CNRS/UDS, France;* [2]*IPCMS-UDS, France*

N28-5 **A prototype system for real-time fast neutron multiplicity using liquid scintillation detectors**
R. Sarwar, M. J. Joyce, *Lancaster Univeristy, LA1 4YW, United Kingdom*; C. H. Zimmerman, *National Nuclear Laboratory, CA20 1PG, United Kingdom*

N28-6 **Implementation of Gadolinium for Neutron Measurement Systems Based on Plastic Scintillators or Semi-Conductors**
R. Coulon, J. Dumazert, M. Hamel, F. Carrel, K. Vladimir
CEA LIST, France

N28-7 **A Ceramic-Insulated Ball-Anode Element for Two-Dimensional Neutron Detector**
K. Toh, T. Nakamura, K. Sakasai, H. Yamagishi
Japan Atomic Energy Agency, Japan

N28-8 **Improvement of Spatial Resolution of Time-Resolved MA-PMT Camera for Imaging of TRU Elements**
J. Koide, T. Uragaki, N. Hagura, J. Kawarabayashi, K.-I. Mochiki
Tokyo City University, JAPAN

N28-9 **Low Background Thermal Neutron Detector System**
Z. Zeng, H. Gong, Q. Yue, J. Li, *Tsinghua University, China*

N28-10 **Diagnosis of Neutron Sensitivity Within a Scintillator / Wavelength-Shifting Fiber Coil Element by Using Collimated Pulsed Neutron Beam**
T. Nakamura, K. Toh, N. Tsutsui, M. Ebine, A. Birumachi, K. Sakasai
Japan Atomic Energy Agency, JAPAN

N28-11 **Analysis and Optimization of Spatial Resolution for a Neutron-Sensitive MicroChannel Plate Detector**
R. Liu[1,2,3], Y. Wang[1,2], X. Wang[1,2], M. Zeng[1,2], Y. Tian[1,2], Y. Yang[1,2]
[1]*Department of Engineering Physics, P.R.China;* [2]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), P.R.China;* [3]*Xi'an Research Institute of Hi-Tech, P.R.China*

N28-12 **Position Sensitivity Within a Bar of Stilbene Coupled to Silicon Photomultipliers**
M. L. Ruch[1], P. Marleau[2], S. A. Pozzi[1]
[1]University of Michigan, USA; [2]Sandia National Laboratories, USA

N28-13 **Optimization of a Fast Neutron Scintillator for Real-Time Pulse Shape Discrimination in the Transient Reactor Test Facility (TREAT) Hodoscope**
J. T. Johnson, D. L. Chichester, S. M. Watson, S. J. Thompson
Idaho National Lab, USA

N28-14 **Advanced Boron Coated Straw Manufacturing Techniques for Replacement 3He Detectors**
J. L. Lacy, C. S. Martin, S. Davenport, M. Regmi, G. J. Vazquez-Flores, M. Lacy, N. S. King, E. X. Zhang, A. Athanasiades
Proportional Technologies, Inc., USA

N28-15 **High Yield Low Cost Boron-10 Coating Process Development for Production of Neutron Detectors**
J. L. Lacy, M. Regmi, G. J. Vazquez-Flores, S. Davenport, A. Athanasiades, C. S. Martin
Proportional Technologies, Inc., USA

N28-16 **Pie-Shaped Boron-Coated Straws with Enhanced Neutron Sensitivity**
J. L. Lacy, N. S. King, C. S. Martin, R. Nguyen, G. J. Vazquez-Flores, S. Davenport, E. X. Zhang, A. Athanasiades
Proportional Technologies, Inc., USA

N28-17 **Neutron Coincidence Counters Based on Boron-Coated Straws**
J. L. Lacy, A. Athanasiades, C. S. Martin, N. S. King, G. J. Vazquez-Flores, M. Regmi
Proportional Technologies, Inc., USA

N28-18 **Shielding Optimization Study for ^{10}B-Based Large Area Neutron Detectors with Detailed Geant4 Model**
E. Dian[1,2], K. Kanaki[2], R. Hall-Wilton[2,3], A. Khaplanov[2], T. Kittelmann[2]
[1]Hungarian Academy of Sciences Centre for Energy Research, Hungary; [2]European Spallation Source ESS ERIC, Sweden; [3]Mid-Sweden University, Sweden

N28-19 **Assessment of the Photodetection Performance of Different Silicon Photomultiplier Technologies under Irradiation with Cold Neutrons**
D. Durini, C. Degenhardt, A. Feoktystov, A. Palomino-Razo, H. Frielinghaus, H. Rongen, M. Schlösser, S. van Waasen
Forschungszentrum Jülich GmbH, Germany

N28-20 **A First Look at the Neutron Sensitive Scintillator LiNaI in an Anger Camera Detector**
R. A. Riedel, *Oak Ridge National Lab, USA*; M. J. More, V. V. Nagarkar, M. S. J. Marshall, *Radiation Monitoring Devices, Inc, USA*

N28-21 **Initial Results of a Microstrip Gas Detector for 2d Neutron Reflectometer Experiments**
D. M. Duxbury, R. Dalgliesh, N. J. Rhodes, E. M. Schooneveld, E. J. Spill
Science and Technology Facilities Council, RAL, UK

N28-22 **A Sub-Millimeter Resolution Neutron Detector with Scintillator and Wavelength-Shifting Fibers Using a Center of Mass Reconstruction.**
D. Roulier, B. Guerard, *Institut Laue-Langevin, France*

N28-23 **Neutron Commissioning of the SPRINTER Detector**
D. M. Duxbury, C. J. Kinane, N. J. Rhodes, E. M. Schooneveld, M. W. Skoda, E. J. Spill, R. J. Welbourn
Science and Technology Facilities Council, RAL, UK

N28-24 **Selective Doping of Lithium-Glass for Micron Resolution Neutron Radiography**
M. E. Moore, X. Zhang, J. P. Hayward
University of Tennessee, United States

N28-26 **Performance of a HLNCC Boron Coated Straw Detector for International Safeguards Applications**
A. T. Simone, S. Croft, J. P. Hayward
University of Tennessee Knoxville/ Oak Ridge National Laboratory, USA

N28-27 **Improved Fast Neutron Detector Based on Timepix and Plastic Scintillating Converter**
P. Masek[1,2], J. Jakubek[3]
[1]IEAP CTU in Prague, Czech Republic; [2]FEE CTU in Prague, Czech republic; [3]Advacam s.r.o, Czech republic

N28-32 **Digtal Pulse-Shape Analyzer Based on Multiple Constant-Fraction Time Intervals**
V. T. Jordanov, *Yantel, LLC, USA*

N28-28 **Investigations and Optimizations of the Gamma Sensitivity of Gadolinium-GEM Neutron Detectors**
D. Pfeiffer[1,2], P. Thuiner[2], J. Birch[3], F. Brunnbauer[2,4], R. Hall-Wilton[1,5], C. Hoeglund[1,3], I. Llamas-Jansa[6], M. Lupberger[2], E. Oksanen[1], E. Oliveri[2], F. Resnati[1,2], L. Robinson[1], L. Ropelewski[2], S. Schmidt[1]
[1]European Spallation Source ERIC, Sweden; [2]CERN, Switzerland; [3]Linkoping, Sweden; [4]Vienna University of Technology, Austria; [5]Mid-Sweden University, Sweden; [6]Institute for Energy Technology IFE, Norway

N28-29 **Extending Neutron Scatter Camera to Neutron Energies up to 200 MeV**
B. Cabrera-Palmer, M. Gerling, D. Reyna
Sandia National Laboratories, USA

N28-33 **Field-Deployable LiF/ZnS Neutron Detectors for Fission Source Detection and Identification**
D. V. Lewis, *Symetrica Security Ltd., UK*

N28-30 **Hybrid Gas-Filled Neutron Detector Using Microstrip Electrodes**
N. S. Edwards[1], B. W. Montag[1], L. C. Henson[2], S. L. Bellinger[1], D. S. McGregor[1]
[1]Kansas State University, USA; [2]Radiation Detection Technologies, Inc., USA

N28-31 **Ultra-Low Power, Modular Thermal Neutron Counter Based on Microstructured Semiconductor Neutron Detectors (MSND)**
R. G. Fronk[1], S. L. Bellinger[2], L. C. Henson[2], D. E. Huddleston[3], T. R. Ochs[1], T. J. Sobering[3]
[1]Kansas State University - S.M.A.R.T. Laboratory, USA; [2]Radiation Detection Technologies, Inc., USA; [3]Kansas State University - Electronics Design Laboratory, USA

N29 Scintillators - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chairs: **Akira Yoshikawa**, IMR, Tohoku University, Japan
Edith Bourret, , United States

N29-1 **Development of a Novel DOI Detector Using Laser Manufacturing**
H. Yamauchi, H. Uchida, T. Sakai, K. Hakamata, K. Shimizu
HAMAMATSU PHOTONICS K.K., Japan

N29-2 **Lutetium Fine Silicate (LFS): a New Scintillator for Range-Verification Applications in Oncology**
K. E. Roemer[1], G. Pausch[1], D. Bemmerer[1], K. Fahmy[1], C. Golnik[2], F. Hueso-Gonzalez[1], M. Iltzsche[1], B. Lutz[1], J. Petzoldt[2], D. Weinberger[1], F. Fiedler[1]
[1]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [2]OncoRay – National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Germany

N29-3 **Growth and Scintillation Performance of $Cs_2^{LiYCl_6:Ce\ Crystals\ Without\ Enrichment\ of\ ^6Li}$**
G. Ren, Y. Li, Q. Wang, J. Shi, H. Li, X. Chen
Shanghai Institute of Ceramics, China

N29-4 **GAGG:Ce Crystal Array Based Compact Radio-TLC Scanner**
S. J. Jeon, K. M. Kim, J. G. Kim
Korea Institute of Radiological and Medical science, Korea

N29-5 **Influence of the Secondary Fluorophore and the Volume in a Plastic Scintillator Aiming at Discriminating Fast Neutrons from Gamma Rays**
E. Montbarbon[1,2], M. Hamel[1], R. B. Pansu[2], A. Grabowski[1]
[1]CEA, LIST, France; [2]CNRS UMR8531, France

N29-6 **Comparison of damage effects in plastic scintillators due to irradiation with ?-quanta, 150 MeV and 24 GeV/c protons**
V. Dormenev[1], E. Auffray[2], K. T. Brinkmann[1], M. Korjik[3], M. T. Lucchini[2], V. Mechinsky[3], R. W. Novotny[1], H. G. Zaunick[1]
[1]Justus-Liebig-University, Germany; [2]CERN, Switzerland; [3]Institute for Nuclear Problems, Belarus

N29-7 **Time-of-Flight Detection of Al Ions from Laser Produced Plasma**
M. Seimetz[1], P. Bellido[1,2], A. Peralta Conde[2], J. I. Apiñaniz[2], A. V. Carpentier[2], M. Sanchez Albaneda[2], F. Valle Brozas[2], C. Mendez[2], J. Lozano[2], J. M. Alvarez[2], R. Lera[3], A. Ruiz-de la Cruz[3], M. Galan[3], L. Vidal[1], A. Soriano[1], S. Sanchez[1], F. Sanchez[1], M. J. Rodriguez-Alvarez[1], J. P. Rigla[1], L. Moliner[1], A. Iborra[1], L. Hernandez[1], A. J. Gonzalez[1], P. Conde[1], A. Aguilar[1], L. Roso[1], J. M. Benlloch[1]
[1]Instituto de Instrumentación para Imagen Molecular (I3M), Spain; [2]Centro de Láseres Pulsados (CLPU), Spain; [3]Proton Laser Applications SL, Spain

N29-8 **Scintillation Detectors Constructed with an Optimized 2x2 Silicon Photomultiplier Array**
F. Liang[1], H. Brands[1], L. Hoy[1], J. Preston[2], J. Smith[1]
[1]FLIR Systems Inc., USA; [2]Consolidated National Security LLC., USA

N29-9 **Response of GAGG:Ce, LuAG:PR and LYSO:Ce Coupled to SiPM**
B. Seitz, N. Campos Rivera, R. Gray, R. A. Montgomery, F. Thomson
University of Glasgow, U.K.

N29-10 **Temperature Dependence of $CdMoO_4$ Scintillation Properties for the Search of ^{100}Mo and ^{116}Cd Neutrinoless Double Beta Decay**
M. Xue[1,2], Y. Zhang[1,2], H. Peng[1,2], Z. Xu[1,2]
[1]University of Science and Technology of China, China; [2]State Key Laboratory of Particle Detection and Electronics, China

N29-11 **Radiation Damage Studies of New Intrinsically Radiation-Hard Scintillators**
B. Bilki[1,2], Y. Onel[1], J. Wetzel[1,3], E. Tiras[1]
[1]University of Iowa, USA; [2]Beykent University, Turkey; [3]COE College, USA

N29-12 **Single Crystalline and Composite Scintillators for Hadron Calorimetry at High Luminosity LHC**
M. Lucchini[1], E. Auffray[1], A. Fedorov[2], J. Houžvicka[3], M. Korjik[2], D. Kozlov[2], V. Mechinsky[2], M. Nikl[4], S. Ochesanu[3]
[1]CERN, Switzerland; [2]RINP, Belarus; [3]CRYTUR, Czech Republic; [4]Institute of Physics, Czech Republic

N29-13 **Temperature Response of PWO:F Single Crystal**
R. Mao, Y. Wang, Y. Li

Shanghai Institute of Ceramics, Chinese Academy of Sciences, CHINA

N29-14 High-Performance Large Diameter $SrI_2:Eu^{2+}$ Crystals
R. Hawrami, C. Ji, E. Ariesanti, J. Glodo, H. Wei, K. S. Shah, *Radiation Monitoring Devices, Inc., USA*; N. J. Cherepy, S. A. Payne, *Lawrence Livermore National Laboratory, USA*

N29-15 Mg Co-Doping Effects on Multi Component Garnet of Ce:(Lu,Gd,Y)3(Ga,Al)5O12 Single Crystal Scintillators.
K. Kamada[1,2], H. Yamaguchi[1], Y. Shoji[1,2], S. K. Kurosawa[1], Y. Yokota[1], Y. Ohashi[1], M. Nikl[3], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A corp., Japan; [3]Physics AS CR, Czech republic

N29-16 Growth and Scintillation Properties of Eu Doped LiSrI3/LiI Eutectics
K. Kamada[1,2], H. Chiba[1], Y. Shoji[1,2], S. Kurosawa[1], Y. Yokota[1], Y. Ohashi[1], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A corp., Japan

N29-17 In Situ Stoichiometry Monitoring During Processing and Crystal Growth of Halide Scintillators (Case Study - Strontium Iodide)
A. Datta, S. Lam, S. Swider, S. Motakef, *CapeSym, Inc., US*

N29-18 CsI:Tl Scintillation Pulse Shapes Measured with a SiPM Photodetector in a Liquid Nitrogen Cryostat
L. Swiderski, M. Moszynski, W. Czarnacki, Z. Mianowska, P. Sibczynski, T. Sworobowicz, T. Szczesniak, A. Syntfeld-Kazuch, *National Centre for Nuclear Research (NCBJ), Poland*; W. Klamra, *Royal Institute of Technology, Sweden*; R. T. Williams, S. Gridin, X. Lu, *Wake Forest University, USA*; M. R. Mayhugh,*Faceted Development, USA*; A. Gektin, S. Vasyukov, *Institute for Scintillation Materials (ISMA), Ukraine*; C. Piemonte, A. Ferri, A. Gola, *Fondazione Bruno Kessler (FBK), Italy*

N29-19 Crystal Identification Technique and Advanced Imaging Algorithm for 4p Gamma-ray Imager with Stacked Scintillator Rods
T. Takahashi[1], Y. Fuwa[1], J. Kawarabayashi[2], H. Tomita[1], E. Takada[3], T. Iguchi[1]
[1]Nagoya University, Japan; [2]Tokyo City University, Japan; [3]National Institute of Technology, Toyama College, Japan

N29-20 Characterization of a Fast Timing and Energy Spectroscopy System for Real-Time Range Verification in Particle Therapy
A. Rinscheid[1], J. Berthold[2], W. Enghardt[2,3,4,5,6], C. Golnik[3], F. Fiedler[4], F. Hueso-Gonzalez[4], T. Kormoll[3], J. Petzoldt[3], K. Roemer[4], K. Ruhnau[7], J. Stein[7], T. Werner[3], A. Wolf[7], D. Reichert[1], G. Pausch[3]
[1]Martin Luther University Halle-Wittenberg, Germany; [2]Technische Universitaet Dresden, Germany; [3]Oncoray – National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Germany; [4]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [5]German Cancer Consortium (DKTK), Germany; [6]German Cancer Research Center (DKFZ), Germany; [7]Target Systemelektronik, Germany

N29-21 CeBr3 Scintillator for Imaging Application: Comparison Between MAPMT and SiPMs Array
A. Fabbri[1], L. Menard[2], G. Hull[2], M.-A. Verdier[2], M. Galasso[1], M. Josselin[2], L. Pinot[2]
[1]INFN, Italy; [2]CNRS-IN2P3, France

N29-22 High Efficient Ce doped Tl based Elpasolite Scintillator for ?-rays Detection
S. Kim, *Chungju University, South Korea*; G. Rooh, *Abdul Wali Khan University, Pakistan*; H. J. Kim, H. Park, *Kyungpook National University, South Korea*

N29-23 Temporal Imaging: Observation and Localization of a Compton Effect Inside a 20 Mm Monolithic LYSO Plate with a Philips Digital Si-PM
A. Iltis[1], H. Snoussi[2], L. Rodrigues de Magalhaes[1], C. Morel[3]
[1]Damavan Imaging, France; [2]University of Technology of Troyes, France; [3]Aix Marseille Université, France

N29-24 The Origin of Afterglow in GGAG:Ce Scintillation Materials
R. Mao, Y. Wang, *Shanghai Institute of Ceramics, Chinese Academy of Sciences, CHINA*; Z. Luo, H. Jiang, *Ningbo Institution of Materials Technology and Engineering, Chinese Academy of Sciences, CHINA*

N29-25 Investigation into Neutron Damage of EJ-299 and EJ-200 Plastic Scintillators
M. P. Taggart, C. Payne, P. J. Sellin
University of Surrey, United Kingdom

N29-26 CRY-018, CRY-019 and LaBr3:Ce Spectrometric Response Evaluation and Comparison
R. Pani[1], C. Trigila[2], M. Colarieti-Tosti[3,4], C. Polito[1], M. N. Cinti[1], P. Bennati[3], S. Ridolfi[5], R. Scafè[1], R. Pellegrini[1], R. Pani[1]
[1]Sapienza University, Italy; [2]Roma Tre University, Italy; [3]KTH Royal Institute of Technology, Sweden; [4]Karolinska Institutet, Sweden; [5]Ars Mensurae, Italy

N29-27 Anion Impurity Quenching of SrI_2:Eu Scintillation Efficiency and Criteria of Raw Material Purity Selection
E. Galenin, V. Taranyuk, V. Romanchuk, S. Vasyukov, N. Shiran, O. Sidletskiy, A. Gektin, *Institute for Scintillation Materials NAS of Ukraine, Ukraine*; C. Dujardin, *Institut Lumière Matière, UMR5306 CNRS, Universite de Lyon 1, France*

N29-28 Growth and Scintillation Properties of 2inchf×2inch SrI2(Eu) Single Crystal
Y. Shoji[1,2], Y. Yokota[3], S. Kurosawa[3], S. Hayasaka[1], K. Kamada[1,3], Y. Ohashi[2], A. Yoshikawa[1,2,3]
[1]C&A Corporation, Japan; [2]Institute for Materials Research, Tohoku University, Japan; [3]New Industry Creation Hatchery Center, Tohoku University, Japan

N29-29 Improved Light Extraction Efficiency on 2 Inches LYSO with Nano-Patterned TiO_2 Photonic Crystals
S. Zanettini[1], V. Gâté[2], E. Usureau[2,3], J. Ruscica[2,4], F. Hamouda[4], K. Nomenyo[3], L. O. Le Cunff[3], H. Kadiri[2,3], G. Lerondel[3], M. Salomoni[5], R. Plots[5], E. Auffray[5], P. Lecoq[5], J. Alamo[6], A. Iltis[1], D. Turover[1,2]
[1]Napa-Technologies, France; [2]SILSEF, France; [3]Université de Technologie de Troyes (UTT), France; [4]CNRS - Université Paris Sud, France; [5]CERN, Switzerland; [6]Oncovision, Spain

N29-30 Ce Concentration Dependence of Quenching Effects in Ce:CaF2 Small Size Dosimeters

Y. Hirata, K. Watanabe, A. Uritani, A. Yamazaki, S. Yoshihashi, *Nagoya University, Japan*; Y. Koba, N. Matsufuji, *National Institute for Quantum and Radiological Science and Techinology, Japan*; T. Yanagida, *Nara Institute of Science and Technology, Japan*; K. Fukuda, *Tokuyama Corp., Japan*

N29-31 Composite Scintillators for Neutron and X-Ray Detection
A. Boyarintsev, A. Bobovnikov, A. Gektin, Y. Gerasimov, S. Kovalchuk, T. Nepokupnaya, Y. Onufriyev, V. Tarasov
The Institute for Scintillation Materials of National Academy of Sciences of Ukraine, Ukraine

N29-32 Scintillation Properties of Hafnium-Based Chloride Scintillator
S. Kurosawa[1], S. Kodama[1], T. Horiai[1], A. Yamaji[1], Y. Ohashi[1], M. Arakawa[1], K. Kamada[1,2], Y. Yokota[1], M. Nikl[3], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A, Japan; [3]AS CR, Czech Republic

N29-33 Composite Halide Scintillators
S. Lam[1], J. Fiala[1], I. Jovanovic[2], S. Motakef[1]
[1]CapeSym, Inc., USA; [2]University of Michigan, 48109

N29-34 Cs2HfCl6: A Non-Hygroscopic, High-Performance Scintillator
S. Lam[1], A. Burger[2], S. Motakef[1]
[1]CapeSym, Inc., USA; [2]Fisk University, USA

N29-35 Scintillation Properties of Gadolinium Pyrosilicate Crystals in High Temperature
S. Kurosawa[1], T. Horiai[1], Y. Shoji[1,2], R. Murakami[2], A. Yamaji[1], Y. Ohashi[1], M. Arakawa[1], K. Kamada[1,2], Y. Yokota[1], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A, Japan

N29-36 Effect of Annealing on Scintillation Characteristics of Ce-Doped Gadolinium Silicate Single Crystals
Y. Anzai, K. Nagao, S. Takekawa, Y. Furukawa, H. Ishibashi
Oxide Corporation, Japan

N29-37 Large, High performance CLLB detectors for dual gamma and neutron detection.
J. Lejay[1], P. Menge[2], S. Blahuta[1], K. Yang[2], J. Frank[2]
[1]Saint-Gobain Recherche, France; [2]Saint-Gobain Crystals, USA

N29-38 Improved Light Collimation for Scintillators Crystals Using a Photonic Crystal
D. Costantini, S. Chatel, S. Le Roy, P. Trinh
Saint Gobain Recherche 39 Quai Lucien Lefranc, France

N29-39 PEN Scintillator Films for the Ionizing Radiation Identification and Spectroscopy
A. Plukis, J. Garankin, E. Lagzdina, V. Kovalevskij, M. Gaspariunas, R. Plukiene, V. Remeikis
Center for Physical Sciences and Technology, Lithuania

N29-40 Study of the Response of a CsI(Tl) – SiPM Detector to Low Energy Protons
M. Bondi'[1], M. Battaglieri[2], M. Carpinelli[3,4], A. Celentano[2], M. De Napoli[1], R. De Vita[2], L. Marsicano[2,5], N. Randazzo[1], V. Sipala[3,4]
[1]INFN - Sezione di Catania, Italy; [2]INFN - Sezione di Genova, Italy; [3]INFN - LNS, Italy; [4]Università degli Studi di Sassari, Italy; [5]Università degli studi di Genova, Italy

N29-41 Engineering LYSO Single Crystals for Performance
S. Blahuta[1], K. Yang[2], V. Ouspenski[1], P. Menge[2]
[1]Saint-Gobain Recherche, France; [2]Saint-Gobain Crystals, USA

N29-42 Evaluation of Structured Scintillator Films for Synchrotron Applications
P.-A. Douissard[1], T. Martin[1], F. Riva[1,2], T. Johng-ay[1], B. Singh[3], S. Miller[3], C. Brecher[3], H. Bhandari[3], V. Nagarkar[3]
[1]ESRF, France; [2]Institut Lumière Matière, France; [3]Radiation Monitoring Devices Inc, USA

N29-43 Scintillation Properties of Mg^{2+} Co-Doped Multicomponent GdGaLuAG:Ce Garnet Scintillators
Z. Lucenicova, M. Kucera, M. Hanus, *Charles University, Czech Republic*; P. Prusa, M. Nikl, *Academy of Sciences, Czech Republic*; P. Bruza, D. Panek, *Czech Technical University, Czech Republic*

N29-44 Scintillation Properties of Optimized YSO:Ce Single Crystalline Films
M. Kucera, Z. Lucenicova, M. Hanus, *Charles University in Prague, Czech Republic*; P. Prusa, M. Nikl, *Institute of Physics, AS CR, Czech Republic*

N29-45 Applications of SSLE on Monolithic Scintillator Crystals: Novel Pixel Geometries and Depth of Interaction
G. D. Konstantinou[1], R. Chil[1], M. Desco[1,2], J. J. Vaquero[1,2]
[1]Universidad Carlos III de Madrid, Spain; [2]Instituto de Investigación Sanitaria Gregorio Marañon, Spain

N29-46 A New Method for Quantifying Pulse Shape in Organic Scintillator Pulse Shape Discrimination
P. Schuster, *University of California, Berkeley, US*

N29-47 Crystal Growth and X-Ray Luminescence of MgO-Ta2O5 Compounds
D. Smiadak, Y. Ma, D. Perrodin, G. Bizarri, E. Bourret
Lawrence Berkeley National Laboratory, USA

N29-48 Development of Large-Area Charged Particle Detectors with High Position Resolution and Low Cost
T. Mizuno, H. Ito, N. Kaneko, H. Kawai, A. Kobayashi, S. Kodama, M. Tabata
Chiba University, Japan

N29-49 Bulk Crystal Growth and Scintillation Properties of 3 Inch Ce:GAGG and Mg Co-Doped Ce:GAGG Single Crystal
A. Yoshikawa[1,2,3], K. K. Kamada[2,3], Y. Shoji[1,3], H. Yamaguchi[1], S. Kurosawa[2], M. Yoshino[1,3], Y. Yokota[2], Y. Ohashi[1], M. M. Arakawa[2], M. Nikl[4], V. V. Kochurikhin[3,4]

[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku Universiry, Japan; [3]C&A Corporation, Japan; [4]Institute of Physics AS CR, Czech Republic

N29-50 **Effect of Digital DAQ System Properties on the Pulse Shape Discrimination Performance of CLYC**
A. R. Kennington[1,2], C. Allwork[1], M. Ellis[1], M. Taggart[2], P. Selling[2]
[1]AWE, UK; [2]University of Surrey, UK

N29-51 **Micro-Pulling down Method; from Materials Screening of Novel Scintillator to Bulk Crystal Growth of Scintillator Crystal**
A. Yoshikawa[1], Y. Yokota[2], K. Kamada[2,3], Y. Shoji[1,3], S. Kurosawa[2], R. Murakami[3], M. Yoshino[1,3], Y. Ohashi[1], M. Arakawa[2], M. Nikl[4], V. V. Kochurikhin[3,5]
[1]IMR, Tohoku University, Japan; [2]NICHe, Tohoku Universiry, Japan; [3]C&A Corporation, Japan; [4]Institute of Physics AS CR, Czech Republic; [5]General Physics Institute, Russia

N29-52 **New Radiation-Hard Wavelength Shifting Fibers**
B. Bilki[1], D. Winn[2], Y. Onel[1]
[1]University of Iowa, USA; [2]Fairfield University, USA

N30 Simulation and prototyping for detector development - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N30-1 **Simulations and Test Results of Large Area Continuous Position Sensitive Diamond Detectors**
M. Ciobanu[1], M. Pomorski[2], E. Berdermann[3], A. Braeuning-Demian[3], C. Bunescu[3], V. Constantinescu[1], M. Kiš[3], O. Marghitu[1], M. Mayr[4], M. Schreck[4], M. Träger[3], K. O. Voss[3]
[1]ISS, Romania; [2]CEA-LIST, France; [3]GSI, Germany; [4]University of Augsburg, Germany

N30-2 **Femtosecond Resolution Timing Extraction Study for a Waveform Sampling ASIC**
P. Orel, G. S. Varner, *University of Hawaii at Manoa, USA*

N30-3 **Systematic Error of Counting Efficiency Estimation due to Spectral Conformity Assessment in Geant4 Based Liquid Scintillation Counter Simulation**
T. Aso[1], M. Hara[2], M. Shoji[2], T. Furusawa[3], T. Yoshimura[3], Y. Kato[3], K. Aoyama[1]
[1]National Institute of Technology, Toyama College, JAPAN; [2]University of Toyama, JAPAN; [3]Hitachi, Ltd., JAPAN

N30-4 **Fissile Mass Quantification in Radioactive Waste Packages Using Photofission Delayed Gamma Rays**
E. Simon, F. Jallu, B. Pérot, *CEA, France*; S. Plumeri, *Andra, France*

N30-5 **Characterization of Monolithic SDD Arrays and SFERA ASIC for Siddharta Experiment**
A. D. Butt[1,2], G. Bellotti[1,2], M. Carminati[1,2], C. Fiorini[1,2]
[1]Politecnico di Milano, Italy; [2]Instituto Nazional di Fisica, Italy

N30-6 **Gamma Beam Characterization System for ELI-NP: the Absorption Calorimeter**
R. Borgheresi, *Università degli studi di Firenze and INFN Firenze, Italy*
On behalf of the ELI-NP Gamma Beam Characterization Team

N30-7 **Development of Cherenkov Light Imaging System for Studies of Radiocesium Dynamics in Plant**
K. Kurita[1], N. Suzui[1], Y. Y-G. Yin[1], S. Ishii[1], H. Watabe[2], S. Yamamoto[3], N. Kawachi[1]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan; [2]Tohoku University, Japan; [3]Nagoya University, Japan

N30-8 **Silicon Pixel Sensor Processing on 8" (200 mm) FZ and MCZ Wafers**
J. J. Kalliopuska, K. Lavanti, S. Vähänen, J. Salmi
Advacam Oy, Finland

N30-9 **Experimental Assessment of Electron Ionization Cross Sections**
M. Bonanomi[1], F. Cattorini[1], M. C. Han[2], G. Hoff[3], C. H. Kim[2], S. H. Kim[2], M. Marcoli[1], M. G. Pia[4], P. Saracco[4]
[1]University of Milano Bicocca, Italy; [2]Hanyang University, Korea; [3]CAPES, Brazil; [4]INFN Genova, Italy

N30-10 **Response of the MST Microdosimeter to Low-Energy Carbon Ions**
A. Fazzi[1], D. Hinde[2], L. T. Tran[3], E. Sagia[1], M. Treccani[1], A. B. Rosenfeld[3]
[1]Politecnico di Milano, Italy; [2]Australian National University, Australia; [3]University of Wollongong, Australia

N30-11 **Characterization of a Commercial CMOS Imager for Laser-Driven Accelerated Particles Diagnostics**
A. Fazzi[1,2], D. Giove[2], F. Cerutti[1], C. De Martinis[2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy

N30-12 **Mapping Tool for Investigation of Component-Level PCB Compatibility in Multimodal MRI/SPECT**
G. L. Montagnani[1,2], M. Occhipinti[1,2], M. Carminati[1,2], C. E. Fiorini[1,2]
[1]Politecnico di Milano, Italia; [2]INFN, Italia

N30-13 **Online Cluster Finding Algorithms for the PANDA Electromagnetic Calorimeter**
M. Tiemens, *KVI-CART, University of Groningen, Netherlands*

On behalf of the PANDA collaboration

N30-14 GATE Simulation of a High Performance Stationary SPECT System for Cardiac Imaging
D. Uzun Ozsahin[1], L. Blackberg[2], G. El Fakhri[1], N. Moghadam[3], H. Sabet[1]
[1]Massachusetts General Hospital, Harvard Medical School, USA; [2]Uppsala University, Sweden; [3]Université de Sherbrooke, Canada

N30-15 Design and Optimization of the Cherenkov TOF Full-Body PET Scanner
M. Alokhina[1,2], C. Canot[1], O. Kochebina[1], O. Bezshyyko[2], I. Kadenko[2], G. Tauzin[1], D. Yvon[1], V. Sharyy[1]
[1]CEA, France; [2]Taras Shevchenko National University of Kyiv, Ukraine

N30-16 Alpha Contamination Assay, Dosimetry and Spectrometry Using Charge Coupled Devices
R. Newton, M. J. Joyce, *Lancaster University, UK*; M. J. Scott, *BIC Technology Ltd., UK*

N30-17 Wraparound Conductive Cables
A. Tomada, C. Kenney, J. Segal, *SLAC, USA*

N30-19 Realistic Hit Reconstruction in the CBM Silicon Tracking System
H. Malygina[1,2,3], V. Friese[1], M. Zyzak[1,2,4]
[1]GSI, Germany; [2]Goethe University, Germany; [3]KINR, Ukraine; [4]FIAS, Germany

N30-20 Validation of Geant4 Electron Pair Production by Photons
M. Begalli, G. Hoff, *State University of Rio de Janeiro (UERJ), Brazil*; M.-G. Pia, P. Saracco, *Istituto Nazionale di Física Nucleare (INFN), Italy*; C. Choi, *Hanyang University, Korea*

N30-21 Pixel Discrimination Using Artificial Neural Network for Gamma Camera Module
D. Kim, K. B. Kim, S. Lee, D. Jang
Sogang University, Korea

N31 Synchroton radiation and FEL instrumentation - Poster session II

Tuesday, Nov. 1 14:00-16:00 Etoile

Session Chair: TBD

N31-1 A Theoretical Model of the Pixel Response to X-Rays in Photon Counting Detectors
P. Zambon, V. Radicci, M. Rissi, C. Broennimann
DECTRIS Ltd., Switzerland

N31-2 Carbon Nanotube Yarn Field Emitter for Micro-Focus X-Ray Generation
C. H. Lee, H. Kim, E. J. D. Castro
Wonkwang University, S.Korea

N31-3 DSSC Ladder Camera: First Results
M. Donato, *European X-Ray Free-Electron Laser Facility GmbH, Germany*
On behalf of the DSSC Consortium

N31-4 X-Ray Elemental Mapping Using an Advanced SDD and Ultra-Fast Pulse Processing
S. Barkan, V. D. Saveliev, Y.-N. Wang, L. Feng, M. Zhang, E. V. Damron, B. J. Goolsby, *Hitachi High-Technologies Science America, Inc., USA*; R. Goldsbrough, L. O'Ryan, *Quantum Detectors Ltd., UK*

N31-5 Performance of the LBNL FastCCD for the European XFEL
F. Januschek[1], I. Klackova[1,2], N. Andresen[3], P. Denes[3], S. Hauf[1], M. Kuster[1], C. Tindall[3], J. Joseph[3]
[1]European XFEL GmbH, Germany; [2]Slovak University of Technology, Slovak Republic; [3]Lawrence Berkeley National Laboratory, USA

N31-6 Initial Results from Planar Active/Slim-Edge Pixel Sensors for XFEL Applications
G.-F. Dalla Betta[1,2], *[1]University of Trento, Italy; [2]TIFPA INFN, Italy*
On behalf of the PixFEL Collaboration

N31-7 Afterglow Artifacts Correction for Ultra-Fast Tomography Acquisition by Synchrotron Radiation
K. Zarei Zefreh[1], F. Marone Welford[2], W. van Aarle[1], J. Sijbers[1]
[1]University of Antwerp, Belgium; [2]X-ray Tomography Group, Swiss Light Source, switzerland

N31-8 The Calibration and System Simulation Software Package for the European XFEL DSSC Detector
G. Weidenspointner[1], S. Schlee[1], A. Castoldi[2,3], F. Erdinger[4], C. Guazzoni[2,3], K. Hansen[5], M. Kirchgessner[4], S. Maffessanti[2,3], D. Moch[6], M. Porro[1], J. Soldat[4]
[1]XFEL, Germany; [2]Politecnico di Milano, Italy; [3]INFN, Italy; [4]Universitaet Heidelberg, Germany; [5]DESY, Germany; [6]Universitaet Stuttgart, Germany

N31-9 First Operation of a DSSC Hybrid 2D Soft X-Ray Imager with 4.5 MHz Frame Rate
J. Soldat[1], F. Erdinger[1], C. Fiorini[2], P. Fischer[1], A. Grande[2], K. Hansen[3], P. Kalavakuru[3], M. Kirchgessner[1], M. Manghisoni[4], B. Nasri[2], M. Porro[5], D. Comotti[4], C. Reckleben[3], J. Szymanski[3]
[1]Heidelberg University, Germany; [2]Politecnico di Milano, Italy; [3]Deutsches Elektronen-Synchrotron DESY, Germany; [4]Universita di Bergamo, Italy; [5]European XFEL GmbH, Germany

N31-10 **Timepix3 Readout System for Time Resolved Experiments at Synchrotron Radiation Facilities**
G. Crevatin, D. Omar, I. Horswell, H. Yousef, E. Gimenez-Navarro
Diamond Light Source Ltd, UK

N31-11 **Safety-Interlock System of the DSSC X-Ray Imager**
S. Nidhi[1,2], H. Klaer[1], K. Hansen[1], M. Turcato[2], M. Kuster[2]
[1]DESY, Germany; [2]European XFEL, Germany

N31-13 **Calibration Sources and Techniques for Large Format X-Ray Imagers at XFEL**
A. Castoldi, C. Guazzoni, S. Maffessanti, *Politecnico di Milano and INFN, Italy*; M. Porro, S. Schlee, G. Weidenspointner, *European XFEL GmbH, Germany*

N31-14 **2-D Mapping of the Response of SDD Cells of Different Shape in Monolithic Arrays for XRF Spectroscopy**
A. Castoldi, C. Guazzoni, G. V. Montemurro, C. Liu, *Politecnico di Milano and INFN, Italy*; C. Piemonte, *Fondazione Bruno Kessler- FBK, Italy*; I. Rashevskaya, *TIFPA-INFN, Italy*; A. Rashevsky, G. Zampa, N. Zampa, A. Vacchi, *INFN, Sezione di Trieste, Italy*

N31-15 **Use of Silicon Drift Detectors at the LCLS**
G. Blaj, G. Carini, M. Chollet, G. Dakovski, P. Hart, G. Haller, S. Herrmann, C. Kenney, S. Nelson, J. Pines, J. Thayer, A. Tomada, S. Song
SLAC National Accelerator Laboratory, U.S.A.

N31-16 **High Speed Multi-Element SDD X-Ray Spectrometers**
Y. J. Wang, S. Barkan, V. Saveliev, L. Feng, M. Zhang, B. Goolsby
Hitachi High Tech Science America, United States

N31-17 **An Improved Method for Energy Calibration of Photon Counting X-Ray Detectors**
J. S. Lee[1,2], K.-Y. Shin[1], D.-G. Kang[1], S. Y. Lee[2], S. O. Jin[1], I. Kim[1], M. A. A. Hegazy[2]
[1]Korea Electrotechnology Research Institute, Republic of Korea; [2]Kyung Hee University, Republic of Korea

N31-18 **Characterisation of a Novel 3D Silicon Strip Detector for Microbeam Radiation Therapy (MRT) Quality Assurance**
M. Cameron[1], M. Lerch[1], S. Guatelli[1], M. Petasecca[1], J. Davis[1], A. Dipuglia[1], V. Perevertaylo[2], A. Rozenfeld[1]
[1]University of Wollongong, Australia; [2]SPA-BIT, Ukraine

N31-19 **Readout of Multi-Element HPGe-Detectors with the PIXIE ASIC for High-Resolution X-Ray Spectroscopy Applications**
P. Seller, M. French, M. C. Veale, J. Lipp, L. L. Jones, A. Hardie, *STFC Rutherford Appleton Laboratory, United Kingdom*; U. Spillmann, *GSI Helmholtzzentrum für Schwerionenforschung, Germany*; T. Krings, *Forschungszentrum Jülich GmbH, Germany*

N32 Photodetectors II - Cryogenic and Novel SiPM Designs

Tuesday, Nov. 1 16:30-18:00 Cassin

Session Chairs: **Samo Korpar**, University of Maribor and JSI, Slovenia
David Arutinov, Fraunhofer Institute for Microelectronic Circuits and Systems, Germany

N32-1 **(16:30, invited) Trend of Photo-Detector Technologies for Operation at Cryogenic Temperatures**
A. Cardini, *INFN Sezione di Cagliari, Italy*

N32-2 **(17:00) Development of Large Area VUV-Sensitive Silicon Photomultipliers for Operation in Liquid Xenon**
F. Retiere, *TRIUMF, Canada*
On behalf of the nEXO collaboration

N32-3 **(17:15) SiPM Timing at Low Light Intensities**
R. Dolenec[1,2], S. Korpar[1,3], P. Krizan[1,2], R. Pestotnik[1]
[1]J. Stefan Institute, Slovenia; [2]University of Ljubljana, Slovenia; [3]University of Maribor, Slovenia

N32-4 **(17:30) Sherbrooke's First 3D Digital SiPM: Measurements, Recommendations and Future Work**
J.-F. Pratte[1], X. Bernard[1], V. P. Rhéaume[1], S. Parent[1], F. Nolet[1], L. Maurais[1], B.-L. Bérubé[2], F. Dubois[1], T. Dequivre[1], A. Corbeil Therrien[1], M.-A. Tétrault[1], C. Paulin[1], S. Martel[2], H. Dautet[1], R. Fontaine[1], S. A. Charlebois[1]
[1]Universite de Sherbrooke, Canada; [2]Teledyne DALSA - TDSI, Canada

N32-6 **(17:45) VSiPMT: an Hybrid Approach to High Resolution Photodetedector**
F. Di Capua[1,2], G. Barbarino[1,2], F. C. T. Barbato[1,2], L. Campajola[1,2], R. de Asmundis[2], P. Migliozzi[2], C. M. Mollo[2], D. Vivolo[2], G. De Rosa[1,2]
[1]Università degli Studi di Napoli Federico II, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy

N33 Neutron detectors : Thermal Capture Scintillation Detectors

Tuesday, Nov. 1 16:30-18:30 Madrid

Session Chairs: **Ralf Engels**, Forschungszentrum Juelich GmbH, Germany
Karl Zeitelhack, Forschungsneutronenquelle Heinz-Maier-Leibnitz (FRM II), Germany

N33-1 (16:30) Novel Neutron Detector Material: Microcolumnar Li1-xNaxI:Eu
M. S. Marshall[1], M. J. More[1], H. B. Bhandari[1], R. A. Riedel[2], S. Waterman[1], J. Crespi[1], P. Nickerson[1], V. V. Nagarkar[1]
[1]RMD Inc., USA; [2]Oak Ridge National Laboratory, USA

N33-2 (16:45) A Portable Fast-Neutron Imager with ^{6}Li-Containing Scintillators
T. Matsumura, T. Shinkawa
National Defense Academy in Japan, Japan

N33-3 (17:00) An Energy Dispersive Neutron Detector Based on ^{6}LiF:ZnS(Ag) Scintillator with Embedded Wavelength Shifting Fibers and Silicon Photomultiplier Readout
N. C. Maliszewskyj[1], A. Osovizky[2], K. M. Pritchard[1], J. B. Ziegler[1], E. Binkley[1], N. Hadad[1], P. Tsai[1], C. F. Majkrzak[1]
[1]NIST, USA; [2]Rotem Industries Ltd, Israel

N33-4 (17:15) ZnO:Zn/6LiF – a Low Afterglow Alternative to ZnS:Ag/6LiF for Thermal Neutron Detection
G. J. Sykora, E. M. Schooneveld, N. J. Rhodes
STFC, United Kingdom

N33-5 (17:30) Neutron-Gamma Discrimination Using a Combined EJ299/SiPM System and Fast Digital Acquisition
M. P. Taggart, C. Payne, P. J. Sellin
University of Surrey, United Kingdom

N33-6 (17:45) A New Concept of 2D Scintillation Detector for Thermal Neutrons Based on a Light Sharing Approach
J.-B. Mosset, A. Stoykov, M. Hildebrandt
Paul Scherrer Institute, Switzerland

N33-7 (18:00) Fast-Neutron and Gamma-Ray Survey Using Compact Plastic Scintillation Detectors
R. M. Preston, J. R. Tickner
CSIRO Mineral Resources, Australia

N33-8 (18:15) The Source Testing Facility at Lund University
J. Scherzinger[1,2], J. R. M. Anand[3], K. G. Fissium[1,2], R. Hall-Wilton[2,4], R. Jebali[3], F. Messi[1], H. Perrey[1,2], E. Rofors[1]
[1]Lund University, Sweden; [2]European Spallation Source ERIC, Sweden; [3]University of Glasgow, UK; [4]Mid-Sweden University, Sweden

N34 Data acquisition, trigger and analysis II (HEP)

Tuesday, Nov. 1 16:30-18:45 Londres

Session Chairs: **Verena Outschoorn**, Urbana UI, USA,
Hucheng Chen, Brookhaven National Laboratory, United States

N34-1 (16:30, invited) The Evolution of the ATLAS Region of Interest Builder: from Custom to Commodity
T. Bold, *AGH UST, Poland*

N34-2 (17:00) A Fully Digital Trigger and Data Acquisition System for the NA62 Kaon Factory at the CERN SPS
E. Pedreschi[1,2], J. Pinzino[1,2], R. Piandani[2], M. Sozzi[1,2], F. Spinella[2]
[1]University of Pisa, Italia; [2]National Institute of Nuclear Physics, Italia

N34-3 (17:15) Operation and Performance of a New microTCA-Based CMS Calorimeter Trigger in LHC Run 2
P. R. Klabbers, *University of Wisconsin - Madison, USA*
On behalf of the CMS Collaboration

N34-4 (17:30) The ATLAS Tile Calorimeter DCS for Run 2
A. White, *University of Texas at Arlington, USA*
On behalf of the ATLAS Tile Calorimeter System

N34-5 (17:45) Soft-Errors in FPGAs at the SuperKEKB Interaction Point
R. Giordano[1,2], V. Izzo[2], S. Perrella[1,2], A. Aloisio[1,2]
[1]Università di Napoli 'Federico II', Italy; [2]INFN Sezione di Napoli, Italy

N34-6 (18:00) Latest Frontier Technology and Design of the ATLAS Calorimeter Trigger Board Dedicated to Jet Identification.
T. Bold, *AGH UST, Poland*

N34-7 (18:15) Electronics Development for the ATLAS Liquid Argon Calorimeter Trigger and Readout for Future LHC Running
W. Lampl, *University of Arizona, USA*
On behalf of the ATLAS LAr Calorimeter Group

N34-8 (18:30) Development of a Highly Selective Single Muon Trigger Exploiting Precision Muon Chamber Data for the ATLAS Experiment at the HL-LHC
S. Abovyan, V. Danielyan, M. Fras, P. Gadow, O. Kortner, S. Kortner, H. Kroha, F. Müller, S. Nowak, R. Richter, K. Schmidt-Sommerfeld
Max-Planck-Institut fuer Physik, Germany

N35 Accelerator technologies and beam line instrumentation I

Tuesday, Nov. 1 16:30-18:30 Curie 2

Session Chairs: **Edda Gschwendtner**, CERN, Switzerland
Stewart Boogert, RHUL, UK,

N35-1 (16:30) LSP Simulations of Dielectric Laser Accelerators
P. K. Soin, *AWE, UK*

N35-2 (16:45) Diagnosing Laser Plasma Accelerator Based Thomson Source in a Single Shot by Using CCD Electron Trackers
Y. Zhang[1,2], B. J. Quiter[1], K. Vetter[1,2], C. G. R. Geddes[1]
[1]Lawrence Berkeley National Laboratory, United States; [2]University of California, Berkeley, United States

N35-3 (17:00) Transverse and Longitudinal Beam Profile Monitoring for the AWAKE Experiment at CERN
B. Biskup[1,2], S. Burger[1], A. Goldblatt[1], L. Jensen[1], O. R. Jones[1], S. Mazzoni[1], F. Roncarolo[1], M. Turner[1,3]
[1]CERN, Switzerland; [2]Czech Technical University, Czech Republic; [3]Graz University of Technology, Austria

N35-4 (17:15) Application of an X-Ray Flat Panel Sensor to a GeV Region Gamma-Ray Beam Profile Monitor
H. Kanda[1], K. Honda[1], T. Ishikawa[1], M. Kaneta[1], K. Maeda[1], M. Miyabe[1], Y. Muroi[1], S. N. Nakamura[1], A. Ninomiya[1], Y. Obara[2], K. Ozawa[3], K. Ozeki[1], T. Sasaki[1], H. Shimizu[1], A. O. Tokiyasu[1]
[1]Tohoku University, Japan; [2]University of Tokyo, Japan; [3]KEK, Japan

N35-5 (17:30) Cherenkov Detector for Proton Flux Measurement in SPS
S. Dubos, L. Burmistrov, D. Breton, S. Conforti Di Lorenzo, J. Maalmi, V. Puill, V. Chaumat, A. Stocchi, J.-F. Vagnucci, W. Scandale, *Laboratoire de l'Accelerateur Lineaire (LAL), France*; F. Addesa, G. Cavoto, F. Iacoangeli, *INFN - Sezione di Roma I, Italy*; M. Garattini, S. Montesano, *CERN, Switzerland*; A. Natochii, *Taras Shevchenko National University of Kyiv, Ukraine*

N35-6 (17:45) An ATCA Based Accelerator Controls & RF Detector Platform
R. T. Herbst, M. D'Ewart, F. Josef, G. Haller, B. Reese, L. Ruckman, T. Straumann, E. Williams
SLAC National Accelerator Laboratory, United States

N35-7 (18:00) Low-Energy Electron Test Beam at LAL
V. Krylov[1,2], S. Barsuk[1], O. Bezshyyko[2], L. Burmistrov[1], A. Chaus[3], P. Colas[3], O. Fedorchuk[2], L. Golinka-Bezshyyko[2], M. Haranko[2], R. Lopez[4], H. Monard[1], V. Rodin[2], D. Sukhonos[2], M. Titov[3], D. Tomassini[4], A. Variola[1]
[1]Laboratoire de l'Accélérateur Linéaire, France; [2]Taras Shevchenko National University of Kyiv, Ukraine; [3]Commissariat à l'énergie atomique, Institut de Recherche sur les lois Fondamentales de l'Univers, France; [4]CERN, Switzerland

N35-8 (18:15) Luminosity Determination at the ALICE Experiment at the Large Hadron Collider
A. Konevskikh, *INR RAS, Russian Federation*

N36 Scintillators III: Characterization

Wednesday, Nov. 2 08:00-10:00 Madrid

Session Chairs: **Gregory Bizarri**, LBNL, United States
Gintautas Tamulaitis, Vilnius University, Lithuania

N36-1 (08:00) Emerging New Ternary Halides as Scintillators for Radiation Detection
K. Biswas, *Arkansas State University, USA*

N36-2 (08:15) New Heavy Ce-Activated Scintillator for X- and G-Rays Detection
H. Kim[1], G. Rooh[2], H. Park[1], S. Kim[3]
[1]Kyungpook National University, KOREA; [2]Abdul Wali Khan University, Pakistan; [3]Cheongju University, KOREA

N36-3 (08:30) Effects of Cerium Concentration in Tl_2LiYCl_6 Scintillation Detectors
E. Ariesanti, R. Hawrami, J. Finkelstein, J. Glodo, K. S. Shah
Radiation Monitoring Devices, Inc., USA

N36-4 (08:45) Performance Comparison Between Ceramic Ce:GAGG and Single Crystal Ce:GAGG with Digital-SiPM
C. Park[1], C. Kim[1], J. Kim[2], Y.-S. Lee[1], Y. Na[2], J.-Y. Yeom[1]
[1]Korea University, South Korea; [2]Chosun Refractories co. Ltd., South Korea

N36-5 (09:00) Improvement of Scintillation Properties and Radiation Tolerance of the Ce- Doped Garnet Crystals by Mg Co-Doping
E. Auffray[1], V. Babin[2], P. Bohacek[2], S. Gundacker[1], K. Kamada[3,4], P. Lecoq[1], M. Lucchini[1], M. Nikl[2], A. Petrosyan[5], A. Yoshikawa[3,4,6]
[1]CERN, Switzerland; [2]Institute of Physics AS CR, Czech Republic; [3]Tohoku University, New Industry Creation Hatchery Center, Japan; [4]C&A Corporation, T-Biz, Japan; [5]Institute for Physical Research, Armenia; [6]Tohoku University, Institute for Material Research, Japan

N36-6 (09:15) High-Quality Lead Tungstate Crystals Available for EM-Calorimetry in High-Energy Physics

R. W. Novotny[1], K.-T. Brinkmann[1], V. Dormenev[1], J. Houzvicka[2], M. Korjik[3], H.-G. Zaunick[1]
[1]Justus-Liebig-University, Germany; [2]CRYTUR spol. s.r.o., Czech Republic; [3]Institute for Nucelar Problems, Belarus

N36-7 (09:30) Development of BaF2 Crystals for Future HEP Experiments at the Intensity Frontiers
F. Yang[1], J. Chen[2], L. Zhang[1], R. Zhu[1]
[1]California Institute of Technology, USA; [2]Shanghai Institute of Ceramics, China

N37 Astrophysics and space I

Wednesday, Nov. 2 08:00-10:00 Londres

Session Chairs: **Daniel Haas**, SRON Netherlands Institute for Space Research, Netherlands
Hiro Tajima, Nagoya Univ.,

N37-1 (08:00) The DAMPE Silicon-Tungsten Tracker
R. Asfandiyarov, *University of Geneva, Switzerland*
On behalf of the DAMPE Collaboration

N37-2 (08:15) From PoGOLite to PoGO+ - the Development of a Balloon-Borne Hard X-Ray Polarimetry Mission
M. Pearce, *KTH Royal Institute of Technology, Sweden*
On behalf of the PoGO+ Collaboration

N37-3 (08:30) POLAR: Final Calibration and In-Flight Performance of a Dedicated GRB Polarimeter
M. Kole, *University of Geneva, Switzerland*
On behalf of the POLAR Collaboration

N37-4 (08:45) The Spectrometer/Telescope for Imaging X-Rays (STIX) of the ESA Solar Orbiter Mission
D. Casadei, *Fachhochschule Nordwestschweiz (FHNW), Switzerland*
On behalf of the STIX Collaboration

N37-5 (09:00) Implementation of the First Level Trigger of JEM-EUSO: Results of the First Tests
A. Jung[1], S. Bacholle[1], P. Barrillon[2], M. Bertaina[3,4], S. Blin-Bondil[5], M. Casolino[6,7], A. Cummings[8], S. Dagoret-Campagne[2], J. Eser[8], F. Fenu[3,4], P. Gorodetzky[1], R. Gregg[8], P. Hunt[8], Y. Kawasaki[6], H. Krantz[8], O. Larsson[6], M. Mignone[4], H. Miyamoto[3,4], E. Parizot[1], L. W. Piotrowski[8], G. Prévôt[1], J. Rabanal[2], L. Wiencke[8]
[1]Université Paris Diderot, CNRS/IN2P3, CEA/lrfu, Observatoire de Paris, Sorbonne Paris Cité, France; [2]Université Paris Sud-11, CNRS/IN2P3, France; [3]Universita degli studi di Torino, Italy; [4]INFN Torino, Italy; [5]Ecole polytechnique, France; [6]RIKEN Advanced Science Institute, Japan; [7]INFN Roma Tor Vergata, Italy;[8]Colorado School of Mines, USA

N37-6 (09:15) Overview and Status of the Cherenkov Telescope Array
J. Cortina, *Institut de Física d'Altes Energies (IFAE), Spain*
On behalf of the CTA Consortium

N37-7 (09:30) A Solid-State Pixelated X-Ray Detector for Solar Flare Observations
S. D. Christe, A. Shih, W. Baumgartner, A. Inglis, D. Ryan, *NASA Goddard Space Flight Center, USA*; J. Gaskin, *NASA Marshall Space Flight Center, USA*; M. Wilson, P. Seller, *Rutherford Appleton Laboratory, UK*

N37-8 (09:45) Operation and Calibration of MAXI/GSC Xe Gas Counters on the International Space Station for over 6 Years since 2009
M. Sugizaki, *Riken, Japan*
On behalf of the MAXI GSC Team

N38 Simulation and prototyping for detector development I

Wednesday, Nov. 2 08:00-10:00 Curie 1

Session Chairs: **Nicolo Cartiglia**, INFN, Italy
Felix Sefkow, DESY, Germany

N38-1 (08:00) Identification of Background Components with the SoLid anti-Neutrino Detector
I. Piñera-Hernández, *University of Antwerp, Belgium*
On behalf of the SoLid collaboration

N38-2 (08:15) Simulation Validation Epistemics in a Geant4 Case Study
M. G. Pia[1], T. Basaglia[2], M. C. Han[3], G. Hoff[4], C. H. Kim[3], S. H. Kim[3], P. Saracco[1]
[1]INFN Genova, Italy; [2]CERN, Switzerland; [3]Hanyang University, Korea; [4]CAPES, Brazil

N38-3 (08:30) The Design of Time Projection Chamber for Fission Cross-Section Measurements
Y. Yan[1,2], Y. Li[1,2], M. Huang[1,2], J. Li[1,2], Z. Deng[1,2], H. Gong[1,2], H. Zhang[1,2], L. Niu[3], Y. Li[1,2]
[1]Tsinghua University, China; [2]Key Laboratory of Particle & Radiation Imaging (Tsinghua University), China; [3]High-Tech Institute of Xi'an, China

N38-4 (08:45) SPAD Array Simulator: Release and Distribution
A. C. Therrien, V. Libioulle, S. A. Charlebois, R. Fontaine, J.-F. Pratte
Institut Interdisciplinaire d'Innovation Technologique, Canada

N38-5 (09:00) Multivariate Techniques for Energy Reconstruction in Highly Granular Calorimeters
B. Bilki[1,2]
[1]University of Iowa, USA; [2]Beykent University, Turkey

N38-6 (09:15) GeantV: Particle Transport Spanning CPUs and Accelerators
J. Apostolakis, *CERN, Switzerland*
On behalf of the GeantV Collaboration

N38-7 (09:30) Optimization of a Spherical Active Coded Mask Gamma-Ray Imager
D. Hellfeld[1], P. Barton[2], D. Gunter[2], L. Mihailescu[2], K. Vetter[1,2]
[1]University of California, Berkeley, USA; [2]Lawrence Berkeley National Laboratory, USA

N38-8 (09:45) A New Large Calorimeter Based on Lanthanum Bromide Coupled to Silicon Photomultipliers: Monte Carlo Simulation Predictions
A. Papa, P. Schwendimann
Paul Scherrer Institute, Switzerland

N39 Circuits for readout of pixel and strip detectors in HEP and nuclear physics

Wednesday, Nov. 2 08:00-10:00 Curie 2

Session Chairs: **Marlon Barbero**, CPPM Marseille,
Grzegorz W. Deptuch, Fermilab, United States

N39-1 (08:00) TOFFEE: a Fully Custom Amplifier-Comparator Chip for Silicon Detectors with Internal Gain.
N. Cartiglia[1], F. Cenna[1], A. Rivetti[1], M. Da Rocha Rolo[1], J. Varela[2], A. Di Francesco[2], J. Olave[1,3]
[1]INFN, italy; [2]LIP, Portugal; [3]Politecnico di Torino, Italy

N39-2 (08:15) SALT - a Dedicated Readout ASIC for Upstream Tracker in the Upgraded LHCb Experiment
T. Fiutowski, *AGH University of Science and Technology, Poland*
On behalf of the LHCb UT Collaboration

N39-3 (08:30) STS/MUCH-XYTER2, a Full-Size Prototype Readout Chip for Silicon Strip and GEM Detectors
K. Kasinski, R. Kleczek, R. Szczygiel, P. Otfinowski
AGH University of Science and Technology, Poland

N39-4 (08:45) New Development on Digital Architecture for Efficient Pixel Readout ASIC at Extreme Hit Rate for HEP Detectors at HL-LHC
A. Paterno, L. Pacher, S. Marconi, N. Demaria, A. Rivetti, G. Dellacasa, P. Placidi
Politecnico di Torino and with INFN Torino, Italy

N39-5 (09:00) Design and Test of a Zero Dead Time Analog Front-End for Next Generation Pixel Detectors
L. Gaioni[1,2], D. Braga[3], D. C. Christian[3], G. W. Deptuch[3], F. Fahim[3], B. Nodari[1,2], L. Ratti[4,2], V. Re[1,2], T. N. Zimmerman[3]
[1]University of Bergamo, Italy; [2]INFN Pavia, Italy; [3]Fermilab, USA; [4]University of Pavia, Italy

N39-6 (09:15) The VeloPix ASIC for the LHCb VELO Upgrade
X. Llopart, *CERN, Switzerland*

N39-7 (09:30) The CHESS-2 prototype in AMS 0.35 μm process: a high voltage CMOS monolithic sensor for ATLAS detector.
C. Tamma, *SLAC National Accelerator Laboratory, U.S.A.*
On behalf of the Strip CMOS Collaboration

N39-8 (09:45) A Prototype of a New Generation Pixel Readout ASIC in CMOS 65nm for Extreme Rate HEP Detectors at HL-LHC
E. Monteil[1], L. Pacher[1], A. Paterno[2], N. Demaria[3], A. Rivetti[3], M. Da Rocha Rolo[3], G. Dellacasa[3], G. Mazza[3], F. Ciciriello[4], C. Marzocca[4], F. Loddo[5], F. Liciulli[5], S. Mattiazzo[6], F. De Canio[7], L. Gaioni[7], V. Re[7], G. Traversi[7], L. Ratti[8], S. Marconi[9], G. Magazzu[10], A. Stabile[11], P. Placidi[12], S. Panati[2]
[1]University of Torino, Department of Physics and with INFN Torino, Italy; [2]Politecnico of Torino and with INFN Torino, Italy; [3]INFN Torino, Italy; [4]Politecnico di Bari and with INFN Bari, Italy; [5]INFN Bari, Italy; [6]Dipartimento di Ingegneria dell'Informazione, University of Padova, Italy; [7]University of Bergamo and with INFN Pavia, Italy; [8]University of Pavia and with INFN Pavia, Italy; [9]University of Perugia, with CERN and with the INFN Perugia, Italy; [10]INFN Pisa, Italy; [11]INFN Milano and Universit`a degli Studi di Milano, Italy; [12]University of Perugia and with the INFN Perugia, Italy

J01 Joint Session I - MIC-NSS-RTSD

Wednesday, Nov. 2 10:30-12:00 Schweitzer

Session Chairs: **Loick Verger**, CEA-LETI, France
Andrew J. Blue, University Of Glasgow, United Kingdom

J01-1 (10:30) Evolution of Diamond Based Microdosimetry
J. A. Davis[1], K. Ganesan[2], D. A. Prokopovich[3], M. Petasecca[1], S. Guatelli[1], D. N. Jamieson[2], M. L. F. Lerch[1], A. B. Rosenfeld[1]
[1]Centre for Medical Radiation Physics, Australia; [2]University of Melbourne, Australia; [3]Australian Nuclear Science and Technology Organisation, A

J01-2 (10:45) Tackling the Count Rate Problem in Spectral CT by Means of a GaAs-Based Medipix3RX Detector Operated in Edge-on Geometry
S. Haaga[1], E. Hamann[1], M. Zuber[1], A. Fauler[2], M. Fiederle[1,2], T. Baumbach[1], T. Koenig[1,3]
[1]Karlsruhe Institute of Technology, Germany; [2]University of Freiburg, Germany; [3]Ziehm Imaging GmbH, Germany

J01-3 (11:00) CZT Sensor – Readout ASIC Interfaces for High-Flux Photon Counting Systems
K. Iniewski, *Redlen Technologies, Canada*

J01-4 (11:15) Breast Microcalcification Classification Using Energy Dispersive X-Ray Coherent Scatter Computed Tomography
B. Ghammraoui, L. M. Popescu
U.S Food and Drug Administration, United States

J01-5 (11:30) Scintillator-Based Photon Counting Detector: Is It Feasible?
L. Bläckberg[1,2], N. Moghadam[3], D. Uzun-Ozsahin[1], G. El Fakhri[1], H. Sabet[1]
[1]Massachusetts General Hospital, Harvard Medical School, United States; [2]Uppsala University, Sweden; [3]GRAMS Lab, Institut interdisciplinaire d'innovation technologique (3IT), Université de Sherbrooke, Canada

J01-6 (11:45) Scintillating Glass GEM Detector for High Resolution X-ray Imaging
T. Fujiwara[1], Y. Mitsuya[2], H. Takahashi[2], H. Toyokawa[1]
[1]National Institute of Advanced Industrial Science and Technology (AIST), Japan; [2]The University of Tokyo, Japan

N40 Calorimetry II - Radiation-hard Calorimeters

Wednesday, Nov. 2 10:30-12:00 Madrid

Session Chairs: **Frank Simon**, Max-Planck-Institut fuer Physik, Germany
Craig Woody, Brookhaven Nat Lab, United States

N40-1 (10:30) Radiation High Dose Rate Tolerant Scintillation Materials for Future Experiments at High Luminosity LHC and FCC
M. Korjik, *RINP, Minsk, Belarus*; E. Affray, *CERN, Switzerland*

N40-2 (10:45) Energy Resolution and Timing Performance Studies of a W-CeF3 Sampling Calorimeter with a Wavelength-Shifting Fiber Readout
P. Meridiani[1], R. Becker[2], L. Bianchini[2], G. Dissertori[2], L. Djambazov[2], M. Donegï¿½[2], L. Brianza[3], D. Del Re[4], N. Chiodini[3], N. Pastrone[1], G. Della Ricca[5], N. Akchurin[6], M. Droge[1], C. Haller[1], U. Horisberger[1], T. Klijnsma[1], W. Lustermann[1], A. Marini[1], D. Meister[1], F. Micheli[1], F. Nessi-Tedaldi[1], F. Pandolfi[1], M. Peruzzi[1], U. Roeser[1], M. Schoenenberger[1], A. Ghezzi[3], A. Martelli[3], S. Pigazzini[3], T. Tabarelli de Fatis[3], P. Govoni[3], M. Fasoli[3], A. Vedda[3], F. Cavallari[1], I. Dafinei[1], M. Diemoz[1], F. Pellegrino[1], M. Nuccetelli[1], R. Paramatti[1], C. Rovelli[1], G. D'imperio[4], S. Gelli[4], G. Organtini[4], F. Santanastasio[4], L. Soffi[4], V. Monti[1], P. P. Trapani[1], V. Candelise[5], F. Vazzoler[5], J. Faulkner[6]
[1]INFN, Italy; [2]ETH, Switzerland; [3]Universitï¿½ di Milano Bicocca and INFN, Italy; [4]Universitï¿½ di Roma La Sapienza and INFN, Italy; [5]Universitï¿½ degli Studi di Trieste and INFN, Italy; [6]Texas Tech University, USA

N40-3 (11:00) Precision Crystal Calorimetry at High Energy and High Luminosity: CMS ECAL Performance at 13 TeV and Upgrade Test Beam Studies
F. Micheli, *ETH, Switzerland*
On behalf of the CMS Collaboration

N40-4 (11:15) Upgrade of the ATLAS Liquid Argon Calorimeters for the HL-LHC
T. McCarthy, *Max-Planck-Institut fuer Physik, Germany*
On behalf of the ATLAS Liquid Argon Group

N40-5 (11:30) Longitudinally Segmented Shashlik Calorimeters with SiPM Readout: the SCENTT Experiment
A. Berra[1,2], C. Brizzolari[1,2], S. Cecchini[3], F. Cindolo[3], C. Jollet[4], A. Longhin[5], L. Ludovici[6], G. Mandrioli[3], N. Mauri[3], A. Meregaglia[4], A. Paoloni[5], L. Pasqualini[3,7], L. Patrizii[3], M. Pozzato[3], F. Pupilli[5], M. Prest[1,2], G. Sirri[3], F. Terranova[2,7], E. Vallazza[8], L. Votano[5]
[1]Universita' degli Studi dell'Insubria, Italy; [2]INFN Milano Bicocca, Italy; [3]INFN Bologna, Italy; [4]Institut Pluridisciplinaire Hubert Curien, France; [5]INFN Laboratori Nazionali di Frascati, Italy; [6]INFN Roma, Italy; [7]Universita' degli Studi di Bologna, Italy; [8]INFN Trieste, Italy

N40-6 (11:45) A Finely-Segmented Radiation-Tolerant Shashlik Electromagnetic Calorimeter
A. Ledovskoy, *University of Virginia, USA*
On behalf of the Shashlik Calorimetry Development Group

N41 New concepts in solid-state detectors and radiation damage effects I

Wednesday, Nov. 2 10:30-12:00 Curie 1

Session Chairs: **Paula Collins**, CERN, Switzerland
Sergio Gonzalez Sevilla, University of Geneva, Switzerland,

N41-1 (10:30) Estimation of the Energy Resolution Limit for Particle Detectors with Schottky-Barrier Based on VPE GaAs
A. V. Chernykh[1], S. V. Chernykh[1], F. M. Baryshnikov[1], S. I. Didenko[1], N. Burtebayev[2], G. I. Britvich[3], A. P. Chubenko[4], Y. N. Glybin[5], T. Zholdybayev[2], Z. Kerimkulov[2], J. T. Burtebayeva[2]
[1]National University of Science and Technology «MISIS», Russia; [2]Institute of Nuclear Physics, Kazakhstan; [3]Institute of High Energy Physics, Russia; [4]P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia; [5]LLC «SNIIP Plus», Russia

N41-2 (10:45) 3D Silicon and Passive CMOS Pixel Detectors for Radiation Hard Environments
D.-L. Pohl[1], C. da Via[2], M. Daas[1], L. Gonella[2], T. Hemperek[1], F. Hügging[1], J. Janssen[1], H. Krüger[1], A. Macchiolo[3], L. Vigani[4], N. Wermes[1]
[1]Physikalisches Institut der Universität Bonn, Germany; [2]School of Physics and Astronomy, United Kingdom; [3]Max-Planck-Institut für Physik, Germany; [4]Department of Physics, United Kingdom

N41-3 (11:00) New 3D Mushroom Microdosimeter for RBE Studies in Passive Scattering and Pencil Beam Scanning Heavy Ion Therapy
L. Chartier[1], L. T. Tran[1], D. A. Prokopovich[2], D. Bolst[1], A. Pogossov[1], S. Guatelli[1], M. Petasecca[1], M. L. F. Lerch[1], M. I. Reinhard[2], A. Kok[3], M. Povoli[4], A. Summanwar[3], M. Jackson[5], T. Kanai[6], N. Matsufuji[7], A. B. Rosenfeld[1]
[1]University of Wollongong, Australia; [2]Australian Nuclear Science and Technology Organisation, Australia; [3]SINTEF, Norway; [4]University of Oslo, Norway; [5]University of New South Wales, Australia; [6]Gunma University Heavy Ion Medical Center, Japan; [7]National Institute of Radiological Science, Japan

N41-4 (11:15) Proton Induced Radiation Damage in Fast Crystal Scintillators
F. Yang, L. Zhang, R.-Y. Zhu, *California Institute of Technology, USA*; J. Kapustinsky, R. Nelson, Z. Wang, *Los Alamos National Laboratory, USA*

N41-5 (11:30) Profile SP (P-Type) HPGe Detectors – Premium Resolution at Low to Medium Energies
G. Geurkov, E. Roth, K. Schmitt, T. Underwood, *ORTEC, USA*

N41-6 (11:45) Beam Test Results of the Dependence of Signal Size on Incident Particle Rate in Diamond Pixel and Pad Detectors
D. Hits, *ETH, Switzerland*
On behalf of the RD42 Collaboration

J02 NSS/MIC Joint Session 2: Hadrontherapy

Wednesday, Nov. 2 14:00-16:00 Schweitzer

Session Chairs: **Piergiorgio Cerello**, INFN - Torino, Italy
David Brasse, CNRS - IPHC, France

J02-1 (14:00, invited) Novel Imaging for Ion Beam Therapy
K. Parodi, *Ludwig-Maximilians Universität München, Germany*

J02-2 (14:30) A Real-Time Dosimetric System Using CMOS Sensors for Secondary Neutrons in Radio/Hadron Therapy
N. Arbor[1], R. Combe[1], H. Elazhar[1], S. Higueret[1], P. Meyer[2], F. Taupin[3], D. Husson[1]
[1]CNRS UMR7178 Universite de Strasbourg, France; [2]Paul Strauss Center, France; [3]Centre Hospitalier Lyon Sud, France

J02-3 (14:45) Development of a High-Intensity Photon-Beam Profile Monitor
T. Ishikawa
Research Center for Electron Photon Science, Tohoku University, Japan

J02-4 (15:00) The INSIDE Bi-Modal System for in-Vivo Particle Range Monitoring Toward Clinical Validation
M. G. Bisogni[1,2], *[1]University of pisa, Italy; [2]INFN, Italy*
On behalf of the INSIDE Collaboration

J02-5 (15:15) A New Hadron Radiography Method Based on Time-of-Flight Residual Energy Measurement
W. A. Worstell[1], K. Grogg[2], B. W. Adams[1], C. A. Craven[1], T. L. Cremer[1], M. R. Foley[1], A. Lyashenko[1], M. J. Minot[1], M. A. Popecki[1], H.-M. Lu[2], H. Paganetti[2], G. El Fakhri[2]
[1]Incom, Inc., US; [2]Massachusetts General Hospital, US

J02-6 (15:30) A Comparative Study of Energy-Loss Proton Radiography (ElpRad) Based on High-Spatial Resolution or Ultrafast Methods
Z. Wang[1], C. L. Morris[1], L. P. Neukirch[1], D. J. Clark[1], M. Gaowei[2], F. G. Mariam[1], E. Ramberg[3], A. Saunders[1], S. K. Sjue[1], J. Smedley[1], D. Tupa[1], R. Zhu[4]
[1]Los Alamos National Laboratory, USA; [2]Brookhaven National Laboratory, USA; [3]Fermilab, USA; [4]California Institute of Technology, USA

J02-7 (15:45) Helium Beam Radiography Using a Silicon Pixel Detector for Particle Tracking and Identification
T. Gehrke[1,2,3,4], S. Berke[1,3,4], G. Arico[1,2,3,4], J. Jakubek[5], O. Jaekel[1,2,3,4], M. Martisikova[1,2,3,4]
[1]German Cancer Research Center (DKFZ), Germany; [2]Heidelberg University Hospital, Germany; [3]National Center for Radiation Oncology (NCRO), Germany; [4]Heidelberg Institute for Radiation Oncology (HIRO), Germany; [5]Advacam, Czech Republic

N42 High energy physics instrumentation II

Wednesday, Nov. 2 14:00-16:00 Madrid

Session Chairs: **Junji Tojo**, Kyushu University,
Kerstin Hoepfner, RWTH Aachen University, III.Phys. Inst. A, Germany

N42-1 (14:00) The Herschel Forward Shower Counters for LHCb
M. Ravonel, *CERN, Switzerland*
On behalf of the LHCb

N42-2 (14:15) SciFi - a Large Scintillating Fibre Tracker for LHCb
S. Bachmann, *Heidelberg University, Germany*
On behalf of the LHCb Collaboration

N42-3 (14:30) The Liquid Hole-Multiplier: a Novel Local Dual-Phase Element for Noble-Liquid TPCs
L. Arazi, E. Erdal, Y. Korotinsky, M. Rappaport, A. Roy, S. Shchemelinin, D. Vartsky, A. Breskin
Weizmann Institute of Science, Israel

N42-4 (14:45) Radiation Hard Composite Element for High Energy Physics
A. Boyarintsev[1], A. Bobovnikov[1], A. Gektin[1], Y. Gerasimov[1], B. Grynyov[1], K. Hubenko[1], S. Kovalchuk[1], L. Levchuk[2], T. Nepokupnaya[1], Y. Onufriyev[1], V. Popov[2], O. Sidletskiy[1], V. Tarasov[1]
[1]The Institute for Scintillation Materials, Ukraine; [2]National Science Center "Kharkov Institute of Physics and Technology, Ukraine

N42-5 (15:00) ARICH - Particle Identificantion in the Forward End-Cap of Belle II
R. Pestotnik, *Jožef Stefan Institute, Slovenia*
On behalf of the Belle II ARICH group

N42-6 (15:15) Borehole Muon Tomography
R. Kouzes[1], A. Bonneville[1], J. Flygare[2], A. Lintereur[2], I. Mostafanezhad[3], G. Varner[3], J. Yamaoka[1]
[1]Pacific Northwest National Laboratory, USA; [2]University of Utah, USA; [3]University of Hawaii, USA

N42-7 (15:30) Upgrades of the CMS Muon System
L. Guiducci, *Universita' di Bologna & INFN, Italy*
On behalf of the CMS Collaboration

N42-8 (15:45) Large Area GEM Chambers for Muon Tracking in CBM Experiment at FAIR
A. Kumar, *Variable Energy Cyclotron Centre, Kolkata, India*
On behalf of the CBM collaboration

N43 New concepts in solid-state detectors and radiation damage effects II

Wednesday, Nov. 2 14:00-16:00 Curie 1

Session Chairs: **Walter J. Snoeys**, CERN, Switzerland
Phil Allport, University of Birmingham, UK,

N43-1 (14:00) Irradiation induced effects in the FE-I4 front-end chip of the ATLAS IBL detector
A. La Rosa, *Max-Planck-Institut fuer Physik, Germany*
On behalf of the ATLAS Collaboration

N43-2 (14:15) Radiation Tolerance of Straw-Tracker Read-Out System for COMET Experiment
K. Ueno[1], E. Hamada[1], M. Ikeno[1], S. Mihara[1], Y. Nakazawa[2], H. Nishiguchi[1], T. Uchida[2], Y. Yang[3], H. Yamaguchi[3], H. Yoshida[2]
[1]KEK, Japan; [2]Osaka University, Japan; [3]Kyushu University, Japan

N43-3 (14:30) Radiation Damage Effects and Operations of the LHCb Vertex Locator
A. Oblakowska-Mucha, *AGH University of Science and Technology, Poland*
On behalf of the LHCb VELO group

N43-4 (14:45) Ionizing Radiation Effects on the Noise of 65 nm CMOS Transistors for Pixel Sensor Readout at Extreme Total Dose Levels
V. Re[1,2], L. Gaioni[1,2], M. Manghisoni[1,2], L. Ratti[3,2], E. Riceputi[1,2], G. Traversi[1,2]
[1]Università di Bergamo, Italy; [2]INFN, Italy; [3]Università di Pavia, Italy

N43-5 (15:00) Comparison of the Radiation Hardness of Silicon Mach-Zehnder Modulators for Different DC Bias Voltages
M. Zeiler[1,2], S. Detraz[1], L. Olantera[1], C. Sigaud[1], C. Soos[1], J. Troska[1], F. Vasey[1]
[1]CERN, Switzerland; [2]Dublin City University, Ireland

N43-6 (15:15) HV-CMOS Detectors for High Energy Physics: Characterization of BCD8 Technology and Controlled Hybridization Technique.

A. Andreazza[1], A. Castoldi[2], G. Chiodini[3], M. Citterio[1], G. Darbo[4], G. Gariano[4], A. Gaudiello[4], C. Guazzoni[2], V. Liberali[1], S. Passadore[1], F. Ragusa[1], A. Rovani[3], E. Ruscino[3], C. Sbarra[5], A. Sidoti[5], H. Shrimali[6], E. Zaffaroni[1]
[1]Università di Milano and INFN Sezione di Milano, Italy; [2]Politecnico di Milano and INFN Sezione di Milano, Italy; [3]INFN Sezione di Lecce, Italy; [4]INFN Sezione di Genova, Italy; [5]INFN Sezione di Bologna, Italy; [6]Indian Institute of Technology Mandi, India

N43-7 (15:30) Simulation Studies for the Optimization of a Neutron Shield for the SciFi Tracker in the LHCb Upgrade
M. Karacson, G. Corti, *CERN, Switzerland*

N43-8 (15:45) GigaRad Total Ionizing Dose and Post-Irradiation Effects on 28 nm Bulk MOSFETs
C.-M. Zhang[1], F. Jazaeri[1], A. Pezzotta[1,2], C. Bruschini[1], G. Borghello[3,4], F. Faccio[3], S. Mattiazzo[5], A. Baschirotto[2], C. Enz[1]
[1]Ecole Polytechnique Federale de Lausanne, Switzerland; [2]INFN & University of Milano-Bicocca, Italy; [3]CERN, Switzerland; [4]University of Udine, Italy; [5]University of Padova, Italy

N44 Calorimetry III - High Granularity Calorimeters

Wednesday, Nov. 2 16:30-18:30 Madrid

Session Chairs: **Frank Simon**, Max-Planck-Institut fuer Physik, Germany
Paul Rubinov, Fermi National Accelerator Laboratory, United States

N44-1 (16:30) Analysis of Hadronic Showers in the Physics Prototype of the CALICE Silicon Tungsten Electromagnetic Calorimeter - Si-W ECAL
R. Pöschl, *LAL Orsay, France*
On behalf of the CALICE Collaboration

N44-2 (16:45) Technological Prototype of the CALICE / ILD Silicon-Tungsten Electromagnetic Calorimeter
K. Shpak, *LLR / Ecole polytechnique, FRANCE*
On behalf of the ILD SiW ECAL group

N44-3 (17:00) High Granularity Calorimeter for the CMS Endcap at HL-LHC
R. Rusack, *University of Minnesota, USA*
On behalf of the CMS Collaboration

N44-4 (17:15) Investigation of Fast Timing Capabilities of Silicon Sensors for the CMS High Granularity Calorimeter at HL-LHC
Y. Onel, *University of Iowa, USA*
On behalf of the CMS Collaboration

N44-5 (17:30) Comparative Test Beam Studies of Precision Timing Calorimeter Technologies
A. Bornheim, D. Anderson, C. Pena, A. Apresyan, M. Spiropulu, S. Xie, J. Duarte, A. Ronzhin, S. Los
CALTECH, USA

N44-6 (17:45) The SDHCAL Prototype Status: Present and Future
M. C. Fouz, *CIEMAT, Spain*
On behalf of the SDHCAL group of the CALICE Collaboration

N44-7 (18:00) Calorimetric Measurements with Extremely Fine Spatial Resolution
B. Bilki[1,2], *[1]University of Iowa, USA; [2]Beykent University, Turkey*
On behalf of the CALICE Collaboration

N44-8 (18:15) R&D with Very Forward Calorimeters for Linear Colliders
M. Idzik, *AGH University of Science and Technology, Poland*
On behalf of the FCAL Collaboration

N45 Gaseous detectors II: Development of Techniques II

Wednesday, Nov. 2 16:30-18:30 Londres

Session Chairs: **Silvia Dalla Torre**, INFN Trieste, Italy
Harry van der Graaf, Nikhef & Delft University of Technology, Netherlands

N45-1 (16:30) GridPix Detectors - Developments and Applications
C. Krieger[1], Y. Bilevych[1], K. Desch[1], J. Kaminski[1], M. Lupberger[2], T. Schiffer[1]
[1]University of Bonn, Germany; [2]CERN, Switzerland

N45-2 (16:45) Optimization of Resistive Micromegas for Sampling Calorimetry at High Rates
T. Geralis, *NCSR Demokritos, GREECE*; M. Chefdeville, *Universite de Savoie, FRANCE*; M. Titov, *Saclay CEA, FRANCE*

N45-4 (17:15) Beam Test Results with a Large Prototype of TPC for the ILD Detector at ILC

S. Ganjour, *CEA/Scalay/IRFU, France*
On behalf of the LCTPC Collaboration

N45-5 (17:30) The COMPASS New Hybrid GEM-Micromegas Pixelized Detectors and Their Performance in High Particle Flux Conditions
D. Neyret, *CEA Saclay, France*
On behalf of the IRFU COMPASS Micromegas group

N45-6 (17:45) Development of a Double-Grid-Type MSGC with Two-Dimensional Readout Using LCD Technology
H. Takahashi[1], X. Lian[1], H. Miyoshi[2], L. Dengxian[1], K. Shimazoe[1], M. Ohno[1]
[1]The University of Tokyo, Japan; [2]SHARP Corporation, JAPAN

N45-7 (18:00) VUV Xenon Scintillation Wavelength Shift by Trimethylamine
F. O. P. Santos, A. M. F. Trindade, J. M. D. Escada, F. I. G. M. Borges, A. F. V. Cortez
Universidade de Coimbra, Portugal

N45-8 (18:15) Live Event Reconstruction and Scintillation Studies in an Optically Read Out GEM-Based TPC
F. M. Brunbauer[1,2], C. Bault[1], D. Gonzalez Diaz[3], E. Oliveri[1], F. Resnati[1], L. Ropelewski[1], C. Streli[2], P. Thuiner[1,2], M. van Stenis[1]
[1]CERN, Switzerland; [2]Technische Universität Wien, Austria; [3]Uludag University, Turkey

N46 Astrophysics and space II

Wednesday, Nov. 2 16:30-18:30 Curie 1

Session Chairs: **Giovanni Ambrosi**, Perugia INFN,
Mark Pearce, KTH Royal Institute of Technology, Sweden

N46-1 (16:30) Status and Progress of the International Axion Observatory (IAXO)
E. Ferrer Ribas, *IRFU, France*
On behalf of the IAXO Collaboration

N46-2 (16:45) Pulsed Neutron Generator – Gamma Ray Spectrometer Measurements of Venus' Bulk Elemental Composition
A. M. Parsons[1], J. Grau[2], D. Lawrence[3], T. P. McClanahan[1], J. Miles[2], P. Peplowski[3], L. Perkins[4], J. Schweitzer[5], R. D. Starr[6]
[1]NASA/ Goddard Space Flight Center, USA; [2]Schlumberger Doll Research Center, USA; [3]Johns Hopkins University Applied Physics Laboratory, USA; [4]Schlumberger Princeton Technology Center, USA; [5]University of Connecticut, USA; [6]The Catholic University of America, USA

N46-3 (17:00) The High-Energy Particle Detector Onboard the CSES Satellite
V. Scotti, *INFN, Italy*
On behalf of the CSES-Limadou Collaboration

N46-4 (17:15) The SENSER CLYC Experiment
D. D. S. Coupland, L. C. Stonehill, K. E. Mesick, J. P. Dunn
Los Alamos National Laboratory, USA

N46-5 (17:30) EPI-Hi: A New Instrument for Measuring Energetic Nuclei and Electrons in the MeV Range on NASA's Solar Probe Plus Mission
M. E. Wiedenbeck, *Jet Propulsion Laboratory, California Institute of Technology, USA*
On behalf of the Integrated Science Investigation of the Sun Collaboration

N46-6 (17:45) Developments in Atomic Layer Deposited Microchannel Plates
C. D. Ertley, O. H. W. Siegmund, *The University of California - Berkeley, USA*; T. Cremer, M. Minot, C. Craven, *Incom, Inc., USA*; J. Elam, A. Mane, *Argonne National Laboratory, USA*

N46-7 (18:00) MUSIC: an ASIC for SiPM Array Signal Summation and Processing
D. Gascon, S. Gomez, G. Fernandez, A. Sanuy, J. Mauricio, D. Ciaglia, R. Graciani, D. Sanchez
ICCUB. University of Barcelona, Spain

N46-8 (18:15) Capability of Thin Dead-Layer Silicon Photomultipliers to Count Low-Energy Electrons
K. Ogasawara, S. A. Livi, M. I. Desai, R. W. Ebert, F. Allegrini, M. A. Dayeh
Southwest Research Institute, USA

N47 Circuits for readout of SiPM and timing

Wednesday, Nov. 2 16:30-18:30 Curie 2

Session Chairs: **Martin L. Purschke**, Brookhaven National Lab, United States
Chiara Guazzoni, Politecnico di Milano and INFN, Italy

N47-1 (16:30) A 16-Channel Readout System for Analog and Digital SiPMs

E. Venialgo[1], N. Lusardi[2], A. Geraci[2], E. Charbon[1]
[1]Delft University of Technology, Netherlands; [2]Politecnico di Milano, Italy

N47-2 (16:45) Triroc, a Versatile 64-Channel SiPM Readout ASIC for Time-of-Flight PET
S. Ahmad, J. Fleury, *Weeroc SAS, France*; C. de La Taille, N. Seguin-Moreau, F. Dulucq, S. Callier, *Omega - CNRS/IN2P3/Ecole Polytechnique, France*

N47-3 (17:00) PETIROC2A, a 32-Channel 20 GHz GBW Readout ASIC for Accurate Time Resolution and Precise Charge Measurements
C. de La Taille[1], S. Ahmad[2], S. Callier[1], F. Dulucq[1], J. Fleury[2], G. Martin-chassard[1], N. Seguin-Moreau[1], D. Thienpont[1], S. Conforti[1]
[1]OMEGA Ecole Polytechnique - CNRS/IN2P3, FRANCE; [2]Weeroc SAS, France

N47-4 (17:15) PACIFIC: SiPM Readout ASIC for LHCb Upgrade
J. Mazorra de Cos, *Instituto de Física Corpuscular (CSIC-UV), Spain*
On behalf of the LHCb Scintillating Fibre Tracker Group

N47-5 (17:30) SPACIROC3: a Low Power 100MHz Photon Counting ASIC for Cosmic Ray Observatory
S. Blin, F. Dulucq, C. de La Taille, D. Thienpont, J. Tongbong, *OMEGA/Ecole Polytechnique/CNRS, Palaiseau*; H. Miyamoto, *Universita di Torino/INFN, Torino*; S. Bacholle, *APC/Université Paris Diderot, Paris*

N47-6 (17:45) ?-PET-V1.0: a Novel and Low-Cost Electronics for Large Scale SiPM Array Readout and Advanced PET Applications
Z. Zhao[1], J. Xu[2], Q. Huang[1], Q. Peng[3]
[1]Shanghai Jiaotong University, China; [2]Huazhong University of Science and Technology, China; [3]Lawrence Berkeley National Laboratory, USA

N47-7 (18:00) The ARAGORN Front-End - FPGA Based Implementation of a Time-to-Digital Converter
M. Buechele, H. Fischer, F. Herrmann, C. Schaffer
University of Freiburg, Germany

N47-8 (18:15) A compact size, 64-channel, 80 MSPS, 14-bit dynamic range ADC module for the PANDA Electromagnetic Calorimeter
P. Marciniewski, T. Johansson, *Uppsala University, Sweden*; P.-E. Tegner, M. F. Preston, K. Makonyi, *Stockholm University, Sweden*; P. Schakel, M. Kavatsyuk, *University of Groningen, The Netherlands*

N48 High energy physics instrumentation III

Thursday, Nov. 3 08:00-10:00 Madrid

Session Chairs: **Ichiro Adachi**, KEK, Japan
Susanne Kuehn, University of Freiburg, Germany and CERN, Germany

N48-1 (08:00) DOM, the Digital Optical Module of the KM3NeT Neutrino Telescope
E. Leonora, *INFN, sezione di Catania, Italy*
On behalf of the KM3NeT Collaboration

N48-2 (08:15) The SHiP Experiment at CERN
C. Betancourt, *University of Zurich, Switzerland*
On behalf of the SHiP Collaboration

N48-3 (08:30) The NA62 GigaTracker Detector
E. Gamberini, *University of Ferrara, INFN Ferrara, Italy*
On behalf of the GigaTracker working group

N48-4 (08:45) Simulations and First Measurements of the Radiation Field in the New Gamma Irradiation Facility (GIF++) at CERN
D. Pfeiffer[1,2], G. Gorine[2], A. Day[2], J. Germa[2], R. Guida[2], M. Jaekel[3], F. Ravotti[2], H. Reithler[4]
[1]European Spallation Source ERIC, Sweden; [2]CERN, Switzerland; [3]University of Oslo, Norway; [4]RWTH Aachen, Germany

N48-5 (09:00) Measuring the Magnetic Flux Density with Flux Loops and Hall Probes in the CMS Magnet Flux Return Yoke
V. I. Klyukhin, *SINP of Lomonosov Moscow State University, Russia*; N. Amapane, *INFN Turin and the University of Turin, Italy*; A. Ball, B. Cure, A. Gaddi, H. Gerwig, M. Mulders, *CERN, Switzerland*; A. Herve, R. Loveless, *University of Wisconsin, USA*

N48-6 (09:15) Development of a Prototype Portable Muography Detector for Exploration of Underground Cavities
K. Chaiwongkhot, T. Kin, H. Ohno, K. Kondo, H. Sato, Y. Watanabe
Kyushu University, Japan

N48-7 (09:30) The S-CVD Radiation Monitoring and Beam Abort System of the Belle-II Vertex Detector
C. La Licata, *INFN and Univ. Trieste, Italy*
On behalf of the Belle II SVD collaboration

N48-8 (09:45) System Architecture and Data Processing Capabilities of the Beam Profile Monitor for the CERN IRRAD Facility
B. Gkotse, *CERN and Télécom Bretagne, Switzerland*; M. Glaser, E. Matli, F. Ravotti, *CERN, Switzerland*

N49 Synchroton radiation and FEL instrumentation II

Thursday, Nov. 3 08:00-10:00 Londres

Session Chairs: **Heinz Graafsma**, DESY, Germany
Marie Ruat, PSI,

N49-1 (08:00) The Detection Module of ARDESIA: a New Versatile Array of SDDs for X-Ray Spectroscopy Synchrotron Applications.
G. Bellotti[1,2], A. D. Butt[1,2], M. Carminati[1,2], C. Fiorini[1,2], R. Insolera[1,2], A. Balerna[2], C. Piemonte[3], N. Zorzi[3], L. Bombelli[4]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Fondazione Bruno Kessler, Italy; [4]XGLAB srl, Italy

N49-2 (08:15) Silicon Avalanche-Photodiode Linear-Array X-Ray Detector of 64 or 128 Pixels with 0.5-Ns Time-Bin Multichannel Scaler
S. Kishimoto, R. Haruki, *Institute of Materials Structure Science, High Energy Accelerator Research Organization, Japan*; T. Mitsui, *National Institutes for Quantum and Radiological Science and Technology, Japan*

N49-3 (08:30) MIMOSA-22SX - A Monolithic Active Pixel Sensor for Low Energy X-Ray Counting Applications
M. Kachel[1,2], J. Baudot[1,2], G. Bertolone[1,2], A. Dawiec[3], F. Guezzi-Messaoud[1,2,3], J. Heymes[1,2], A. Himmi[1,2], C. Hu-Guo[1,2], L. A. Perez-Perez[1,2], M. Winter[1,2]
[1]Université de Strasbourg, IPHC, France; [2]CNRS, UMR7178, France; [3]SOLEIL Synchrotron, France

N49-4 (08:45) The Percival 2 Megapixel Soft X-Ray Imager
C. B. Wunderer[1,2], P. Göttlicher[1], I. Shevyakov[1], J. Supra[1], Q. Xia[1], M. Zimmer[1], J. Viefhaus[1], F. Scholz[1], J. Seltmann[1], J. Correa[1,2], H. Hirsemann[1,2], S. Lange[1,2], A. Marras[1,2], M. Niemann[1,2], S. Smoljanin[1,2], M. Tennert[1,2], S. Reza[1,3,2], N. Tartoni[4], U. K. Pedersen[4], H. Yousef[4], R. Menk[5], L. Stebel[5], G. Cautero[5], D. Giuressi[5], A. Khromova[5,6], G. Pinaroli[5,7], A. D. Jewell[8], T. J. Jones[8], M. E. Hoenk[8], S. Nikzad[8], S. Rah[9], H. Hyun[9], K. Kim[9], R. Turchetta[10], I. Sedgwick[10], D. Das[10], N. Guerrini[10], B. Marsh[10], T. Nicholls[10], S. Klumpp[11], C. Laubis[12], H. Graafsma[1,3,2]
[1]DESY, Germany; [2]CFEL, Germany; [3]Mid Sweden University, Sweden; [4]Diamond Light Source, UK; [5]Elettra, Italy; [6]Universita degli Studi di Trieste, Italy; [7]Universita degli Studi di Udine, Italy; [8]NASA Jet Propulsion Laboratory, USA; [9]Pohang Accelerator Laboratory, Republic of Korea; [10]STFC / RAL, UK; [11]University of Hamburg, Germany; [12]PTB, Germany

N49-5 (09:00) Eiger 9M: High Frame Rate, Large Area Photon Counting Detector for Synchrotron Applications
E. Fröjdh[1], A. Bergamaschi[1], M. Bruckner[1], S. Cartier[1,2], D. Greiffenberg[1], D. Mayilyan[1], D. Mezza[1], A. Mozzanica[1], M. Ramilli[1], S. Redford[1], C. Ruder[1], L. Schadler[1], B. Schmitt[1], X. Shi[1], D. Thattil[1], G. Tinti[1], J. Zhang[1]
[1]Paul Scherrer Institut, Switzerland; [2]Institute for Biomedical Engineering, University and ETH Zurich, Switzerland

N49-6 (09:15) Ultra Fast X-Ray Detector for Synchrotron Applications
P. Maj[1], A. Dawiec[2], G. Deptuch[3], E. M. Dufresne[4], P. Grybos[1], P. Kmon[1], S. Narayanan[4], A. R. Sandy[4], R. Szczygiel[1], Q. Zhang[4]
[1]AGH University of Science and Technology, Poland; [2]Soleil, France; [3]Fermi National Accelerator Laboratory, USA; [4]Argonne National Laboratory, USA

N49-7 (09:30) Edgeless Digital Tier of the 3D Development for the Vertically Integrated Photon Imaging Chip – Large (VIPIC-L)
F. Fahim, G. Deptuch, A. Shenai, *Fermi National Accelerator Laboratory, USA*; P. Grybos, P. Kmon, P. Maj, R. Szczygiel, *AGH-UST, Poland*; D. P. Siddons, J. Mead, A. Kuczewski, A. Rumaiz, *Brookhaven National Laboratory, USA*; J. Weizeorick, R. Bradford, *Argonne National Laboratory, USA*

N49-8 (09:45) The Use of Single-Crystal CVD Diamond X-Ray Beam Diagnostics for Synchrotron Beamline Commissioning and Operation at Diamond Light Source Ltd.
C. Bloomer, *Diamond Light Source Ltd., UK*

N50 Advanced computing and software for experiments I

Thursday, Nov. 3 08:00-10:00 Curie 1

Session Chairs: **Amber Boehnlein**, JLAB, USA,
Borut Kersevan, Jozef Stefan Institute Ljubljana, Slovenia,

N50-1 (08:00) Datasets for Radiation Network Algorithm Development and Testing
N. S. V. Rao, S. Sen, *Oak Ridge National Laboratory, USA*; M. L. Berry, K. M. Grieme, C. Q. Wu, *New Jersey Institute of Technology, USA*; G. Cordone, R. R. Brooks, *Clemson University, USA*

N50-2 (08:15) Simulation of Beam Backgrounds from the LHC Ring to the ATLAS Experiment
A. Manousos, *European Organization for Nuclear Research (CERN), Switzerland*
On behalf of the ATLAS Collaboration

N50-3 (08:30) Online Monte-Carlo Generator Validation in a HEP Environment
T. Harenberg[1], T. Kuhl[2], N. Lang[1], P. Mï¿½ttig[1], M. Sandhoff[1], C. Schwanenberger[2], F. Volkmer[1]
[1]Bergische Universitï¿½t, Germany; [2]DESY, Germany

N50-4 (08:45) Development and Deployment of a Fully Parameterized Fast Monte Carlo Simulation in LHCb
B. G. Siddi, *INFN, Italy*
On behalf of the LHCb Collaboration

N50-5 (09:00) UFO - a Scalable Platform for High-Speed Synchrotron X-Ray Imaging

A. Kopmann, S. Chilingaryan, M. Vogelgesang, T. Dritschler, A. Shkarin, R. Shkarin, T. Farago, T. dos Santos Rolo, T. van de Kamp, M. Balzer, M. Caselle, M. Weber, T. Baumbach
Karlsruhe Institute of Technology, Germany

N50-6 (09:15) Event Building Process from Time Stream Data
V. Singhal, S. Chattopadhyay, *Variable Energy Cyclotron Centre, India*; V. Friese, *GSI, Germany*

N50-7 (09:30) Application of Econometric Data Analysis Methods to Physics Software
M. G. Pia, *INFN Genova, Italy*; E. Ronchieri, *INFN CNAF, Italy*

N50-8 (09:45) Data Knowledge Base as Metadata Catalog for Scientific Experiments
V. V. Osipova[1], A. A. Alekseev[1], M. A. Ivanov[1], M. A. Grigorieva[2], M. Y. Gubin[1], A. A. Klimentov[3]
[1]National Research Tomsk Polytechnic University, Russia; [2]National Research Centre "Kurchatov Institute", Russia; [3]Brookhaven National Laboratory, USA

N51 Circuits for triggering and calorimetry readout

Thursday, Nov. 3 08:00-10:00 Curie 2

Session Chairs: **Christian Bohm**, , Sweden
Martin L. Purschke, Brookhaven National Lab, United States

N51-1 (08:00) The Electronics for Data Acquisition and Data Transport for the KM3NeT Towers
C. A. Nicolau, *INFN, Italy*
On behalf of the KM3NeT-Italy Collaboration

N51-2 (08:15) VIPRAM_L1CMS: a 2-Tier 3D Architecture for Pattern Recognition for Track Finding
J. R. Hoff, G. Deptuch, S. Joshi, T. Liu, J. Olsen, A. Shenai
Fermilab, USA

N51-3 (08:30) The Prototype of Global Calorimetric Hardware Trigger for ATLAS at High Luminosity LHC
H. Chen, *Brookhaven National Laboratory, USA*

N51-4 (08:45) The Level-1 Topological Trigger of ATLAS: Commissioning and Operations
E. Simioni, *Johannes-Gutenberg-Universitaet Mainz, Germany*
On behalf of the The ATLAS Collaboration

N51-5 (09:00) Frontend and Backend Electronics for the ATLAS New Small Wheel Upgrade
A. Bruni, *INFN Bologna, Italy*
On behalf of the ATLAS Muon Collaboration

N51-6 (09:15) LAUROC: "A New Electronically Cooled Line-Terminating Preamplifier for the ATLAS Liquid Argon Calorimeter Upgrade"
G. Martin-Chassard, F. Dulucq, C. de La Taille, N. Seguin-Moreau, *OMEGA Ecole Polytechnique-CNRS/IN2P3, France*; N. Morange, L. Serin, S. Simion, *LAL Université Paris Sud-CNRS/IN2P3, France*

N51-7 (09:30) Development of xTCA Compliant Processor Board for future Trigger Upgrade
Z.-A. Liu, J. Zhao, C. Wang, L. Cheng, P. Cao, *Inst. of High Energy Physics, Chinese Academy of Sciences, China*; D. Acosta, *University of Florida, US*

N51-8 (09:45) ICECAL: a 4 Channel ASIC for the Upgrade of the LHCb Calorimeter
D. Gascon[1], E. Picatoste[1], J. Mauricio[1], C. Beigbeder[2], O. Duarte[2], F. Machefert[2], L. Garrido[1], E. Grauges[1], Y. Guz[3], J. Lefrançois[2], X. Vilasis[4]
[1]ICCUB. University of Barcelona, Spain; [2]Laboratoire de l'Accelerateur Lineaire, France; [3]Institute for High Energy Physics (IHEP), Russia; [4]La Salle. Universitat Ramon Llull, Spain

N52 Scintillators IV: Timing properties

Thursday, Nov. 3 10:30-12:00 Londres

Session Chairs: **Roger Lecomte**, Université de Sherbrooke, Canada
William Moses, , United States

N52-1 (10:30, invited) State of the Art Scintillation Based Detectors for Precise Timing in High Energy and Medical Physics
S. Gundacker[1], A. Benaglia[2], M. Lucchini[1], A. Para[3], K. Pauwels[4], E. Auffray[1], P. Lecoq[1]
[1]CERN, Switzerland; [2]Princeton University, USA; [3]Fermilab National Accelerator Laboratories, USA; [4]University Milano-Bicocca, Italy

N52-2 (11:00) Comparative Study on the Time Resolution of Co-Doped LSO:Ce, LYSO:Ce and LFS
S. E. Brunner[1], A. Ferri[2], A. Gola[2], C. Piemonte[2], D. R. Schaart[1]
[1]TU Delft, The Netherlands; [2]Fondazione Bruno Kessler, Italy

N52-3 (11:15) Study on Coincidence Time Resolution with SiPM and TOFPET-ASIC Utilizing LYSO, GAGG and GFAG
H. V. Wachter[1], F. R. Schneider[2], L. Ferramacho[3], S. Tavernier[3], J. Varela[3], R. Fojt[2], F. Kreupl[1]

[1]Technical University Munich, Germany; [2]KETEK GmbH, Germany; [3]PETsys Electronics SA, Portugal

N52-4 (11:30) Light Production in Scintillators and Nanocrystals During the First 5 Ns Using X-Ray Excitation.
R. Martinez Turtos[1], S. Gundacker[2], J. Grim[3], M. Salomoni[1], E. Auffray[2], P. Lecoq[2], M. Paganoni[1]
[1]Università degli Studi di Milano Bicocca, Italy; [2]CERN, Switzerland; [3]Research Naval Laboratory, USA

N52-5 (11:45) Fast Luminescence Response in Self-Activated and Ce-Doped Scintillation Materials
G. Tamulaitis[1], E. Auffray[2], R. Augulis[3], A. Fedorov[4], V. Gulbinas[3], M. Korjik[2], M. T. Lucchini[2], V. Mechinsky[4], S. Nargelas[1], E. Songaila[3], A. Vaitkevicius[1]
[1]Vilnius University, Lithuania; [2]CERN, Switzerland; [3]Center for Physical Sciences and Technology, Lithuania; [4]Research Institute for Nuclear Problems, Belarus

N53 New concepts in solid-state detectors and radiation damage effects III

Thursday, Nov. 3 10:30-12:00 Curie 1

Session Chairs: **Marcello Manelli**, CERN,
Clara Troncon, INFN Milano, Italy

N53-1 (10:30) Radiation Hardness of Monolithic Active Pixel Sensors for the ALICE Inner Tracking System Upgrade
H. Hillemanns, *CERN, Switzerland*
On behalf of the ALICE Experiment

N53-2 (10:45) HVCMOS Pixel Detectors - First Measurements on the Reticle Size Prototype for the ATLAS Pixel Layers
F. Ehrler, I. Peric, R. Schimassek
Karsruhe Institute of Technology, Germany

N53-3 (11:00) Characterization of Fully Depleted CMOS Active Sensors on High Resistive Substrate for High Radiation Environment
T. Hirono[1], M. Barbero[2], P. Breugnon[2], S. Godiot[2], T. Hemperek[1], F. Hügging[1], J. Janssen[1], H. Krüger[1], J. Liu[2], P. Pangaud[2], I. Peric[3], D.-L. Pohl[1], A. Rozanov[1], P. Rymaszewski[1], N. Wermes[1]
[1]University of Bonn, Germany; [2]Aix-Marseille Universite, France; [3]Karlsruher Institut für Technologie, Germany

N53-4 (11:15) The INVESTIGATOR - an Efficient Tool to Optimize Design Parameters of a CMOS Pixel Sensor
J. W. van Hoorne[1], G. Aglieri[1], C. Gao[2], H. Hillemanns[1], A. Junique[1], M. Keil[1], D. Kim[3], M. Kofarago[1], T. Kugathasan[1], M. Mager[1], Q. Malik[4], C. Marin Tobon[1], P. Martinengo[1], H. Mugnier[5], L. Musa[1], S. Lee[3], F. Reidt[1], P. Riedler[1], J. Rousset[5], K. M. Sielewicz[1], W. Snoeys[1], M. Suljic[6], P. Yang[2]
[1]CERN, Switzerland; [2]Central China Normal University, China; [3]Dongguk and Yonsei University, Korea; [4]COMSATS, Pakistan; [5]Mind, France; [6]University and INFN, Italy

N53-5 (11:30) HVCMOS Pixel Detectors - Methods for Enhancement of Time Resolution
R. Schimassek, F. Ehrler, I. Peric
Karlsruhe Institute of Technology (KIT), Germany

N53-6 (11:45) Enhancement of the Radiation Tolerance of High Resolution CMOS Pixel Sensors Using Strong Depletion in a High Resistivity Epitaxial Layer for Charged Particle Tracking
A. Perez Perez, *IPHC - IN2P3/CNRS, France*
On behalf of the PICSEL-IKF collaboration

N54 Instrumentation for Security II

Thursday, Nov. 3 10:30-12:00 Curie 2

Session Chairs: **Klaus Ziock**, Oak Ridge National Laboratory, United States
Adrien Sari, CEA LIST, France

N54-1 (10:30) Why Is Nuclide Identification so Difficult? - Lessons from the RASE Program.
N. Martin-Burtart, *Radiation Solutions Inc, Canada*

N54-2 (10:45) A Cost Effective Means of Extending the Lifetime of Plastic Scintillators in Portal Monitors
M. R. Kusner, P. R. Menge, *Saint-Gobain Crystals, USA*

N54-3 (11:00) Design of a Compact Radioxenon Detection System Using CdZnTe, Plastic Scintillator, and SiPMs
S. A. Czyz, A. T. Farsoni, E. M. Becker, H. R. Gadey
Oregon State University, USA

N54-4 (11:15) ?Performance of a Wearable Neutron Search Instrument with Direction-Finding Capability
M. Foster, D. Ramsden, *Symetrica Security Ltd., UK*

N54-5 (11:30) Initial Characterization of a Silicon Photomultiplier Based System for Neutron Detection with Enhanced Gamma Discrimination
M. Caccia, R. Santoro, L. Malinverno, *Universitï¿½ dell'Insubria, Italy*; M. Ellis, C. Allwork, *AWE, United Kingdom*; A. Bell, E. Marsden, I. Radley, *KROMEK, United Kingdom*

N54-6 (11:45) Recent Advances in Hard X-Ray and Soft Gamma-Ray Multilayer Mirrors Applications
M.-A. Descalle, J. Alameda, N. F. Brejnholt, T. A. Decker, M. J. Pivovaroff, J. Ruz-Armendariz, R. Soufli
Lawrence Livermore Nat. Lab., USA

N55 New concepts in solid-state detectors and radiation damage effects IV

Thursday, Nov. 3 14:00-16:00 Madrid

Session Chairs: **Christine Hu**, IN2P3, France,
Luciano Musa, CERN, Switzerland

N55-1 (14:00) Development of Thin Active Region Sensors on 8" Wafers for for Particle Physics
R. Lipton[1], J. Segal[2], U. Heintz[3], S. Hong[4], R. Bradford[5], R. Demina[6], R. Patti[4], G. Bolla[1], K.-W. Shin[5], M. Haji-Sheikh[7]
[1]Fermilab, USA; [2]SLAC National Accelerator Laboratory, USA; [3]Brown University, USA; [4]Tezzaron Inc., USA; [5]Argonne National Laboratory, USA; [6]University of Rochester, USA; [7]Northern Illinois, USA

N55-2 (14:15) Two-Tier Pixelated Avalanche Sensor for Particle Detection in 150nm CMOS
L. Pancheri[1,2], A. Ficorella[1,2], P. Brogi[3,4], G. Collazuol[5,6], G.-F. Dalla Betta[1,2], P. S. Marrocchesi[3,4], F. Morsani[4], L. Ratti[7,8], A. Savoy-Navarro[9,4]
[1]Università di Trento, Italy; [2]TIFPA - INFN, Italy; [3]Università di Siena, Italy; [4]INFN Pisa, Italy; [5]Università di Padova, Italy; [6]INFN Padova, Italy; [7]Università di Pavia, Italy; [8]INFN Pavia, Italy; [9]University Paris-Diderot/CNRS, France

N55-3 (14:30) New Thin 3D Pixel Sensors for HL-LHC: First Results
G.-F. Dalla Betta[1,2], M. Boscardin[3,2], G. Darbo[4], A. Gaudiello[4,5,6], R. Mendicino[1,2], M. Meschini[7], A. Messineo[8,9], S. Ronchin[3,2], D. Sultan[1,2], N. Zorzi[3,2]
[1]University of Trento, Italy; [2]TIFPA INFN, Italy; [3]Fondazione Bruno Kessler, Italy; [4]INFN Sezione di Genova, Italy; [5]University of Genova, Italy; [6]CERN, Switzerland; [7]INFN Sezione di Firenze, Italy; [8]INFN Sezione di Pisa, Italy; [9]University of Pisa, Italy

N55-4 (14:45) Properties of DEPFET Active Pixel Sensors Fabricated in an Industrial CMOS Foundry
S. Aschauer[1], J. Hauser[2], S. Weyers[2], D. Schlosser[1], D. Kalok[1], P. Holl[1], R. Hartmann[1], G. Lutz[1], P. Majewski[1], L. Strüder[1,3]
[1]PNSensor GmbH, Deutschland; [2]Fraunhofer-Institut für Mikroelektronische Schaltungen, Deutschland; [3]University of Siegen, Deutschland

N55-5 (15:00) Optimization of Thin N-in-P Planar Pixel Modules for the ATLAS Upgrade at HL-LHC
A. Macchiolo, J. Beyer, R. Nisius, A. La Rosa, N. Savic
Max-Planck-Institut fuer Physik, Germany

N55-6 (15:15) Measurement of the Time Resolution of Ultra-Fast Silicon Detectors
H. Sadrozinski, *Santa Cruz Institute for Particle Physics, USA*
On behalf of the UFSD Collaboration

N55-7 (15:30) Investigation of Radiation Damage Due to Particle Irradiation on Silicon Drift Detector for Chandrayaan-2 Mission
S. M., V. S. V., P. A., G. S. K., L. T., *Physical Research Laboratory, India*; P. S., N. V., *Tata Institute of Fundamental Research, India*

N55-8 (15:45) Validation Strategy for the Simulation of Highly Irradiated Silicon Pixel Sensors
J. Schwandt, E. Fretwurst, E. Garutti, R. Klanner, G. Steinbrueck
Institute of Experimental Physics, University of Hamburg, Germany

N56 Instrumentation for experimental reactors and nuclear power plants I

Thursday, Nov. 3 14:00-15:45 Londres

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Malcolm J. Joyce, Lancaster University, United Kingdom

N56-1 (14:00) Electronic Support System Enhancements for Micro-Pocket Fission Detectors
M. A. Reichenberger, T. J. Sobering, D. M. Nichols, J. A. Geuther, D. S. McGregor, P. B. Ugorowski, T. C. Unruh
Kansas State University, USA

N56-2 (14:15) µGe: a Miniature Germanium Detector for Immediate Operation
V. Marian[1], J. Clauss[1], R. Abou-Khalil[2], J.-O. Beau[1], B. Pirard[1], J. Flamanc[1], M.-O. Lampert[1]
[1]Canberra Specialty Detectors, France; [2]AREVA Corporate Research & Development, France

N56-3 (14:30) Passive Neutron Coincidence Counting with Plastic Scintillators for the Characterization of Technological Radioactive Waste Drums

B. Simony, B. Perot, C. Carasco, *CEA Cadarache, France*; N. Saurel, S. Colas, *CEA Valduc, France*; J. Collot, *CNRS IN2P3, France*

N56-4 (14:45) Self-Powered Detectors for Test Blanket Modules in ITER
P. Raj[1], M. Angelone[2], U. Fischer[1], A. Klix[1]
[1]Karlsruhe Institute of Technology, Germany; [2]ENEA CR, Italy

N56-5 (15:00) Neutron Activation System for the European ITER Test Blanket Modules
A. Klix[1], U. Fischer[1], D. Gehre[2], B. Ghidersa[1], K. Tian[1]
[1]Karlsruhe Institute of Technology, Germany; [2]Technical University of Dresden, Germany

N56-6 (15:15) Fast Megavoltage X-Rays Radioscopy
N. Estre, E. Payan, L. Berge, *CEA, FRANCE*

N56-7 (15:30) A Combined Compton Camera and LIDAR System for 3D Imaging of Near-Field Gamma Sources
A. C. Caffrey, L. J. Harkness-Brennan, D. S. Judson, A. J. Boston, H. C. Boston, J. R. Cresswell, P. J. Nolan, A. Patel, G. Randall, C. Reid, E. A. Rintoul, C. Unsworth, T. F. Woodroof, *University of Liverpool, UK*; K. D. Atkinson, *Defence Academy, UK*

N57 Photodetectors III - Other photodetectors

Thursday, Nov. 3 14:00-16:00 Curie 1

Session Chairs: **Veronique Puill**, CNRS In2p3 LAL, France
Samo Korpar, University of Maribor and JSI, Slovenia

N57-1 (14:00) Characterization of the IDP2 SPAD Array Chip
P. Fischer, K. Manfred, R. Michael, S. Michael, T. Christophe
Institute for Computer Engineering, Heidelberg University, Germany

N57-2 (14:15) Microscale Mapping of the Photon Detection Probability of SPADs
E. Gros-Daillon[1], L. Verger[1], D. A. B. Bonifacio[1,2], E. Charbon[3], C. Bruschini[4], L. H. C. Braga[5], L. Gasparini[5], N. Massari[5], M. Perenzoni[5], D. Stoppa[5], R. Walker[6], A. T. Erdogan[6], R. K. Henderson[6], B. Raei[7], S. Pellegrin[7]
[1]CEA - LETI, France; [2]Institute of Radioprotection and Dosimetry, Brazil; [3]Delft University of Technology, The Netherlands; [4]EPFL, Switzerland; [5]Fondazione Bruno Kessler, Italy; [6]the University of Edinburgh, United Kingdom; [7]STMicroelectronics, United Kingdom

N57-3 (14:30) Capacitive Signal Coupling Through the Vacuum Package in LAPPD(TM) Detectors
B. W. Adams[1], M. R. Foley[1], M. J. Minot[1], E. J. Angelico[2], T. M. Seiss[2], A. Elagin[2], H. J. Frisch[2], M. J. Wetstein[1]
[1]Incom, Inc., U.S.; [2]University of Chicago, U.S.

N57-4 (14:45) LAPPD™ Manufacturing Test & Performance Results
M. J. Minot[1], C. A. Craven[1], A. Lyashenko[1], J. W. Elam[2], A. A. Mane[2], O. H. W. Siegmund[3], C. Ertley[3], H. J. Frisch[4], A. Elagin[4], B. W. Adam[1], M. J. Aviles[1], J. L. Bond[1], T. Cremer[1], M. R. Foley[1], M. A. Popecki[1], M. E. Stochaj[1], W. A. Worstell[1]
[1]Incom Inc., USA; [2]Argonne National Laboratory, USA; [3]University of California, USA; [4]University of Chicago, USA

N57-5 (15:00) The Tynode: a New Vacuum Electron Multiplier for Ultra Fast Pixelised Particle Detectors
H. van der Graaf, *Nikhef, Netherlands*
On behalf of the MEMBrane Group

N57-6 (15:15) The Novel ABALONE Photosensor Technology
D. Ferenc, A. Chang, *University of California, USA*; M. Segedin Ferenc, *PHOTONLAB Inc., USA*

N57-7 (15:30) FASPAX: a Fast, Integrating Detector for the APS-Upgrade
R. Bradford[1], K.-W. Shin[1], J. Baldwin[1], D. Braga[2], G. Deputch[2], F. Fahim[2], T. Madden[1], T. Zimmerman[2]
[1]Argonne National Laboratory, USA; [2]Fermi National Accelerator Laboratory, USA

N57-8 (15:45) A New Spectroscopic Imager for X-Rays from 0.5 keV to 150 keV Combining a pnCCD and a Columnar CsI(Tl) Scintillator
L. Strueder[1], R. Hartmann[1], A. Bechteler[2], A. Abboud[3], M. Shokr[3], T. Conka Nurdan[4], U. Pietsch[3]
[1]PNSensor GmbH, Germany; [2]PNDetector GmbH, Germany; [3]University of Siegen, Germany; [4]Türkisch-Deutsche Universität, Turkey

N58 Gaseous detectors III: Applications in Large Experiments

Thursday, Nov. 3 14:00-16:00 Curie 2

Session Chairs: **Bruno Guerard**, ILL, France
Leszek Ropelewski, CERN, Switzerland

N58-1 (14:00) First Results from a Prototype Combination TPC Cherenkov Detector with GEM Readout
B. Azmoun[1], T. Hemmick[2], R. Majka[3], M. Phipps[4], M. L. Purschke[1], N. Smirnov[3], C. Woody[1], A. Zhang[5]
[1]Brookhaven National Lab, USA; [2]Stony Brook University, USA; [3]Yale University, USA; [4]University of Illinois, USA; [5]Florida Institute of Technology, USA

N58-2 (14:15) The KLOE-2 Cylindrical GEM Inner Tracker: Detector Operation, Calibration and Performance
E. De Lucia, *INFN-LNF, Italy*
On behalf of the KLOE-2 Inner Tracker Group

N58-3 (14:30) Performance Tests of a Resistive Micromegas Detector Quadruplet
J. Bortfeldt, *CERN, Switzerland*

N58-4 (14:45) Design, Construction, and Performance of the Slice Test Detectors for the Forward Muon Upgrade of the CMS Detector
B. L. Dorney, *CERN, Switzlerand*
On behalf of the CMS Collaboration

N58-5 (15:00) Development and Test of a microTPC Cluster Reconstruction for a Triple GEM Detector in Strong Magnetic Field
G. Cibinetto, *INFN Ferrara, Italy*
On behalf of the BESIII GEM group

N58-6 (15:15) The MPGD-Based Photon Detectors for the Upgrade of COMPASS RICH-1
S. Dalla Torre, *INFN, Italy*
On behalf of the The COMPASS RICH group

N58-7 (15:30) Performance of the RICH Detector of the NA62 Experiment
V. Duk, *INFN Perugia, Italy*
On behalf of the NA62 collaboration

N58-8 (15:45) The Straw Tube Tracker for the Mu2e Experiment
V. L. Rusu, *Fermilab, USA*
On behalf of the mu2e collaboration

N59 Instrumentation for Security III

Thursday, Nov. 3 16:30-18:30 Madrid

Session Chairs: **Celeste Fleta**, Instituto de Microelectronica de Barcelona, IMB-CNM (CSIC), Spain
Richard T. Kouzes, Pacific Northwest National Laboratory, United States

N59-1 (16:30) Detection of Special Nuclear Materials with Tagged Neutrons
B. PÃ©rot, C. Carasco, C. Deyglun, G. Sanniï¿½, J. Gamairo, G. Corre, K. Bourdergui, V. Kondrasovs
CEA, France

N59-2 (16:45) Recent Results on Complementing the CRIPT Muon Tomography Detector with Passive Neutron and Gamma-Ray Systems for the Detection and Imaging of Shielded Special Nuclear Materials
O. Kamaev, V. Anghel, A. Erlandson, C. Jewett, S. Livingstone, M. Thompson, B. van der Ende
Canadian Nuclear Laboratories Ltd, Canada

N59-3 (17:00) High-Resolution Imaging of Nuclear Waste Containers with Muon Scattering Tomography
L. Frazao, S. Maddrell-Mander, J. Velthuis, C. Thomay
University of Bristol, UK

N59-4 (17:15) Portable Muon Scattering Tomography Detectors for Security Imaging Applications
J. Burns, *AWE plc, United Kingdom*

N59-5 (17:30) Dual-Particle Transmission Spectroscopy Using a $^{11}B(d,n?)^{12}C$ Source
J. Nattress[1], M. Mayer[2], P. Rose[3], M. Wonders[4], K. Wilhelm[4], A. Erickson[3], I. Jovanovic[1]
[1]The University of Michigan, United States; [2]Pacific Northwest National Laboratory, United States; [3]Georgia Institute of Technology, United States; [4]The Pennsylvania State University, United States

N59-6 (17:45) Development and Testing of the Multi-Sensor Interdiction System Testbed (MIST) Advanced Technology Demonstration (ATD) for Detection and Tracking of Vehicle-Borne Radiation Sources
D. A. Cooper, R. J. Ledoux, W. Franklin, K. Kamieniecki, S. E. Korbly, J. Costales, R. Niyazov, D. Hempstead, M. Gallagher, *Passport Systems, Inc., USA*; C. Monnier, R. Wronski, A. Ost, *Charles River Analytics, Inc., USA*

N59-7 (18:00) Post-Blast Radiological Dispersal Device Source Term Estimation
D. L. Chichester, J. T. Johnson, S. M. Watson, S. J. Thompson, N. R. Mann, K. P. Carney
Idaho National Laboratory, USA

N59-8 (18:15) Operation and Sensitivity of the Radioxenon Laboratory at PNNL
M. P. Foxe, J. M. Mendez, M. F. Mayer, I. M. Cameron, D. A. Haas, J. C. Hayes, T. W. Bowyer
Pacific Northwest National Laboratory, United States

N60 Scintillators V: Applications

Thursday, Nov. 3 16:30-18:30 Londres

Session Chairs: **Rainer W. Novotny**, University Giessen , Germany
Hong Joo Kim, Department of Physics,

N60-1 (16:30, invited) A Novel Scheme of Compton Imaging for Nuclear Medicine
G. Pausch[1], A. Schulz[1], W. Enghardt[1,2,3]
[1]Helmholtz-Zentrum Dresden - Rossendorf, Germany; [2]Technische Universität Dresden, Germany; [3]DKTK - German Cancer Consortium, Germany

N60-2 (17:00) Development of a SiPM-Based Detection Module for Large LaBr3:Ce Scintillators for Nuclear Physics Applications
G. Cozzi[1,2], J. Agostini[1], M. Carminati[1], C. Fiorini[1,2], C. Piemonte[3], A. Gola[3], V. Regazzoni[3,4]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Fondazione Bruno Kessler, Italy; [4]Università degli studi di Trento, Italy

N60-3 (17:15) Development of a Less Expensive Gamma-Ray Detector Sensitive to a Source Direction Using GAGG(Ce) Scintillators and MPPCs
K. Kojima, T. Nakamori, S. Gunji, M. Takebe, *Faculty of Science, Yamagata University, Japan*; H. Sato, S. Ito, S. Kato, M. Yoshino, Y. Usuki, *Furukawa Co., Ltd.,, Japan*; J. Kataoka, *Waseda University, Japan*

N60-4 (17:30) Li co-doped NaI:Tl - a Large Volume Neutron-Gamma Dual Mode Scintillator with Exceptional Pulse Shape Discrimination
K. Yang, P. R. Menge, *Saint-Gobain Crystals, USA*

N60-5 (17:45) New Pulse Shape Discrimination Algorithms for Application on Digitized Scintillation Pulses
A. Enqvist, H. Wang, K. Stadnikia, R. Kelley, K. Jordan
University of Florida, United States

N60-6 (18:00) New Approaches for a 2D Neutron Detector Based on ZnS:6LiF Scintillator Readout with WLS Fibers and SiPMs
M. Hildebrandt, J.-B. Mosset, A. Stoykov
Paul Scherrer Institut, Switzerland

N60-7 (18:15) Laboratory Tests for X-Rays Crystal Detectors with SiPMT Array Readout
M. Bonesini, R. Bertoni, M. Clemenza, R. Mazza, M. Nastasi, *Sezione INFN Milano Bicocca, Dipartimento di Fisica G. Occhialini, Italy*; T. Cervi, A. deBari, A. Menegolli, M. Rossella, *Sezione INFN Pavia, Dipartimento di Fisica, Italy*

N61 Simulation and prototyping for detector development II

Thursday, Nov. 3 16:30-18:30 Curie 1

Session Chairs: **Felix Sefkow**, DESY, Germany
Nicolo Cartiglia, INFN, Italy

N61-1 (16:30) Benefits for nEXO of a Fully Digital Large Area Photon Detector Made of 3D Digital SiPMs
S. A. Charlebois[1], F. Bourque[1], G. Cao[2], F. Retiere[3], J.-F. Pratte[1]
[1]Université de Sherbrooke, Canada; [2]Institute of High Energy Physics, China; [3]TRIUMF, Canada

N61-2 (16:45) New Developments in the Design and Production of Low-Gain Avalanche Detectors
N. Cartiglia[1], G. F. Dalla Betta[2], M. Boscardin[3], G. Paternoster[3], L. Pancheri[2], F. Cenna[1,4], M. Ferrero[1,4], V. Sola[1,4], R. Arcidiacono[1,5], M. Obertino[1,4], V. Monaco[1,4], R. Bellan[1,4], A. Staiano[1,4], S. Durando[1,4]
[1]INFN, italy; [2]Universita' di Trento, Italy; [3]Fondazione Bruno Kessler, Italy; [4]Universita' di Torino, Italy; [5]Universita' Piemonte Orientale, Italy

N61-3 (17:00) Testbeam Studies of Silicon Microstrip Sensor Architectures Modified to Facilitate Detector Module Mass Production
L. Poley, *DESY, Germany*
On behalf of the ATLAS Collaboration

N61-4 (17:15) Compact Pixel Module with Through-Silicon Vias, TSV
R. L. Bates[1], H. Pernegger[2], M. Backhaus[2], K. Dette[2], D. Schaefer[2], P. Riedler[2], A. Di Mauro[2], M. Capeans[2], C. Buttar[1], A. Macchiolo[3], R. Nisius[3], A. La Rosa[3], A. Lounis[4], G. Pares[5]
[1]Physics and Astronomy, The University of Glasgow, UK; [2]CERN, Switzerland; [3]Max Planck Institute for Physics, Germany; [4]LAL, Laboratoire de l'Accélérateur Linéaire, France; [5]CEA LETI, France

N61-5 (17:30) Development of the Fast and Efficient Gamma Detector Using Cherenkov Light
C. Canot[1], O. Kochebina[1], M. Alokhina[1,2], P. Abbon[1], G. Tauzin[1], D. Yvon[1], V. Sharyy[1]
[1]CEA, France; [2]Taras Shevchenko National University of Kyiv, Ukraine

N61-6 (17:45) Dispersed SiPM Readout for PVT
M. Meshkian, U. Gendotti, R. Chandra, *Arktis Radiation Detectors Ltd., Switzerland*; P. Schotanus, *Scionix Holland B.V., The Netherlands*

N61-7 (18:00) High Precision Timing Measurement in the CALICE Analogue Hadronic Calorimeter
E. Brianne, *DESY, Germany*
On behalf of the CALICE Collaboration

N61-8 (18:15) Development of PET Detector Module Using Capacitive Multiplexing Circuit for Time-of-Flight (TOF) PET
D. Kwak, Y. Choi, H.-J. Choe, J. H. Jung, *Sogang University, South Korea*; W. Hu, J. Yan, *FMI Medical Systems Co., Ltd., China*

N62 Neutron detectors : Semiconductor Devices and Neutron Sources

Thursday, Nov. 3 16:30-18:30 Curie 2

Session Chairs: **Gian-Franco Dalla Betta**, University of Trento and INFN, Italy
Richard J. Hall-Wilton, European Spallation Source ESS AB, Sweden

N62-1 (16:30) Rugged, Compact, Diamond-Based Fast Neutron Detector Operating at up to 200°C
O. Philip, F. Gicquel, V. Ernst, Z. Zhou, *Schlumberger, USA*

N62-2 (16:45) High Temperature Operation of Single Crystal Diamond Detectors
M. Angelone[1], R. Pilotti[2], F. Sarto[1], S. Loreti[1], G. Pagano[1], M. Pillon[1], M. Marinelli[2], E. Milani[2], C. Verona[2], G. Prestopino[2], G. Verona-Rinati[2], S. Fiore[1]
[1]ENEA, Italy; [2]Universita degli Studi, Italy

N62-3 (17:00) Microstructured Semiconductor Neutron Detector (MSND)-Based Direct Helium-3 Replacement (HeRep) for High Pressure Helium-3 Detectors
T. R. Ochs[1], S. L. Bellinger[2], R. G. Fronk[1], L. C. Henson[2], D. E. Huddleston[3], T. J. Sobering[3], D. S. McGregor[1]
[1]Kansas State University S.M.A.R.T. Laboratory, United States; [2]Radiation Detection Technologies, Inc., United States; [3]Kansas State University Electronics Design Laboratory, United States

N62-4 (17:15) Conception of a New Recoil Proton Telescope for Real-Time High-Energy Neutron Spectrometry
R. Combe, N. Arbor, Z. El Bitar, S. Higueret, D. Husson
IPHC, France

N62-5 (17:30) The ATLAS-TPX Detector Network
B. Bergmann[1], J. Begera[1], P. Burian[1], I. Caicedo[1], D. Caforio[1], E. Heijne[1], J. Janecek[1], P. Manek[1], Y. Mora[1], M. Platkevic[1], J. Pacik[1], S. Polansky[1], S. Pospisil[1], M. Suk[1], Z. Svoboda[1], C. Leroy[2], T. Billoud[2], A. Sopczak[1]
[1]Czech Technical Uinversity in Prague, Czech Republic; [2]Universite de Montreal, Canada

N62-6 (17:45) Web-Shaped Microstructured Silicon Hybrid Detectors of Thermal Neutrons
R. Mendicino[1,2], A. Bagolini[3,2], N. Bensada Laidani[3], M. Boscardin[3,2], G.-F. Dalla Betta[1,2]
[1]University of Trento, Italy; [2]TIFPA INFN, Italy; [3]Fondazione Bruno Kessler (FBK), Italy

N62-7 (18:00) The Frascati Neutron Generator: Present Activities and Future Upgrades
S. Fiore[1,2], M. Angelone[1], S. Loreti[1], A. Pietropaolo[1], M. Pillon[1]
[1]ENEA, Italy; [2]INFN, Italy

N62-8 (18:15) Photoneutron Interrogation Measurements with a 9 MeV Electron Accelerator for the Detection of Fissile Materials
A. Sari, F. Carrel, F. Lainé, *CEA LIST, France*; M. Ledieu, *CEA DEN, France*

N63 Data acquisition, trigger and analysis III

Friday, Nov. 4 08:00-10:00 Madrid

Session Chairs: **Luca Galli**, Istituto Nazionale di Fisica Nucleare sezione di Pisa, Italy
Zhen-An Liu, Inst. of High Energy Physics, Chinese Academy of Sciences, China

N63-1 (08:00) A Scalable Data Acquisition for the CALICE Tile Hadron Calorimeter
J. Kvasnicka[1,2], *[1]Institute of Physics of the Czech Academy of Sciences, Czech Republic; [2]Deutsches Elektronen-Synchrotron (DESY), Germany*
On behalf of the CALICE Collaboration

N63-2 (08:15) The ATLAS Trigger Algorithms for General Purpose Graphics Processor Units
A. Tavares Delgado, *LIP, Portugal*
On behalf of the ATLAS Collaboration

N63-3 (08:30) Real-Time Track Reconstruction During Readout Using an Artificial Retina Architecture
M. J. Morello[1,2], G. Punzi[2,3], R. Cenci[1,2], P. Marino[1,2], S. Stracka[2,3], L. Ristori[4], J. Walsh[2], F. Bedeschi[2], F. Spinella[2]
[1]Scuola Normale Superiore, Italy; [2]INFN-Pisa, Italy; [3]University of Pisa, Italy; [4]Fermilab, USA

N63-4 (08:45) A Modular Data Acquisition System for (S)PE(C)T Applications
N. Chevillon, C. Fuchs, J. Sahr, R. Sefri, X. Fang, V. Bekaert, F. Boisson, D. Brasse
IPHC / CNRS-IN2P3, Universite de Strasbourg, FRANCE

N63-5 (09:00) Robust Detection of Radiation Threat Using Uncertain Censored Energy Windows

E. Lei, K. Miller, P. Huggins, A. Dubrawski
Carnegie Mellon University, United States

N63-6 (09:15) Liquid Contrabands Classification with Mixed XRD Spectra
T.-Y. YangDai[1,2], L. Zhang[1,2]
[1]Tsinghua University, China; [2]Key Laboratory of Particle & Radiation Imaging, China

N63-7 (09:30) Null-Hypothesis Testing Using Distance Metrics for Verification of Arms-Control Treaties
M. Khalil[1], E. M. Brubaker[1], N. R. Hilton[1], M. A. Kupinski[2], C. J. MacGahan[2], P. A. Marleau[1]
[1]Sandia National Laboratories, USA; [2]The University of Arizona, USA

N63-8 (09:45) Photon Counting Energy Resolved Transmission Spectroscopy for Real-Time Mineral Analysis
P. A. B. Scoullar, L. Grundy, F. Linnane
Southern Innovation, Australia

N64 Nuclear Physics Instrumentation II: Experiments

Friday, Nov. 4 08:00-10:00 Curie 1

Session Chairs: **Lorenzo Fabris**, Oak Ridge National Laboratory, United States
Fabrice Retiere, TRIUMF, Canada

N64-1 (08:00) The Status of AMoRE-Pilot Experiment
C. S. Kang, *Institute for Basic Science, Republic of KOREA*
On behalf of the AMoRE collaboration

N64-2 (08:15) Searching Neutrinoless Double Beta Decay with EXO-200
T. Michel, *Erlangen Centre for Astroparticle Physics, Germany*
On behalf of the EXO-200 Collaboration

N64-3 (08:30) nEXO - an experiment to search for neutrinoless double beta decay
A. Schubert, *Standford University, USA*
On behalf of the nEXO collaboration

N64-4 (08:45) RED-100 Two-Phase Xenon Emission Detector to Search for Coherent Neutrino Scattering
A. Bolozdynya, *National Research Nuclear University MEPhI, Russia*
On behalf of the RED Collaboration

N64-5 (09:00) The Neutron Induced Fission Fragment Tracking Experiment: High-Precision Fission Cross Section Measurements with a Time Projection Chamber
N. Bowden, *Lawrence Livermore National Laboratory, USA*
On behalf of the NIFFTE Collaboration

N64-6 (09:15) Active Target Time Projection Chamber (AT-TPC) at the NSCL
Y. Ayyad, W. Mittig, D. Bazin, S. Beceiro-Novo, M. Cortesi, W. Lynch, J. Yurkon
NSCL, USA

N64-7 (09:30) DSSSD Based Spectrometer of the Dubna Gas-Filled Recoil Separator to Search for ER-Alpha Sequences in a Real-Time Mode
Y. S. Tsyganov, A. N. Polyakov, A. A. Voinov, *JINR, Russia*

N64-8 (09:45) SIRIUS Project Spectroscopy & Identification of Recoiling Ions Using S3
N. Karkour, *CNRS/IN2P3/CSNSM, France*
On behalf of the SIRIUS Project Collaboration

NCP NSS Closing Plenary

Friday, Nov. 4 10:30-13:00 Curie 1+2

Session Chairs: **Susanne Kuehn**, University of Freiburg, Germany and CERN, Germany
Eckhard Elsen, CERN,

NCP-1 (10:30, invited) Instrumentation, diagnostic and measurement challenges and opportunities for JHR testing reactor and ITER fusion Device
R. Reichle, *ITER oraganisation, France*; G. Bignan, *CEA-DEN, France*

NCP-2 (11:00, invited) Instrumentation Challenges for Future Colliders
M. Demarteau, *Argonne National Laboratory, US*

NCP-3 (11:35, invited) Student Awards Ceremony for Best Student Oral Presentation and Poster

S. Kuehn[1,2], E. Elsen[2]
[1]*University of Freiburg, Germany, Germany;* [2]*CERN, Switzerland*

NCP-4 (11:50, invited) Presentation from the IEEE Radiation Instrumentation Steering Committee
P. Le Du, *CEA, France*

NCP-5 (11:55, invited) NSS Closing Ceremony and Happy Hour
S. Kuehn[1,2], E. Elsen[2]
[1]*University of Freiburg, Germany, Germany;* [2]*CERN, Switzerland*

MIC Program

M01 MIC Plenary 1

Wednesday, Nov. 2 08:00-10:00 Schweitzer

Session Chairs: **Dimitris Visvikis**, INSERM UMR1101, France
Suleman Surti, University of Pennsylvania, United States

M01-1 (08:00) Introduction
D. Visvikis, *INSERM, LaTIM, France*; S. Surti, *University of Philadelphia, USA*

M01-2 (08:15) Radiomics: Mining images to make better decisions in cancer therapy
A. Dekker, *MAASTRO Clinic, The Netherlands*

M01-3 (09:35) Adventures in the nuclear medical imaging wonderland
S. Cherry, *University of California, Davis, USA*

J01 Joint Session I - MIC-NSS-RTSD

Wednesday, Nov. 2 10:30-12:00 Schweitzer

Session Chairs: **Loick Verger**, CEA-LETI, France
Andrew J. Blue, University Of Glasgow, United Kingdom

J01-1 (10:30) Evolution of Diamond Based Microdosimetry
J. A. Davis[1], K. Ganesan[2], D. A. Prokopovich[3], M. Petasecca[1], S. Guatelli[1], D. N. Jamieson[2], M. L. F. Lerch[1], A. B. Rosenfeld[1]
[1]*Centre for Medical Radiation Physics, Australia;* [2]*University of Melbourne, Australia;* [3]*Australian Nuclear Science and Technology Organisation, A*

J01-2 (10:45) Tackling the Count Rate Problem in Spectral CT by Means of a GaAs-Based Medipix3RX Detector Operated in Edge-on Geometry
S. Haaga[1], E. Hamann[1], M. Zuber[1], A. Fauler[2], M. Fiederle[1,2], T. Baumbach[1], T. Koenig[1,3]
[1]*Karlsruhe Institute of Technology, Germany;* [2]*University of Freiburg, Germany;* [3]*Ziehm Imaging GmbH, Germany*

J01-3 (11:00) CZT Sensor – Readout ASIC Interfaces for High-Flux Photon Counting Systems
K. Iniewski, *Redlen Technologies, Canada*

J01-4 (11:15) Breast Microcalcification Classification Using Energy Dispersive X-Ray Coherent Scatter Computed Tomography
B. Ghammraoui, L. M. Popescu
U.S Food and Drug Administration, United States

J01-5 (11:30) Scintillator-Based Photon Counting Detector: Is It Feasible?
L. Bläckberg[1,2], N. Moghadam[3], D. Uzun-Ozsahin[1], G. El Fakhri[1], H. Sabet[1]
[1]*Massachusetts General Hospital, Harvard Medical School, United States;* [2]*Uppsala University, Sweden;* [3]*GRAMS Lab, Institut interdisciplinaire d'innovation technologique (3IT), Université de Sherbrooke, Canada*

J01-6 (11:45) Scintillating Glass GEM Detector for High Resolution X-ray Imaging
T. Fujiwara[1], Y. Mitsuya[2], H. Takahashi[2], H. Toyokawa[1]
[1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan;* [2]*The University of Tokyo, Japan*

M02 Parametric Imaging / kinetic modeling

Wednesday, Nov. 2 10:30-12:00 Cassin

Session Chairs: **Richard Carson**, Yale University,
Quanzheng Li, MGH, Harvard Medical School, United States

M02-1 (10:30) Hybrid Whole-Body Dynamic TOF PET Imaging for Simultaneous Estimation of Compartmental and Patlak Parametric Maps from Continuous Bed Motion Data
F. A. Kotasidis[1,2,3], V. Garibotto[3], H. Zaidi[3,1,4]
[1]University of Geneva, Switzerland; [2]University of Manchester, United Kingdom; [3]Geneva University Hospital, Switzerland; [4]University of Groningen, The Netherlands

M02-2 (10:45) Direct Parametric Imaging of Reversible Tracers Using Partial Dynamic Data
K. Kim, G. El Fakhri, Q. Li
Massachusetts General Hospital and Harvard Medical School, USA

M02-3 (11:00) 18F-FDG:18F-NaF PET/MR Multi-Parametric Imaging with Kinetics-Based Bone Segmentation for Enhanced Dual-Tracer PET Quantification
N. A. Karakatsanis[1], R. Abgral[1,2], G. Boeykens[1,3], M. Dweck[1,4], P. Robson[1], M. G. Trivieri[1], C. Calcagno[1], C. Tsoumpas[1,5], Z. A. Fayad[1]
[1]Icahn School of Medicine at Mount Sinai, United States; [2]University Hospital of Brest, France; [3]Academisch Medisch Centrum, Netherlands; [4]University of Edinburgh, United Kingdom; [5]University of Leeds, United Kingdom

M02-4 (11:15) A Practical SUV-Guided Approach to Parametric Image Reconstruction via Mixture Models
F. O'Sullivan[1], R. Xiu[1], M. Muzi[2], J. Huang[1], T. Mou[1]
[1]University College Cork, Ireland; [2]University of Washington, USA

M02-5 (11:30) Quantitative Myocardial Perfusion from Static Cardiac CT Informed by Timing Bolus Kinetics
M. Bindschadler, K. R. Branch, A. M. Alessio
University of Washington, United States

M02-6 (11:45) Quantitative Myocardial Blood Flow Estimation from Dynamic Contrast Enhanced Cardiac CT
A. M. Alessio[1], M. Bindschadler[1], D. Modgil[2], P. La Riviere[2], R. Christopfel[1], K. Branch[1]
[1]University of Washington, USA; [2]University of Chicago, USA

J02 NSS/MIC Joint Session 2: Hadrontherapy

Wednesday, Nov. 2 14:00-16:00 Schweitzer

Session Chairs: **Piergiorgio Cerello**, INFN - Torino, Italy
David Brasse, CNRS - IPHC, France

J02-1 (14:00, invited) Novel Imaging for Ion Beam Therapy
K. Parodi, *Ludwig-Maximilians Universität München, Germany*

J02-2 (14:30) A Real-Time Dosimetric System Using CMOS Sensors for Secondary Neutrons in Radio/Hadron Therapy
N. Arbor[1], R. Combe[1], H. Elazhar[1], S. Higueret[1], P. Meyer[2], F. Taupin[3], D. Husson[1]
[1]CNRS UMR7178 Universite de Strasbourg, France; [2]Paul Strauss Center, France; [3]Centre Hospitalier Lyon Sud, France

J02-3 (14:45) Development of a High-Intensity Photon-Beam Profile Monitor
T. Ishikawa
Research Center for Electron Photon Science, Tohoku University, Japan

J02-4 (15:00) The INSIDE Bi-Modal System for in-Vivo Particle Range Monitoring Toward Clinical Validation
M. G. Bisogni[1,2], *[1]University of pisa, Italy; [2]INFN, Italy*
On behalf of the INSIDE Collaboration

J02-5 (15:15) A New Hadron Radiography Method Based on Time-of-Flight Residual Energy Measurement
W. A. Worstell[1], K. Grogg[2], B. W. Adams[1], C. A. Craven[1], T. L. Cremer[1], M. R. Foley[1], A. Lyashenko[1], M. J. Minot[1], M. A. Popecki[1], H.-M. Lu[2], H. Paganetti[2], G. El Fakhri[2]
[1]Incom, Inc., US; [2]Massachusetts General Hospital, US

J02-6 (15:30) A Comparative Study of Energy-Loss Proton Radiography (ElpRad) Based on High-Spatial Resolution or Ultrafast Methods
Z. Wang[1], C. L. Morris[1], L. P. Neukirch[1], D. J. Clark[1], M. Gaowei[2], F. G. Mariam[1], E. Ramberg[3], A. Saunders[1], S. K. Sjue[1], J. Smedley[1], D. Tupa[1], R. Zhu[4]
[1]Los Alamos National Laboratory, USA; [2]Brookhaven National Laboratory, USA; [3]Fermilab, USA; [4]California Institute of Technology, USA

J02-7 (15:45) Helium Beam Radiography Using a Silicon Pixel Detector for Particle Tracking and Identification
T. Gehrke[1,2,3,4], S. Berke[1,3,4], G. Arico[1,2,3,4], J. Jakubek[5], O. Jaekel[1,2,3,4], M. Martisikova[1,2,3,4]
[1]German Cancer Research Center (DKFZ), Germany; [2]Heidelberg University Hospital, Germany; [3]National Center for Radiation Oncology (NCRO), Germany; [4]Heidelberg Institute for Radiation Oncology (HIRO), Germany; [5]Advacam, Czech Republic

M03 Quantitative imaging techniques & image analysis I

Wednesday, Nov. 2 14:00-16:00 Cassin

Session Chairs: **Charles C. Watson**, Siemens Healthcare Molecular Imaging, United States
Roger R. Fulton, University of Sydney, Australia

M03-1 (14:00) Multi-Center Evaluation of Eleven PET/MRI Brain Attenuation Correction Methods
C. N. Ladefoged[1], I. Law[1], U. Anazodo[2], K. St. Lawrence[2], D. Izquierdo-Garcia[3], C. Catana[3], N. Burgos[4], J. Cardoso[4,5], S. Ourselin[4,5], B. Hutton[6], I. Mérida[7,8], N. Costes[7], A. Hammers[7,9], D. Benoit[1], S. Holm[1], M. Juttukonda[10], H. An[10], J. Cabello[11], M. Lukas[11], S. Nekolla[11], S. Ziegler[11], M. Fenchel[12], B. Jakoby[12,13], M. E. Casey[14], T. Benzinger[15], L. Højgaard[1], A. E. Hansen[1], F. L. Andersen[1]
[1]Rigshospitalet University Hospital, Denmark; [2]Lawson Health Research Institute, Canada; [3]Athinoula A. Martinos Center for Biomedical Imaging, United States of America; [4]Centre for Medical Image Computing, University College London, United Kingdom; [5]Institute of Neurology, University College London, United Kingdom; [6]Institute of Nuclear Medicine, University College London, United Kingdom; [7]LILI-EQUIPEX – Lyon Integrated Life Imaging: hybrid MR-PET, France; [8]Siemens Healthcare France SAS, France; [9]Division of Imaging Sciences and Biomedical Engineering, King's College London, United Kingdom; [10]The University of North Carolina at Chapel Hill and North Carolina State University, United States of America; [11]Klinikum rechts der Isar, Technische Universitaet Muenchen, Germany; [12]Siemens Healthcare GmbH, Germany; [13]University of Surrey, United Kingdom; [14]Siemens Medical Solutions USA, Inc., United States of America; [15]Washington University, United States of America

M03-2 (14:15) Evaluation of Zero-TE-Based Attenuation Correction Methods on PET Quantification of PET/MRI Head and Neck Lesions
K. S. Lee, G. Zaharchuk, P. K. Gulaka, C. S. Levin
Stanford University, United States

M03-3 (14:30) Joint Estimation of Activity and Attenuation: Application to Non-FDG TOF PET/MR Clinical Data
L. Cheng[1], S. Ahn[1], D. D. Shanbhag[2], H. Qian[1], T. Deller[3], F. Wiesinger[4]
[1]GE Global Research, USA; [2]GE Global Research, India; [3]GE Healthcare, USA; [4]GE Global Research, Germany

M03-4 (14:45) Non-Rigid Event-by-Event Respiratory Motion Compensation for PET with Motion Information Derived from Matched Attenuation Corrected Gated Data
Y. Lu[1], K. Fontaine[1], S. Ren[1], T. Mulnix[1], V. Y. Panin[2], J. Jones[2], M. E. Casey[2], R. E. Carson[1], C. Liu[1]
[1]Yale University, USA; [2]Siemens Medical Solutions, USA

M03-5 (15:00) Modelling the Motion Dependent Point Spread Function in Motion Corrected Small Animal PET Imaging
G. I. Angelis[1], J. E. Gillam[1], A. Z. Kyme[1,2], R. R. Fulton[1], S. R. Meikle[1]
[1]The University of Sydney, Australia; [2]University of California Davis, USA

M03-6 (15:15) Joint Respiratory and Cardiac Motion Compensation for Cardiac PET Imaging
J. Cal-Gonzalez[1], M. L. Lassen[1], K. Schäfers[2], M. Hacker[1], T. Beyer[1]
[1]Medical University of Vienna, Austria; [2]University of Münster, Germany

M03-7 (15:30) Real-Time Data-Driven Rigid Motion Detection and Correction for Brain Scan with Listmode PET
T. Feng[1], D. Yang[2], W. Zhu[1], Y. Dong[2], J. Bao[2], H. Li[1]
[1]United Imaging Healthcare America, Inc, US; [2]United Imaging Healthcare, China

M03-8 (15:45) MRI-Dixon-Based Lean Body Mass Estimation in PET/MRI Using a Single Bed-Position Scan
A. Olin[1], C. N. Ladefoged[1], I. Rausch[2], J. Löfgren[1], B. M. Fischer[1], A. Kjær[1], T. Beyer[2], F. L. Andersen[1], S. Holm[1]
[1]Rigshospitalet, University of Copenhagen, Denmark; [2]Medical University of Vienna, Austria

M04A Posters: Radiotherapy I

Wednesday, Nov. 2 16:30-18:30 Etoile

Session Chairs: **R.Glenn Wells**, University of Ottawa Heart Institute, Canada
Charalampos Tsoumpas, University of Leeds, United Kingdom
Frederic Boisson, IPHC - CNRS/IN2P3, France

M04A-1 Construction and Tests of an in-Beam PET-like Demonstrator for Hadrontherapy Beam Ballistic Control
G. Montarou[1], M. Bony[1], E. Busato[1], R. Chadelas[1], D. Donnarieix[2], P. Force[1], C. Guicheney[1], C. Insa[1], D. Lambert[1], L. Lestand[1], M. Magne[1], F. Martin[1], M. Nivoix[1], F. Podlyski[1], A. Rozes[1]
[1]Laboratoire de Physique Corpusculaire Clermont Ferrand, France; [2]Centre Jean Perrin, France

M04A-2 Luminescence Imaging of Water During Proton-Beam Irradiation for Dose Estimation
S. Yamamoto[1], T. Toshito[2], M. Komori[1], H. Watabe[3]
[1]Nagoya University Graduate School of Medicine, Japan; [2]Nagoya Proton Therapy Center, Japan; [3]Tohoku University, CYRIC, Japan

M04A-3 Emulsion Cloud Chamber: Measurements of 12-C Ions Beam Fragmentation at Large Angle
M. C. Montesi[1,2], G. De Lellis[1,2], A. Lauria[1,2]
[1]Università di Napoli, Federico II, Italy; [2]INFN, sezione di Napoli, Italy

M04A-4 Monitoring and Imaging of the Hadron Mini-Beams for Spatially Fractionated Radiation Therapy

A. Chaus[1], S. Brons[2], M. Campbell[3], C. Granja[4], V. Iakovenko[1,5], O. Kovalchuk[1], X. L. Cudie[3], I. Martínez-Rovira[6], E. Momot[1], S. Pospisil[4], Y. Prezado[6], V. Pugach[1], I. Sorokin[1]
[1]Institute for Nuclear Reserch, Ukraine; [2]Heidelberg Ion Beam Therapy Center (HIT), Germany; [3]CERN, Geneva,, Switzerland; [4]Institute of Experimental and Applied Physics, Czech Republic; [5]University Health Network (UHN), Canada; [6]Laboratoire Imagerie et Modélisation en Neurobiologie et Cancérologie (CNRS), France

M04A-5 **Prompt Gamma Imaging with a Multi-Knife-Edge Slit Collimator for Large FOV Monitoring of Scanned Proton Pencil Beams**
W. Lu[1,2], P. Fan[1,2], H. Liu[1,2], Y. Yu[1,2], Z. Lyu[1,2], S. Wang[1,2], Y. Liu[1,2], T. Ma[1,2]
[1]Tsinghua University, China; [2]Ministry of Education (Tsinghua University), China

M04A-6 **Kinect Surface Filtering During Gantry Motion for Radiotherapy Applications**
S. Nazir[1], M. Gilles[1], O. Pradier[1,2], N. Boussion[1,2], D. Visvikis[1], H. Fayad[1,3]
[1]INSERM UMR1101, LaTIM, Brest, France, France; [2]Radiotherapy department, CHRU Morvan, France; [3]Université de Bretagne Occidentale, France

M04A-7 **Design of a High Dynamic Range Integrated Charge to Digital Converter for Online Dosimetry in Radiotherapy**
L. Gallin-Martel, O. Rossetto, Y. Arnoud, B. Boyer, R. Delorme, R. Fabbro, M.-L. Gallin-Martel, O. Guillaudin, A. Pélissier
Laboratoire de Physique Subatomique et de Cosmologie (LPSC) CNRS/IN2P3, France

M04A-8 **Charged Particle Imaging: Comparison Between Different Particles**
C. Bopp[1], D. Brasse[2], N. Matsufuji[1]
[1]QST - NIRS, Japan; [2]IPHC - CNRS/Université de Strasbourg, France

M04A-9 **Large Area Polycrystalline Diamond Detectors for Online Hadron Therapy Beam Tagging Applications**
M.-L. Gallin-Martel[1], A. Bes[1], A. Boukhémiri[1], G. Bosson[1], J. Collot[1], D. Dauvergne[1], M. Fontana[2], L. Gallin-Martel[1], A. Gorécki[1], J.-Y. Hostachy[1], J. Krimmer[2], A. Lacoste[1], J. Morse[3], J.-F. Muraz[1], F. Rarbi[1], M. Salome[3], E. Testa[2], M. Yamouni[1], Y. Zoccarato[2]
[1]Laboratoire de Physique Subatomique et de Cosmology (LPSC) CNRS / IN2P3, France; [2]Institut de Physique Nucléaire de Lyon (IPNL), France; [3]European Synchrotron Radiation Facility (ESRF), France

M04A-10 **Monitoring of Hadrontherapy Treatments with a Novel Tracking Device Based on Charged Particle Detection**
S. Muraro[1], G. Battistoni[1], F. Collamati[1], E. De Lucia[1], R. Faccini[2,1], M. Marafini[1,3], I. Mattei[1], R. Paramatti[1], V. Patera[1,3,2], D. Pinci[1], A. Rucinski[1,3], A. Russomando[2,1,4], A. Sarti[1,3,2], A. Sciubba[1,3,2], E. Solfaroli Camillocci[2,1], M. Toppi[1], G. Traini[2,1], C. Voena[1]
[1]INFN, Italy; [2]Universita La Sapienza di Roma, Italy; [3]Museo Storico della Fisica e Centro Studi e Ricerche E. Fermi, Italy; [4]Istituto Italiano di Tecnologia, Italy

M04A-11 **Commissioning of a Compton Camera for Particle Beam Range Monitoring**
P. G. Thirolf[1], S. Aldawood[1,2], M. Böhmer[3], J. Bortfeldt[1], I. Castelhano[1,4], G. Dedes[1], W. Enghardt[5,6], F. Fiedler[6], R. Gernhäuser[3], C. Golnik[5], S. Helmbrecht[6], F. Hueso-González[6], H. van der Kolff[1,7], T. Kormoll[5], C. Lang[1], S. Liprandi[1], L. Maier[3], T. Marinšek[1], A. Miani[1,8], G. Pausch[5], J. Petzoldt[5], M. Pocevicius[1], K. Römer[6], D. R. Schaart[7], I. Valencia-Lozano[1], K. Parodi[1]
[1]Ludwig-Maximilians-Universität München, Germany; [2]King Saud University, Saudi Arabia; [3]Technical University Munich, Germany; [4]University of Lisbon, Portugal; [5]National Center for Radiation Research in Oncology "OncoRay", Germany; [6]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [7]Delft University of Technology, The Netherlands; [8]Università degli Studi di Milano, Italy

M04A-12 **Monitoring Tumor Lung Irradiation with OrthoCT (Orthogonal Ray Imaging): a Full System Simulation Study**
H. Simões[1,2], P. Crespo[1,2]
[1]Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]Universidade de Coimbra, Portugal

M04A-13 **A Prototype System for Portal Imaging for Intensity Modulated Neutron Therapy**
S. St. James, G. Moffitt, D. Argento, D. DeWitt, R. Miyaoka, R. Stewart
University of Washington, USA

M04A-14 **Image-Based Internal Dosimetry of Cu-64 Labeled Radiopharmaceuticals Using Monte Carlo Method**
S.-K. Woo[1], Y. S. Park[1], Y. Seo[2], S.-Y. Huang[2], K. I. Kim[1], Y. J. Lee[1], W. Kim[1], J. H. Kang[1], S. M. Lim[1]
[1]Korea Institute of Radiological and Medical science, Korea; [2]University of California, San Francisco, USA

M04A-15 **Developing an Optimum Protocol for Thermoluminescence Dosimetry with GR-200 Chips, in Radiotherpy, Using Taguchi Method**
M. Sadeghi, R. Faghihi, S. Sina
School of Engineeing,Shiraz university, Shiraz, Iran, Iran

M04A-16 **Impact of Tumor Contrast in Orthogonal Ray Imaging: a Prostate Irradiation Study**
A. L. Lopes[1,2], H. Simões[1,3], P. Crespo[1,3], J. Barata[1,2], J. Lencart[4], J. A. M. Santos[4]
[1]Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]Universidade da Beira Interior, Portugal; [3]Universidade de Coimbra, Portugal; [4]Instituto Português de Oncologia do Porto FG EPE, Portugal

M04A-17 **Development of a SiPM-Based Detection Module for Prompt Gamma Imaging in Proton Therapy**
G. Cozzi[1,2], D. Giarrusso[1], M. Carminati[1], C. Fiorini[1,2], A. Gola[3], C. Piemonte[3], V. Regazzoni[3,4]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Fondazione Bruno Kessler, Italy; [4]Università degli studi di Trento, Italy

M04A-18 **Large-Area Segmented Polycrystalline CVD Diamond for Dose Mapping in Advanced Radiotherapy Techniques**
M. Bruzzi[1], A. Baldi[1], A. Bartoli[1], A. Pasquini[1], M. Scaringella[2], C. Talamonti[1]
[1]University of Florence, Italy; [2]INFN Firenze, Italy

M04A-19 **Development of a Scanner for Proton Computed Tomography**
Y. Karakaya, M. Vanstalle, M. Rousseau, C. Finck

IPHC, UNISTRA, France

M04A-20 **Evaluation of Proton CT as a Low-Dose Modality for Image-Guided Proton Therapy**
F. R. Cassetta Junior[1], R. Schulte[2], V. Bashkirov[2], G. Baroni[1], M. Riboldi[1], R. Johnson[3], H. Sadrozinski[3]
[1]Politecnico di Milano, Italy; [2]Loma Linda University, USA; [3]UC Santa Cruz, USA

M04B Posters: New radiation detectors I

Wednesday, Nov. 2 16:30-18:30 Etoile

Session Chairs: **R.Glenn Wells**, University of Ottawa Heart Institute, Canada
Charalampos Tsoumpas, University of Leeds, United Kingdom
Frederic Boisson, IPHC - CNRS/IN2P3, France

M04B-1 **In-Beam PET with Pulse Shape Discrimination at a Clinical Cyclotron Facility**
T. Kormoll[1], W. Enghardt[1,2,3], F. Fiedler[3], M. Iltzsche[3], G. Pausch[1], C. Tintori[4], S. Helmbrecht[3]
[1]Technische Universität Dresden, OncoRay - Radiation Research in Oncology, Germany; [2]Deutsches Konsortium f ¨ur Translationale Krebsforschung (DKTK), Germany; [3]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [4]CAEN SpA, Italy

M04B-2 **Luminescence Imaging of Water During Alpha-Particle Irradiation**
S. Yamamoto, M. Komori, S. Koyama, *Nagoya University Graduate School of Medicine, Japan*; T. Toshito, *Nagoya Proton Therapy Center, Japan*

M04B-3 **A New PET Detector Concept for Preclinical Hybrid MR/PET**
A. Berneking[1], A. Gola[2], A. Ferri[2], F. Finster[1], G. Paternoster[2], C. Piemonte[2], C. Lerche[1], N. J. Shah[1]
[1]Institute of Neuroscience and Medicine, Forchungszentrum Jülich GmbH, Germany; [2]Fondazione Bruno Kessler, Italy

M04B-4 **Photon Interaction Position-Dependent Time Walk Measurement for PET Detectors Based on Continuous Crystal Coupled to a Multi-Anode PMT**
Y. Wang, Y. Xiao, X. Cheng
University of Science and Technolgy of China, China

M04B-5 **Statistical Analysis of Time Resolution of the J-PET Scanner**
L. Raczynski[1], W. Wislicki[1], P. Kowalski[1], W. Krzemien[1], D. Alfs[2], T. Bednarski[2], P. Bialas[2], C. Curceanu[3], E. Czerwinski[2], K. Dulski[2], A. Gajos[2], B. Glowacz[2], M. Gorgol[4], B. Hiesmayr[5], B. Jasinska[4], D. Kaminska[2], G. Korcyl[2], T. Kozik[2], N. Krawczyk[2], E. Kubicz[2], M. Mohammed[2], M. Pawlik-Niedzwiecka[2], S. Niedzwiecki[2], M. Palka[2], Z. Rudy[2], O. Rundel[2], N. G. Sharma[2], M. Silarski[2], J. Smyrski[2], A. Strzelecki[2], A. Wieczorek[2], B. Zgardzinska[4], M. Zielinski[2], P. Moskal[2]
[1]National Centre for Nuclear Research, Poland; [2]Jagiellonian University, Poland; [3]Istituto Nazionale di Fisica Nucleare, Italy; [4]Maria Curie Sklodowska University, Poland; [5]University of Vienna, Austria

M04B-6 **Performance tests of TOF PET detectors with a strip-line based readout**
H. Kim[1], Y. Hua[2], D. Xi[2], Q. Xie[2], N. Eclov[1], C.-T. Chen[1], C.-M. Kao[1]
[1]University of Chicago, United States; [2]Huazhong University of Science and Technology, China

M04B-7 **A Novel 4-Layer DOI Detector Using Peak-to-Charge Discrimination**
R. Ogawara, *Hokkaido University Graduate school of Medicine. Research Fellow of Japan Society for the Promotion of Sciencs, Japan*; M. Ishikawa, *Hokkaido University Graduate school of Health Sciences, Japan*

M04B-8 **A Side-by-Side Phoswich PET Detector Configuration for Providing High Resolution of 0.4 mm**
J. Kang, S. K. Han, *Chonnam National University, Korea*; C.-H. Baek, *Dongseo University, Korea*

M04B-9 **Comparison and Performance Evaluation of a 0.9 Mm Pixelated Ce:GFAG with Ce:GAGG and LYSO Array Coupled to dSiPM**
M. N. Ullah[1], E. Pratiwi[1], J. H. Park[1], S. Yamamoto[2], K. Kamada[3,4], A. Yoshikawa[3,4], J.-Y. Yeom[1]
[1]Korea University, South Korea; [2]Nagoya University, Japan; [3]Tohoku University, Japan; [4]C&A Corporation, Japan

M04B-10 **Real-Time Processing for an Adaptable SPECT System Based on CZT Detectors**
M. Bernard, G. Montémont, S. Stanchina, L. Verger, *CEA LETI MINATEC Campus, France*; S. Mancini, *UGA, France*

M04B-11 **Simulations and Image Reconstruction for High Resolution CaLIPSO PET Scanner for Human Brain and Preclinical Studies**
O. Kochebina, S. Jan, S. Stute, V. Sharyy, P. Verrecchia, C. Comtat, X. Mancardi, D. Yvon
CEA, France

M04B-12 **Evaluation of a 16 X 16 MPPC Array for Small-Animal PET**
J. Du, X. Bai, E. Berg, S. R. Cherry
University of California, Davis, USA

M04B-13 **Timing Performance of Wide Scintillator Crystal Elements for Super-Resolution Clinical PET**
J. W. Cates, G. Chinn, C. S. Levin
Stanford University, USA

M04B-14 **Timing Performance of Two PET Detector Designs Capable of Time-of-Flight and Depth-of-Interaction Measurement: Phoswich and Offset Crystal Layers**
C.-M. Chang, C. S. Levin, *Stanford University, USA*

M04B-15 **Development of an Isotropic DOI Detector Based on a Dual-Ended Readout and Subsurface Laser Engraving Technique**
A. Mohammadi[1], E. Yoshida[1], F. Nishikido[1], K. Shimizu[2], T. Sakai[2], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Hamamatsu Photonics K.K., Japan

M04B-16 **A Simulation Study on Lateral Readout Method Using Elongated Detector Module for TOF Axial PET**
J. Kim[1], M. Cho[1], K. T. Lim[1], W. S. Sul[2], G. Cho[1]
[1]Korea Advanced Institute of Science and Technology, South Korea; [2]National Nano Fab Center, South Korea

M04B-17 **MONDO: a Fast Neutron Tracker for Particle Therapy Secondary Emission Fluxes Measurements.**
L. Gasparini[1], V. Patera[2,3,4], D. Pinci[2], A. Sarti[3,5,4], A. Sciubba[2,3,4], E. Spiriti[4], D. Stoppa[1], M. Marafini[2,3]
[1]Fondazione Bruno Kessler, Italy; [2]INFN Sezione di Roma, Italy; [3]Museo Storico della Fisica e Centro Studi e Ricerche ``E.~Fermi'', Italy; [4]Sapienza Universit\`a di Roma, Italy; [5]Laboratori Nazionali di Frascati dell'INFN, Italy

M04B-18 **Comparison of Columnar Scintillators and Pixelated Scintillators for Small Field of View Hybrid Gamma Camera Imaging**
L. Jambi[1,2], J. Lees[1], S. Bugby[1], B. Bhatia[1,3], M. Alqahtani[1,4], N. Dawood[1], A. Ng[5], A. Perkins[5]
[1]University of Leicester, UK; [2]King Saud University, Saudi Arabia; [3]Sandwell and West Birmingham Hospital NHS Trust, UK; [4]King Khalid University, Saudi Arabia; [5]University of Nottingham, UK

M04B-19 **Magnetic Field Compatible Buck Converters and Optical Link**
R. Becker[1], A. Buck[2], C. Casella[1], V. Commichau[1], G. Dissertori[1], J. Fischer[1], A. S. Howard[1], M. Ito[1], P. Khateri[1], K. Kramer[1], W. Lustermann[1], J. F. Oliver[3], C. Ritzer[1], U. Röser[1], Q. Wang[4], G. Warnock[5], B. Weber[5]
[1]ETH Zürich, Switzerland; [2]Zürich University Hospital, Switzerland; [3]Instituto de Física Corpuscular, Spain; [4]Tsinghua University, China; [5]University of Zurich, Switzerland

M04B-20 **Response Function Estimation for the XCounter Flite X1 Photon Counting Detector Using Monte Carlo Method**
X. Xu[1,2], L. Zhang[1,2], D. Wu[1,2], S. Wang[1,2]
[1]Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China; [2]Department of Engineering Physics, Tsinghua University, China

M04B-21 **Development of a Monolithic Detector with 3D Positioning Capability and Readout Channel Number Compression**
P. Fan[1,2], T. Xu[1,2], Z. Lyu[1,2], S. Wang[1,2], Y. Liu[1,2], T. Ma[1,2]
[1]Ministry of Education (Tsinghua University), China; [2]Tsinghua University, China

M04B-22 **Development of PET Using Multi-Voltage Threshold and FPGA Only DAQ**
K. B. Kim, Y. Choi, S. Lee, J. Jung, H. T. Leem, J. H. Jung
Sogang University, Korea

M04B-23 **Light Response Estimation and Gamma Events Reconstruction in Gamma Detectors Based on Continuous Scintillators**
M. Occhipinti[1,2], P. Busca[1,2], C. Fiorini[1,2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy

M04B-24 **Development and Performance Evaluation of Time over Threshold Digital PET (TODPET2) Using SiPM-Arrays Coupled with Pixelized Ce:GAGG Scintillators for Non-Invasive Measurement of Blood RI Concentrations**
M. Yoshino[1,2], K. Kamada[1,2], Y. Shoji[1,2], A. Yoshikawa[1,2], K. Shimazoe[3], A. Lipovec[3], H. Takahashi[3], K. Fujiwara[3], M. Takahashi[3], T. Momose[3], S. Ito[4], K. Tsutsumi[4], T. Endo[4], H. Sato[4], Y. Usuki[4]
[1]C&A Corporation, Japan; [2]Tohoku University, Japan; [3]The University of Tokyo, Japan; [4]Furukawa Co., Ltd, Japan

M04B-25 **Characterisation of the SiPM-Based Detector Module of the TRIMAGE PET/MR Scanner**
N. Belcari[1,2], G. Sportelli[1,2], M. G. Bisogni[1,2], N. Camarlinghi[1,2], A. Di Pasquale[1,2], S. Dussoni[1,2], J. Fleury[3], M. Morrocchi[1,2], S. Ahmad[3], A. Del Guerra[1,2]
[1]University of pisa, Italy; [2]INFN, Italy; [3]Weeroc s.a.s., France

M04C Posters: preclinical I

Wednesday, Nov. 2 16:30-18:30 Etoile

Session Chair: TBD

M04C-1 **Towards Dynamic Imaging of the Ac-225 Decay Chain**
A. K. Robertson[1,2], C. Rodriguez-Rodriguez[1], C. F. Ramogida[2], V. Sossi[1], P. Schaffer[2]
[1]University of British Columbia, Canada; [2]TRIUMF, Canada

M04C-2 **A Novel Generic Organ-PET for Small Animal Organs and Tissues**
L. Sensoy, J. J. Sunderland, *University of Iowa, USA*

M04C-3 **Preclinical PET Detector with Temperature Gain Compensation**
A. Kolb[1], E. Engelmann[2], P. Major[3], G. Patay[3], B. Tölgyesi[3], C. Parl[1], T. Ganka[4], M. J. Czeller[3], G. Nemeth[3], B. Pichler[1]
[1]University of Tubingen, Germany; [2]Institute for Physics, Germany; [3]Mediso Ltd., Hungary; [4]Ketek GmbH, Germany

M04C-4 **3-D Position Sensitive CZT Positron Emission Tomography System: Current Status**
S. Abbaszadeh, C. Levin, *Stanford University, USA*

M04C-5 **Positron Emission Particle Tracking (PEPT) Extension to Hemodynamic Studies**
C. Wiggins, N. Patel, R. Santos, S. Langford, A. E. Ruggles
University of Tennessee-Knoxville, United States

M04C-6 **Evaluation of a Cross Strip Encoding DoI PET Detector**
F. P. Schmidt, A. Kolb, B. J. Pichler
University of Tubingen, Germany

M04C-7 **Compact, MR Compatible SiPM Small Animal PET DOI Detector**
R. Chil[1], G. Konstantinou[1], M. Desco[1,2], J. J. Vaquero[1,2]
[1]Universidad Carlos III de Madrid, España; [2]Instituto de Investigacion Sanitaria Gregorio Maranonn, Spain

M04C-8 **New DOI Encoding Method with Single Layer Scintillator Array Using Depth-Dependent Reflector Patterns**
S.-J. Lee[1,2], H.-I. Kim[1,2], C. Y. Lee[1,2], H. Song[1,2], C. W. Park[1,2], Y. H. Chung[1,2]
[1]College of Health Science, Yonsei university, Korea; [2]Institute of Health Science, Yonsei University, Korea

M04C-9 **IMIC - Needle-Shaped Low-Power Monolithic Active Pixel Sensors for Molecular Neuroimaging on Awake and Freely Moving Rats.**
J. Heymes[1,2], L. Ammour[3], M. Bautista[4], G. Bertolone[1,2], S. Fieux[5], F. Gensolen[4], M. Goffe[1,2], F. Guezzi-Messaoud[1,2], C. Hu-Guo[1,2], M. Kachel[1,2], F. Lefebvre[3], F. Pain[3], P. Pangaud[4], L. Pinot[3], P. Gisquet[6], P. Laniece[3], C. Morel[4], M.-A. Verdier[3], M. Winter[1,2], L. Zimmer[5], J. Baudot[1,2]
[1]Université de Strasbourg, IPHC, France; [2]CNRS, UMR7178, France; [3]IMNC, CNRS/IN2P3, Univ Paris-Sud/Paris Diderot, France; [4]CPPM, CNRS/IN2P3, Univ Aix-Marseille, France; [5]LNRC, CNRS/INSERM, Univ Lyon 1, France; [6]NeuroPSI CNRS/INSB, Univ Paris Sud, France

M04C-10 **Characterization of ?-eye: a Low Cost Bench Top Mouse Sized Gamma Camera for Dynamic and Static Imaging Studies**
M. Georgiou, P. Papadimitroulas, E. Fysikopoulos, K. Mikropoulos, *R & D, Greece*; G. Loudos, *Technological Educational Institute of Athens, Greece*

M04C-11 **A PET Block Detector Based on a 5x5 Array of 6x6 mm² SiPMs Read Out by TOFPET-ASIC**
A. Kolb[1], F. Schneider[2], P. Soubiran[1], H. V. Wachter[3], B. J. Pichler[1]
[1]University of Tubingen, Germany; [2]Ketek GmbH, Germany; [3]Technical University Munich, Germany

M04C-12 **Small Animal PET Insertable to 9.4T Preclinical MRI: Performance Evaluation and Simultaneous Small Animal Imaging**
S. Lee, Y. Choi, K. C. Im, J.-H. Jung, J. Jung, K. B. Kim, H.-J. Choe, H. Leem, *Sogang University, South Korea*; H. Lee, Y.-M. Huh, *Yonsei University, South Korea*

M04C-13 **A Two-Step Depth-of-Interaction PET Detector Using a Stair-Pattern Reflector Arrangement: Feasibility Study with LYSO Arrays**
J.-W. Son, M. S. Lee, J. S. Lee
Seoul National University, South Korea

M04C-14 **A ~0.7 Mm Spatial Resolution All-Digital Animal PET System Using Improved Trans-PET Electronics**
T. Liu[1,2], M. Niu[1,2], S. Gu[3], Q. Xie[1,2]
[1]Wuhan National Laboratory for Optoelectronics, China; [2]Huazhong University of Science and Technology, China; [3]Raycan Technology Co., Ltd, China

M04C-15 **Firmware Architecture of the Data Acquisition System for the LabPET II Mouse Scanner**
L. Njejimana, L. Arpin, C. Thibodeau, K. Koua, C. Paulin, N. Jurgensen, H. Bouziri, M.-A. Tetrault, R. Lecomte, R. Fontaine
Université de Sherbrooke, Canada

M04D Posters: simulation I

Wednesday, Nov. 2 16:30-18:30 Etoile

Session Chairs: **R.Glenn Wells**, University of Ottawa Heart Institute, Canada
Charalampos Tsoumpas, University of Leeds, United Kingdom
Frederic Boisson, IPHC - CNRS/IN2P3, France

M04D-1 **Does Energy Non-Linearity Affect Noise Estimates from Monte Carlo Simulations of X-Ray Imaging Detectors?**
A. Badano, *FDA, USA*

M04D-2 **A Simulation Study on Detection of a Cavity across a Therapeutic Carbon Beam Using Secondary Electron Bremsstrahlung**
M. Yamaguchi[1], Y. Nagao[1], T. Satoh[1], T. Kamiya[1], M. Sakai[2], H. Sugai[3], K. Arakawa[1,2], N. Kawachi[1]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan; [2]Gunma University, Japan; [3]Fukushima Prefectural Centre for Environmental Creation, Japan

M04D-3 **Complex 3D Printed Phantoms for Nuclear Medicine Applications**
T. H. Farncombe, *McMaster University, Canada*

M04D-4 **Simulating Functional Brain Images in Neurodegenerative Diseases**
U. Vidal-Sanz, F. J. Martinez-Murcia, J. M. Górriz, J. Ramírez, I. A. Illán, F. Segovia, D. Salas-González
University of Granada, Spain

M04D-5 **Geant4 Based X-Ray Tube Leakage Radiation Simulation for Developing Mobile Radiography**
Y. Huh, J. Kim, J. Kim, D. Han, J. Kim
Health and Medical Equipment Business, Samsung Electronics Co., LTD., South Korea

M04D-6 An Improved Computational Method to Optimize the Stopping Power Calibration Curve for Patient-Specific Proton Therapy Planning
N. Krah[1,2], M. Testa[1], J.-M. Létang[3], S. Rit[3], I. Rinaldi[1]
[1]Lyon University and CNRS/IN2P3, UMR 5822, France; [2]Heidelberg Collaboratory for Image Processing, Germany; [3]Lyon University, INSA-Lyon, University Lyon 1, UJM-Saint Etienne, CNRS, Inserm, CREATIS UMR 5220, U1206, France

M04D-7 Impact of the Modelling of Charge Collection on the Simulation of SPECT Recordings from CZT Semiconductors Camera
J. Jurczak[1,2], L. Imbert[1,2,3,4], G. Karcher[1,2,5], P.-Y. Marie[1,2,5,6]
[1]Nancyclotep Molecular Imaging Platform, FRANCE; [2]CHRU Nancy, FRANCE; [3]Institut de Cancérologie de Lorraine, FRANCE; [4]CRAN, FRANCE; [5]University of Lorraine, FRANCE; [6]INSERM, FRANCE

M04D-8 Imaging Device Functions in PTSIM for Irradiation Field Reconstruction in Particle Therapy
T. Aso[1], K. Matsushita[2], T. Nishio[2], S. Kabuki[3], T. Sasaki[4], R. Benii[1]
[1]National Institute of Technology, Toyama College, JAPAN; [2]Hiroshima University, JAPAN; [3]Tokai University, JAPAN; [4]Computing Center, JAPAN

M04D-9 Simulation of Nanoparticle-Mediated near-Infrared Thermal Therapy Using GATE
V. Cuplov[1], F. Pain[2], S. Jan[1]
[1]Commissariat à l'Energie Atomique, France; [2]Imagerie et Modélisation en Neurobiologie et Cancérologie, France

M04D-10 Sensitivity and Spatial Resolution Simulation of a PET-Compton Insert Imaging System
E. Yoshida[1], H. Tashima[1], C. S. Levin[2], K. Parodi[3], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Stanford School of Medicine, USA; [3]Ludwig-Maximilians Universität München, German

M04D-11 A Monte Carlo Framework for Estimating Staff and Patient Dosimetric Quantities in Interventional Radiology Procedures
T. Deschler[1,2,3], N. Arbor[1,2], F. Carbillet[3], S. Higueret[1,2], A.-M. Nourreddine[1,2]
[1]Université de Strasbourg, IPHC, France; [2]CNRS, UMR7178, France; [3]ALARA Expertise, France

M04D-12 Optimizing a Multi-Stage CdZnTe Compton Camera for Real-Time Proton Range Determination in Proton Radiotherapy
L. Stothers, X. Hou, J. Tanguay, A. Celler
-University of British Columbia, Canada

M04D-13 Analytic Modeling for Sensitivity of Tilted Pinhole Collimator
J. Bae, J. Chun, K. Kim, J. Jang, D. Kim, S.-G. Jeong, S. Lee, H. Lee, K. Lee
Korea University, Korea

M04D-14 Advantages of Using MCNP6 Meshing Tools: Three Medical Cases Studies
B. Juste, S. Morató, R. Miró, G. Verdú
Instituto de Seguridad Industrial, Radiofísica y Medioambiental (ISIRYM), Spain

M04D-15 Monte Carlo Simulation of DNA Damage Clustering Induced by a 24 MeV Proton Beam
L. Mouawad[1,2], Z. Francis[3], A. Osman[2], M. Khalil[2], Z. El Bitar[1]
[1]Institut Pluridisciplinaire Hubert Curien, University of Strasbourg, France; [2]Azm Center for Scientific Research, Lebanese University, Lebanon; [3]Saint Joseph University, Lebanon

M04D-16 Radioactive Ion Beam Studies Using FLUKA for Hadrontherapy Applications
R. S. Augusto[1,2], A. Ferrari[2], P. G. Ortega[2,3], K. Parodi[1], T. Tessonnier[1,4]
[1]LMU Munich - Ludwig-Maximilians-Universität München, Germany; [2]CERN (European Organization for Nuclear Research), Switzerland; [3]University of Valencia, Spain; [4]University of Heidelberg, Germany

M04D-17 GGEMS: GPU GEant4-Based Monte Carlo Simulation Platform
J. Bert, Y. Lemaréchal, D. Benoit, M.-P. Garcia, D. Visvikis
CHRU Brest - LaTIM - INSERM UMR1101, France

M04D-18 Linac Modeling for External Beam Radiotherapy Quality Assurance Using a Dedicated 2D Pixelated Detector
R. Fabbro[1], Y. Arnoud[1], R. Delorme[1], B. Boyer[1], M.-L. Gallin-Martel[1], L. Gallin-Martel[1], O. Rossetto[1], J.-F. Adam[2,3]
[1]LPSC, Université Grenoble-Alpes, CNRS/IN2P3, France; [2]Equipe d'accueil Rayonnement Synchrotron et Recherche Médicale, Université Grenoble Alpes, ID17 European Synchrotron Radiation Facility, France; [3]Centre hospitalier universitaire de Grenoble, France

M04D-19 A Compton Camera Prototype Simulation Study: Camera Performance and First Tests of Range Monitoring Capabilities
I. I. Valencia Lozano[1], G. Dedes[1], S. Aldawood[1,2], S. Liprandi[1], A. Miani[1,3], A. Zoglauer[4], K. Lauber[1], P. Thirolf[1], K. Parodi[1]
[1]Ludwig-Maximilians-Universität München, Germany; [2]King Saud University, Saudi Arabia; [3]Università degli Studi di Milano, Italy; [4]University of California at Berkeley, USA

M04D-20 An Anthropomorphic Phantom for Advance Image Processing of Realistic 18F-FDG PET-CT Oncological Studies
F. Gallivanone[1], M. Interlenghi[1], D. D'Ambrosio[2], D. Fantinato[2], L. Alberizzi[2], G. Trifirò[2], I. Castiglioni[1]
[1]IBFM - CNR, Italy; [2]IRCCS Fondazione S. Maugeri, Italy

M04D-21 GamSim - a Windows Based Simulation Tool for Gamma Ray Detector Development
A. H. Walenta[1], A. B. Brill[2], T. Conka-Nurdan[3], I. Fleck[1], L. Furenlid[4], T. E. Peterson[2]
[1]University of Siegen, Germany; [2]Vanderbilt University, USA; [3]Turkish-German University, Turkey; [4]University of Arizona, USA

M04E Posters: signal processing I

Wednesday, Nov. 2 16:30-18:30 Etoile

Session Chairs: **R.Glenn Wells**, University of Ottawa Heart Institute, Canada
Charalampos Tsoumpas, University of Leeds, United Kingdom
Frederic Boisson, IPHC - CNRS/IN2P3, France

M04E-1 A Multi-Channel High-Precision CMOS Time-to-Digital Converter for Medical Imaging Systems
X. Fang, R. Sefri, F. Boisson, D. Brasse
iphc in2p3 cnrs, France

M04E-2 Accuracy of PET Partial Volume Correction in Tracer Uptake Measurements with Six Isotopes
J. J. Hamill[1], A. T. Sjoeholm[2], D. W. Townsend[2], M. Conti[1]
*[1]Siemens Healthcare, USA; [2]A*STAR-NUS Clinical Imaging Research Center, Singapore*

M04E-3 A Constrained Feature-based Cardiac Motion Estimation Method for Cardiac PET
J. Wang, T. Feng, J. Xu, B. Tsui
Johns Hopkins University, USA

M04E-4 Contrast-Oriented Seed Based Automatic Segmentation Algorithm: Minimizing Effect of Lesion Heterogeneity on Algorithm Response.
M. Carles-Fariña[1,2], T. Fechter[1], U. Nestle[1], A. Schaefer[3]
[1]University Hospital Freiburg, Germany; [2]University Hopital La Fe, Spain; [3]Saarland University Medical Center, Germany

M04E-5 PETRA: a Web-Based System Supporting Computer Aided Diagnosis of Alzheimer's Disease
F. Segovia[1], I. A. Illán[1], D. Salas-Gonzalez[1], F. J. Martínez-Murcia[1], A. Ortiz[2], J. M. Górriz[1], J. Ramírez[1]
[1]University of Granada, Spain; [2]University of Málaga, Spain

M04E-6 Quantile-Based Classification of Alzheimer's Disease, Frontotemporal Dementia and Asymptomatic Controls from SPECT Data
D. Geller[1], G. Platsch[2], J. Kornhuber[3], T. Kuwert[4], D. Merhof[1]
[1]Institute of Imaging & Computer Vision, Germany; [2]Siemens Molecular Imaging EU, Germany; [3]Department of Psychiatry and Psychotherapy, University of Erlangen-Nuremberg, Germany; [4]Clinic of Nuclear Medicine, University of Erlangen-Nuremberg, Germany

M04E-7 Joint Amplitude and Timing Estimation for Scintillation Pulses in GPU
M. Ruiz-Gonzalez, L. Caucci, L. Furenlid
The University of Arizona, USA

M04E-8 A High Performance DAQ System for a Free Hand Small-Field Gamma Camera
M. Zioga[1], M. Mikeli[1], A.-N. Rapsomanikis[1], E. Stiliaris[1,2]
[1]National & Kapodistrian University of Athens, Greece; [2]Institute of Accelerating Systems & Applications (IASA), Greece

M04E-9 Multimodal MRI Radiomics in GBM: a Comparative Investigation of Feature Selection and Classification Techniques for Prognostic Models Including Robustness Assessment
T. Upadhaya[1,2,3], Y. Morvan[1], E. Stindel[2], P. J. Le Reste[4], M. Hatt[2]
[1]b-com Institute of Research and Technologies, France; [2]LaTIM, INSERM, UMR 1101, France; [3]University of Western Brittany, France; [4]University Hospital Pontchaillou, France

M04E-10 MRI Brain Segmentation Using Hidden Markov Random Fields with Alpha-Stable Distributions
I. Peis[1], D. Salas-Gonzalez[1,2], F. J. Martínez-Murcia[1], F. Segovia[1], J. M. Górriz[1], J. Ramírez[1], E. W. Lang[2]
[1]University of Granada, Spain; [2]University of Regensburg, Germany

M04E-11 Sub-Regional Pattern Analysis of Heterogeneous PET Tracer Distribution Employed for Disease Assessment
I. S. Klyuzhin[1], J. Fu[1], N. Shenkov[1], A. Rahmim[2], V. Sossi[1]
[1]University of British Columbia, Canada; [2]Johns Hopkins University, USA

M04E-12 Simultaneous Spatiotemporal Tracking of Multiple Positron Sources using Spectral Clustering
H. Li, G. Pratx, *Stanford University, United States*

M04E-13 Optimizing 4D-PET/CT Imaging for Heterogeneity Quantification by Texture Features
M. Carles[1], I. Torres-Espallardo[1], U. Nestle[2], L. Martí-Bonmatí[1]
[1]Hospital Universitario y Politécnico La Fe, Spain; [2]University Hospital Freiburg, Germany

M04E-15 Data Driven Respiratory Signal Detection in PET Taking Advantage of Time-of-Flight Data
O. Bertolli[1], S. Arridge[1], C. W. Stearns[2], S. D. Wollenweber[2], B. F. Hutton[1,3], K. Thielemans[1]
[1]University College London, United Kingdom; [2]GE Healthcare, USA; [3]University of Wollongong, Australia

M04E-16 Comparison of three quantization methods for the calculation of textural features in PET/CT images: impact on prognostic models in Non-Small Cell Lung Cancer.
M.-C. Desseroit[1], F. Tixier[2,1], C. Cheze-le-rest[2,1], R. Perdrisot[2], R. Guillevin[3], D. Visvikis[1], M. Hatt[1]
[1]INSERM UMR 1101, Laboratoire de Traitement de l'Information Medicale (LaTIM), FRANCE; [2]DACTIM, Nuclear medecine department, University Hospital Milétrie, FRANCE; [3]Department of Radiology, University Hospital Milétrie, FRANCE

M04E-17 Loco-Regional Tumour Control of Advanced HNSCC Can Be Predicted Using Pre-Treatment CT Images.

A. Zwanenburg[1], S. Leger[1], K. Pilz[1,2], B. A. W. Hoeben[3], H. Kaanders[3], W. J. G. Oyen[4], M. Baumann[1,2,5,6,7,8], E. G. C. Troost[1,2,5,6,7,8], S. Löck[1,2,6], C. Richter[1,2,5,6,7,8]
[1]OncoRay - National Center for Radiation Research in Oncology, Germany; [2]Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Germany; [3]Radboud University Medical Center, The Netherlands; [4]Institute of Cancer Research, the Royal Marsden Hospital, Great Britain;[5]German Cancer Research Center, Germany; [6]Helmholtz-Zentrum Dresden Rossendorf, Germany; [7]National Center for Tumour Diseases, Germany; [8]German Cancer Consortium, Germany

M04E-18 Noise Suppression for Cerebral Perfusion CT via Intrinsic Tensor Sparsity Regularization: Initial Study
D. Zeng[1,2], Q. Xie[3], Z. Bian[1,2], D. Meng[3], J. Huang[1,2], Z. Xu[3], Z. Liang[4], W. Chen[1,2], J. Ma[1,2]
[1]Southern Medical University, China; [2]Guangdong Provincial Key Laboratory of Medical Image Processing, China; [3]Xi'an Jiaotong University, China; [4]State University of New York at Stony Brook, USA

M04E-19 Enhanced Wiener Filter for Desplecking Ultra-Sound Images
F. Baselice, G. Ferraioli, V. Pascazio, G. Schirinzi
Universita' di Napoli Parthenope, Italy

M04E-20 An Automatic Segmentation Method for the Measurement of the Functional Volume of Oncological Lesions on MR ADC Maps
F. Gallivanone[1], M. Panzeri[2], C. Canevari[2], M. Interlenghi[1], C. Losio[2], L. Gianolli[2], F. De Cobelli[2,3], I. Castiglioni[1]
[1]IBFM - CNR, Italy; [2]IRCCS San Raffaele Scientific Institute, Italy; [3]Vita-Salute San Raffaele University, Italy

M05 MIC Plenary 2

Thursday, Nov. 3 08:00-10:00 Schweitzer

Session Chairs: **Dimitris Visvikis**, INSERM UMR1101, France
Suleman Surti, University of Pennsylvania, United States

M05-1 (08:00) Introduction to 2nd MIC plenary session
D. Visvikis, *INSERM, LaTIM, France*; S. Surti, *University of Philadelphia, USA*

M05-2 (08:15, invited) Redefining optical imaging with Multi-Spectral Optoacoustic Tomography.
V. Ntziachristos, *Technische Universitat Munchen, Germany*

M05-3 (09:05) NMISC awards presentation
D. Visvikis, *INSERM, LaTIM, France*

M05-4 (09:15) Bruce Hasegawa award ceremony
D. Visvikis, *INSERM, LaTIM, France*

M05-5 (09:20) Bruce Hasegawa YMIS award winner lecture
D. Visvikis, *INSERM, LaTIM, France*

M05-6 (09:30) EJH NMISC award ceremony
D. Visvikis, *INSERM, LaTIM, France*

M05-7 (09:35) 2016 EJH NMISC scientist award recipient lecture
D. Visvikis, *INSERM, LaTIM, France*

M06 Pre-clinical (small animal) emission/multimodality imaging I

Thursday, Nov. 3 10:30-12:00 Schweitzer

Session Chairs: **George K. Loudos**, Department of Biomedical Technology, Technological Educational Institute of Athens, Greece
Jae Sung Lee, Seoul National University College of Medicine, South Korea

M06-1 (10:30) Characterization of a PET Prototype Based on Monolithic Detectors
P. Rato-Mendes[1], J. Marin[1], M. A. Morcillo[1], J. Navarrete[1], J. C. Oller[1], M. Oteo[1], J. M. Perez[1], L. Romero[1], I. Sarasola[2], O. Vela[1]
[1]CIEMAT, Spain; [2]CERN, Switzerland

M06-2 (10:45) The Hardware Architecture of the LabPET II-Mouse, a Highly Integrated APD-Based PET Scanner
R. Fontaine, L. Arpin, C. Paulin, K. Koua, H. Bouziri, L. Njejimana, C. Thibaudeau, J.-F. Beaudoin, J. Cadorette, S. Panier, M. Abidi, J. Bouchard, N. Jurgensen, M.-A. Tetrault, M. Bergeron, E. Gaudin, F. Loignon-Houle, J. Charest, M. Paille, A. Samson, P.-Y. Lauzier-Trepanier, W. Ben Attouch, J. Rossignol, M. Gaudreault, K. Forest, N. Viscogliosi, F. Berthelot, C. M. Pepin, J.-B. Michaud, C.-A. Brunet, J.-F. Pratte, R. Lecomte
Université of Sherbrooke, Canada

M06-3 (11:00) INSERT Project: MR Compatible Preclinical SPECT Based on SiPM Photodetectors

M. Occhipinti[1,2], P. Busca[1,2], M. Carminati[1,2], C. Fiorini[1,2], G. L. Montagnani[1,2], K. Nagy[3], T. Bukki[3], Z. Nyitrai[3], Z. Papp[3], A. Küehne[4], T. Niendorf[4], C. Piemonte[5]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Mediso Medical Imaging Systems, Hungary; [4]MRI.TOOLS GmbH, Germany; [5]Fondazione Bruno Kessler (FBK), Italy

M06-4 (11:15) Evaluation of a Long Axial Field-of-View PET Scanner for Non-Human Primates
E. Berg[1], X. Zhang[1], J. Bec[1], M. S. Judenhofer[1], Q. Peng[1,2], M. Kapusta[3], M. Schmand[3], M. E. Casey[3], J. Qi[1], R. D. Badawi[1], S. R. Cherry[1]
[1]University of California, Davis, USA; [2]Lawrence Berkeley National Laboratory, USA; [3]Siemens Medical Solutions, USA

M06-5 (11:30) MAPSSIC, a Novel CMOS Intra-Cerebral Beta+ Probe for Deep Brain Imaging in Awake and Freely Moving Rat: a Monte-Carlo Study.
L. Ammour[1], J. Heymes[2], M. Bautista[3], S. Fieux[4], F. Gensolen[3], M. Kachel[2], F. Lefebvre[1], F. Pain[1], P. Pangaud[3], L. Pinot[1], J. Baudot[3], P. Gisquet-Verrier[5], P. Laniece[1], C. Morel[3], L. Zimmer[4], M.-A. Verdier[1]
[1]IMNC CNRS/IN2P3, Univ Paris-Sud, Univ Paris Diderot, Université Paris-Saclay, France; [2]IPHC CNRS/IN2P3, Univ Strasbourg, France; [3]CPPM CNRS/IN2P3, Univ Aix-Marseille, France; [4]LNRC, CNRS/INSERM, Univ Lyon 1, France; [5]NeuroPSI CNRS/INSB, Univ Paris Sud, Université Paris-Saclay, France

M06-6 (11:45) Performance of a Detector Module for a Mouse Brain PET/MRI System
C. Parl, A. Kolb, F. Schmidt, B. J. Pichler
University of Tuebingen, Germany

M07 Quantitative imaging techniques & image analysis II

Thursday, Nov. 3 10:30-12:00 Cassin

Session Chairs: **Arman Rahmim**, Johns Hopkins University, United States
Chi Liu, Yale University, United States

M07-1 (10:30) Atlas-Based Multi-Organ Segmentation for Abdominal PET Using Graph Cuts
S. Ren, M. Naganawa, R. E. Carson, *Yale University, US*

M07-2 (10:45) Ant Colony Segmentation Approach for Heterogeneous Volume Delineation in PET
A. Ouahabi[1], V. Jaouen[1], M. Hatt[1], D. Visvikis[1], H. Fayad[1,2]
[1]INSERM UMR1101, LaTIM, France; [2]Université de Bretagne Occidentale, France

M07-3 (11:00) PCA-Based Approach for Inhomogeneous PSF Estimation and Partial Volume Correction in PET
Z. Irace[1], A. Reilhac[1], B. Mendez de Vigo[1], H. Batatia[2], N. Costes[1]
[1]CERMEP, France; [2]University of Toulouse, France

M07-4 (11:15) Simultaneous PET Imaging of Liquid Absorption and Mucociliary Transport in the Lungs Based on Triple Coincidences
J. L. Herraiz[1,2], E. Lage[3], J. Venegas[2]
[1]University Complutense of Madrid, Spain; [2]Massachusetts General Hospital and Harvard Medical School, USA; [3]University Autonoma of Madrid, Spain

M07-5 (11:30) Gradient-Aided Localized Deformable Model for PET Image Segmentation
V. Jaouen[1], M. Hatt[1], H. Fayad[1], C. Tauber[2], D. Visvikis[1]
[1]LaTIM, Université de Bretagne Occidentale, Inserm, France; [2]Imagerie et cerveau, Université François-Rabelais, Inserm, France

M07-6 (11:45) Plane-Dependent ML Scatter Scaling: 3D Extension of the 2D Simulated Single Scatter Estimate
A. Rezaei[1], K. Salvo[2], V. Panin[3], T. Koesters[4], M. Casey[3], F. Boada[4], M. Defrise[2], J. Nuyts[1]
[1]KU Leuven, Belgium; [2]Vrije Universiteit Brussel, Belgium; [3]Siemens Medical Solutions, USA; [4]New York University Medical Center, USA

M08 New radiation detectors / technologies for medical imaging I

Thursday, Nov. 3 14:00-16:00 Schweitzer

Session Chairs: **Dennis R. Schaart**, Delft University of Technology, Netherlands
Simon R. Cherry, University of California-Davis, United States

M08-1 (14:00) The Route to 10ps TOFPET Is Open
P. Lecoq, E. Auffray, S. Gundacker, *CERN, Switzerland*; R. Martinez Turtos, *University Biccoca, Italy*

M08-2 (14:15) Use of the OpenPET Data Acquisition for a strip-line readout TOF PET detector
H. Kim[1], W.-S. Choong[2], Y. Hua[3], D. Xi[3], Q. Xie[3], N. Eclov[1], F. Abu-Nimeh[2], C.-T. Chen[1], C.-M. Kao[1]
[1]University of Chicago, United States; [2]Lawrence Berkeley National Laboratory, United States; [3]Huazhong University of Science and Technology, China

M08-3 (14:30) Evaluation of the Imaging Performance of Continuous Detectors Etched with Laser Induced Optical Barriers
J. Panetta[1], S. Surti[1], B. Singh[2], J. Karp[1]
[1]University of Pennsylvania, USA; [2]Radiation Monitoring Devices, USA

M08-4 (14:45) BGO as a Hybrid Scintillator / Cherenkov Radiator for Cost-Effective Time-of-Flight PET
S. E. Brunner[1], A. Ferri[2], A. Gola[2], C. Piemonte[2], D. R. Schaart[1]
[1]TU Delft, The Netherlands; [2]Fondazione Bruno Kessler, Italy

M08-5 (15:00) BGO Coupled with NUV-HD SiPMs for Time-of-Flight PET by Simultaneous Detection of Cerenkov and Scintillation Photons
S. I. Kwon[1], A. Gola[2], A. Ferri[2], C. Piemonte[2], S. R. Cherry[1]
[1]University of California, Davis, USA; [2]Fondazione Bruno Kessler, Italy

M08-6 (15:15) First Characterization of the SPADnet-II Sensor: a Smart Digital Silicon Photomultiplier for ToF-PET Applications
E. Gros-Daillon[1], L. Verger[1], D. A. B. Bonifacio[1,2], E. Charbon[3], C. Bruschini[4], L. H. C. Braga[5], L. Gasparini[5], N. Massari[5], M. Perenzoni[5], D. Stoppa[5], R. Walker[6], A. Erdogan[6], L. Parmesan[6], R. K. Henderson[6], S. Pellegrini[7], B. Rae[7]
[1]CEA - LETI, France; [2]Institute of Radioprotection and Dosimetry, Brazil; [3]Delft University of Technology, The Netherlands; [4]EPFL, Switzerland; [5]Fondazione Bruno Kessler, Italy; [6]the University of Edinburgh, United Kingdom; [7]STMicroelectronics, United Kingdom

M08-7 (15:30) Time-over-Threshold for Pulse Shape Discrimination in a Time-of-fight/Depth-of-Interaction Phoswich PET Detector
C.-M. Chang, J. W. Cates, C. S. Levin
Stanford University, USA

M08-8 (15:45) A New Four-Layered DOI Detector with Quadrisected Top Layer Crystals
G. Hirumi[1], E. Yoshida[2], H. Tashima[2], F. Nishikido[2], M. Nitta[1], H. Haneishi[1], T. Yamaya[2]
[1]Chiba University, Japan; [2]National Institute for Radiological Science, Japan

M09 Image reconstruction techniques I

Thursday, Nov. 3 14:00-16:00 Cassin

Session Chairs: **Johan L. Nuyts**, KU Leuven, Belgium
Jinyi Qi, University of California, Davis, United States

M09-1 (14:00) Direct EM Reconstruction of Parametric Images from List-Mode Brain PET Using a Novel Model Based on Logan Graphical Analysis
J.-D. Gallezot, M. K. Germino, R. E. Carson
Yale University, United States

M09-2 (14:15) Dynamic PET Reconstruction Using the Kernel Method with MRI Information
K. Gong[1], G. Wang[1], K. T. Chen[2], C. Catana[2], J. Qi[1]
[1]University of California, Davis, United States; [2]Massachusetts General Hospital and Harvard Medical School, United States

M09-3 (14:30) Multi-Parametric MRI-Guided PET Image Reconstruction
A. Mehranian, A. J. Reader
King's College London, United Kingdom

M09-4 (14:45) PET Reconstruction with Convex Gradient-Based Priors
G. Schramm[1], M. Holler[2], F. Knoll[3], T. Koesters[3], F. Boada[3], K. Bredies[2], J. Nuyts[1]
[1]KU Leuven, UZ Leuven, Belgium; [2]University of Graz, Austria; [3]Bernard and Irene Schwartz Center for Biomedical Imaging, NYU School of Medicine, US

M09-5 (15:00) Joint Activity/Attenuation Reconstruction in SPECT Using Photopeak and Scatter Sinograms
A. Bousse[1], A. Sidlesky[2], N. Roth[2], A. Rashidnasab[1], K. Thielemans[1], B. F. Hutton[1,3]
[1]University College London, UK; [2]Spectrum Dynamics, Israel; [3]University of Wollongong, Australia

M09-6 (15:15) Hybrid Pre-Log and Post-Log Image Reconstruction for X-Ray Computed Tomography
G. Wang[1], J. Zhou[2], Z. Yu[2], W. Wang[2], J. Qi[1]
[1]University of California, USA; [2]Toshiba Medical Research Institute, USA

M09-7 (15:30) Accurate Transaxial Region-of-Interest Reconstruction in Helical CT?
R. Clackdoyle, F. Momey, L. Desbat, *Université de Grenoble Alpes, France*; S. Rit, *INSA-Lyon, France*

M09-8 (15:45) Atlas-Based Image Reconstruction for Breast CT Imaging Using Non-Isocenteric C-Arm Scanner
E. A. Rashed, *Suez Canal University, Egypt*; H. Kudo, *University of Tsukuba, Japan*

M10A Posters: image reconstruction I

Thursday, Nov. 3 16:30-18:30 Etoile

Session Chairs: **Volkmar Schulz**, RWTH Aachen University - Aachen, Germany
Magnus Dahlbom, David Geffen School of Medicine at UCLA, United States
Hadi Fayad, INSERM UMR1101, LaTIM, UBO, France

M10A-1 **Kernelised EM Image Reconstruction for Dual-Dataset PET Studies**
S. Ellis, A. J. Reader, *King's College London, UK*

M10A-2 **Improving the Signal-to-Noise Ratio in Static PET Reconstruction Using HYPR-OSEM**
J.-C. (. Cheng[1], J. Matthews[2], R. Boellaard[1]
[1]VU University Medical Center, The Netherlands; [2]The University of Manchester, The United Kingdom

M10A-3 **Compute-Optimised, Direct LOR PET Image Reconstruction for the Siemens Hybrid MR/PET Scanner Exploiting Scanner Symmetries and Rotation-Symmetric Voxel Assemblies**
J. J. Scheins, C. Lerche, N. J. Shah
Institute of Neuroscience and Medicine INM-4, Germany

M10A-4 **PET 3D Blurring Kernels from Single-Event Coordinates**
R. Taschereau, A. F. Chatziioannou
University of California Los Angeles, USA

M10A-5 **Discrete Iterative Algorithms for Scatter-to-Attenuation Reconstruction in PET**
Y. Berker[1,2], V. Schulz[2], J. S. Karp[1]
[1]University of Pennsylvania, USA; [2]RWTH Aachen University, Germany

M10A-6 **Joint Reconstruction of Activity and Attenuation in Dynamic PET**
A. Rashidnasab[1], A. Bousse[1], B. F. Holman[1], B. F. Hutton[1,2], K. Thielemans[1]
[1]University College London, United Kingdom; [2]University of Wollongong, Australia

M10A-7 **Direct PET Reconstruction of Regional Binding Potentials**
P. Gravel, *PERFORM Centre, Concordia University, Canada*; A. Reader, *King's College London, St. Thomas' Hospital, UK*

M10A-8 **Performance Improvement and Validation of a New MAP Reconstruction Algorithm**
Y.-J. Tsai[1], A. Bousse[2], C. W. Stearns[3], S. Ahn[3], B. F. Hutton[2,4], S. Arridge[1], K. Thielemans[2]
[1]University College London, UK; [2]University College London Hospitals NHS Trust, UK; [3]GE, US; [4]University of Wollongong, Australia

M10A-9 **Strategies for Acceleration of a New MLEM Algorithm for Emission-Based Photon Attenuation Correction in PET**
A. Mihlin, C. S. Levin, *Stanford University, United States*

M10A-10 **aSRT: A New Analytic Reconstruction Algorithm for SPECT**
N. E. Protonotarios[1,2], A. S. Fokas[1,3], A. Gaitanis[4], G. A. Kastis[1]
[1]Academy of Athens, Greece; [2]National Technical University of Athens (NTUA), Greece; [3]University of Cambridge, UK; [4]Biomedical Research Foundation of the Academy of Athens (BRFAA), Greece

M10A-11 **Initial Validation of Time-of-Flight List-Mode MLEM and OSEM Reconstruction Algorithms in STIR Framework Using Monte Carlo Simulated Data**
N. Efthimiou[1,2], K. Thielemans[3], C. Tsoumpas[1]
[1]University of Leeds, UK; [2]Technological Educational Institute of Athens, GR; [3]University College London, UK

M10A-12 **Accelerated Image Reconstruction for Pinhole PET with a Combined Dual-Matrix Dual-Voxel Approach**
M. C. Goorden, F. J. Beekman
Delft University of Technology, Netherlands

M10A-13 **Simultaneous Estimation of Activity and Attenuation in Classical PET: Uniqueness Issues**
M. Defrise, *Vrije Universiteit Brussel, Belgium*

M10A-14 **Simultaneous PET-MR Joint Reconstruction with Information Theoretic Priors**
Y. Yu[1,2], S. Yao[3], S. Wang[1,2], Y. Liu[1,2], Y. Xia[4], T. Ma[1,2]
[1]Ministry of Education, China; [2]Tsinghua University, China; [3]Chinese PLA General Hospital, China; [4]Beijing Institute of Spacecraft Environment Engineering, China

M10B Posters: quantitative imaging I

Thursday, Nov. 3 16:30-18:30 Etoile

Session Chairs: **Volkmar Schulz**, RWTH Aachen University - Aachen, Germany
Magnus Dahlbom, David Geffen School of Medicine at UCLA, United States
Hadi Fayad, INSERM UMR1101, LaTIM, UBO, France

M10B-1 **MLAA-Based Headphone Attenuation Estimation in Hybrid PET/MR Imaging**
T. Heußer, C. M. Rank, M. T. Freitag, M. Kachelrieß
German Cancer Research Center (DKFZ), Germany

M10B-2 **Five-Dimensional Respiratory and Cardiac Motion Compensation for Simultaneous PET/MR**
C. M. Rank, T. Heußer, A. Wetscherek, M. T. Freitag, H.-P. Schlemmer, M. Kachelrieß
German Cancer Research Center (DKFZ), Germany

M10B-3 Quantification Accuracy of a New HRRT High Throughput Rat Hotel Using Transmission-Based Attenuation Correction: a Phantom Study
S. H. Keller[1], E. N. L'Estrade[1,2,3], B. Dall[1], M. Palner[1], M. Herth[2,1]
[1]Rigshospitalet, University of Copenhagen, Denmark; [2]University of Copenhagen, Denmark; [3]Lund University Hospital, Sweden

M10B-4 Combining CTs in Multi-CT Dynamic PET Acquisitions Increases Reproducibility and Reduces Kinetic Parameter Estimate Errors.
B. F. Holman, B. F. Hutton, K. Thielemans
Institute of Nuclear Medicine, University College London, UK

M10B-5 A Method for Thresholds Optimization in Photon Counting Spectral CT
D. Wu[1,2], Z. Li[1,2], X. Xu[1,2], S. Wang[1,2]
[1]Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China; [2]Tsinghua University, China

M10B-6 Simultaneous Activity and Crystal Efficiencies Reconstruction for Continuous Motion Bed Acquisition
V. Y. Panin, *Siemens Healthcare, USA*

M10B-7 Patient Specific Motion Model for an Optimal Respiratory Motion Correction in PET/MR Imaging
H. Fayad[1,2], H. Schmidt[3], T. Kustner[3,4], D. Visvikis[1]
[1]INSERM UMR1101, LaTIM, France; [2]Université de Bretagne Occidentale, France; [3]University of Tubingen, Germany; [4]University of Stuttgart, Germany

M10B-8 Highly Efficient Motion-Corrected Simultaneous Cardiac PET-MR Imaging
C. Munoz[1], R. Neji[2], P. Marsden[1], A. J. Reader[1], R. M. Botnar[1], C. Prieto[1]
[1]King's College London, United Kingdom; [2]Siemens Healthcare, United Kingdom

M10B-9 The Effect of Isoflurane on 18F-FDG Uptake in the Rat Brain: a Fully Conscious Dynamic Study Using Motion Compensation
M. G. Bickell[1], B. De Laat[1], R. Fulton[2,3], G. Bormans[1], J. Nuyts[1]
[1]Katholieke Universiteit Leuven, Belgium; [2]University of Sydney, Australia; [3]Westmead Hospital, Australia

M10B-10 Garment Compensation in Marker-Less Motion Tracking for Medical Imaging
C. Lindsay, M. A. King
University of Massachusetts Medical School, United States

M10B-11 An Attenuation Method for Reducing Count Rate Losses in Preclinical PET During Intratherapeutic Imaging
M. Dahlbom[1], E. Mellhammar[2], S. Evans-Axelsson[1], T. Tran[2], J. Axelsson[2], S.-E. Strand[2]
[1]David Geffen School of Medicine at UCLA, USA; [2]Lund University, Sweden

M10B-12 A Recovery Coefficient Study Using Micro-Spheres in Clinical PET/CT Scanners
S. Adler, J. Seidel, *Leidos Biomedical Research, Inc., USA*

M10B-13 Performance of a Scatter Pre-Calculated Kernel Based System Matrix in Preclinical SPECT Quantification Studies
B. Auer, F. Boisson, V. Bekaert, D. Brasse
Institut Pluridisciplinaire Hubert Curien (IPHC), France

M10B-14 System Specific Modeling for Absolute Quantification of 99mTc and 177Lu with SPECT/CT
H. Ryu, K. P. Willowson, S. R. Meikle, D. L. Bailey
University of Sydney, Australia

M10B-15 Influence of Respiratory Signal Sampling Rate on Motion Resolution in Respiratory-Gated PET
F. Buether[1,2], M. Heß[2], L. J. Frohwein[2], K. P. Schaefers[2]
[1]University Hospital of Muenster, Germany; [2]University of Muenster, Germany

M10B-16 Quantification of TSPO Expression Using [18F]DPA-714 in a Mouse Model of Epilepsy: Impact of Image Processing
C. Wimberley[1], L. Nguyen[1], V. Bouilleret[1], A. Reilhac[2], Y. Fontyn[1], R. Boisgard[1], I. Buvat[1]
[1]CEA/I2BM/Service Hospitalier Frederic Joliot, France; [2]CERMEP, France

M10B-17 A Monte Carlo-Based Quantitative Pinhole ML-EM Reconstruction Using a Ray-Driven Backprojection
M. I. Peterson, M. Ljungberg, *Lund University, Sweden*

M10B-18 Motion Model Based on Orthogonal 2D MRI Data to Correct Physiological Motion in PET/MRI
M. Heß[1], L. J. Frohwein[1], F. Büther[1,2], K. P. Schäfers[1]
[1]University of Münster, Germany; [2]University Hospital of Münster, Germany

M10B-19 Continuous Motion Estimation in Hybrid PET/MRI Using Fast Interleaved 2D MRI Acquisitions
L. J. Frohwein[1], M. Heß[1], F. Büther[1,2], K. P. Schäfers[1]
[1]University of Muenster, Germany; [2]University Hospital of Münster, Germany

M10B-20 Partial Volume Effect and Noise Compensation of Dose-Volume Histograms for Y90-PET Based Dosimetry by Means of Region Sub-Segmentation
M. Sanchez-Garcia[1,2], J. Strydhorst[3,4,5,6], H. Levillain[1,2], I. Gardin[2,7,8], P. Buyssens[2,7,8], T. Carlier[9,10], R. Lebtahi[1,2], I. Buvat[3,4,5,6], A. Dieudonne[1,2]
[1]Beaujon Hospital, France; [2]Henri Becquerel Cancer Center, France; [3]CEA, France; [4]University Paris-Sud, France; [5]CNRS, France; [6]Universtity Paris Saclay, France; [7]Rouen University, France; [8]LITIS, France; [9]University Hospital of Nantes, France; [10]INSERM, France

M10B-21 Towards Better Normalization Using Photopeak Monitoring from Phantom/Patient Data in Positron Emission Tomography (PET)
M. Aykac, V. Y. Panin, *Siemens Molecular Imaging, US*

M10C Posters: Radiotherapy II

Thursday, Nov. 3 16:30-18:30 Etoile

Session Chairs: **Volkmar Schulz**, RWTH Aachen University - Aachen, Germany
Magnus Dahlbom, David Geffen School of Medicine at UCLA, United States
Hadi Fayad, INSERM UMR1101, LaTIM, UBO, France

M10C-1 Study of the Secondary Radiation Produced by He, C and O Ion Beams Impinging on a PMMA Target in the Context of Particle Therapy
I. Mattei[1], G. Battistoni[1], F. Collamati[2], E. De Lucia[2], R. Faccini[3,4], P. M. Frallicciardi[5], C. Mancini-Terracciano[3,4], M. Marafini[4,6], S. Muraro[1], R. Paramatti[4], V. Patera[4,6,3], L. Piersanti[4,3], D. Pinci[4], A. Rucinski[4,3], A. Russomando[3,4,7], A. Sarti[2,6,3], A. Sciubba[4,6,3], E. Solfaroli Camillocci[3,4], M. Toppi[2], G. Traini[3,4], C. Voena[4]
[1]INFN - Sezione di Milano, Italy; [2]Laboratori nazionali di Frascati dell'INFN, Italy; [3]Sapienza Università di Roma, Italy; [4]INFN - Sezione di Roma, Italy; [5]Istituto di Ricerche Cliniche Ecomedica, Italy; [6]Museo Storico della Fisica e Centro Studi e Ricerche, Italy; [7]Center for Life nano Science@Sapienza, Istituto Italiano di Tecnologia, Italy

M10C-2 Beam-on PET Imaging of Very Short-Lived Nuclides During Proton Therapy
H. J. T. Buitenhuis[1], F. Diblen[1,2], K. W. Brzezinski[1], S. Brandenburg[1], P. Dendooven[1]
[1]University of Groningen, The Netherlands; [2]Ghent-University, Belgium

M10C-3 The INSIDE in-Beam PET: System Characterization and First Measurements
E. Fiorina, G. Battistoni, N. Belcari, M. G. Bisogni, N. Camarlinghi, P. Cerello, A. Del Guerra, A. Ferrari, V. Ferrero, G. Giraudo, E. Kostara, M. Morrocchi, F. Pennazio, C. Peroni, M. A. Piliero, G. Pirrone, A. Rivetti, M. D. Rolo, V. Rosso, P. Sala, G. Sportelli, R. Wheadon
University of Turin, Italy

M10C-4 Experimental Characterization of Megavoltage Beams for Orthogonal Ray Imaging
C. Travassos[1,2], H. Simões[1,2], P. Crespo[1,2], M. Alves Barros[1,2], J. Lencart[3], P. J. B. M. Rachinhas[4], J. A. M. Santos[3]
[1]LIP - Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]University of Coimbra, Portugal; [3]IPOPFG, EPE - Instituto Português de Oncologia do Porto Francisco Gentil, Portugal; [4]CHUC, EPE - Centro Hospitalar e Universitário de Coimbra, Portugal

M10C-5 Monitoring Tumor Head Irradiation with OrthoCT (Orthogonal Ray Imaging): a Full System Simulation Study
H. Simões[1,2], P. Crespo[1,2]
[1]Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]Universidade de Coimbra, Portugal

M10C-6 Optical Fiber Dosimeter for Real-Time HDR Brachytherapy
L. M. Moutinho[1], H. Freitas[1], A. J. Gonçalves[1], I. F. Castro[1], P. J. Rachinhas[2], P. C. Simões[2], J. F. C. A. Veloso[1]
[1]University of Aveiro, Portugal; [2]CHUC, Portugal

M10C-7 High-Granularity Digital Tracking Calorimeter for the Estimation of Proton Energy in Proton Computed Tomography
H. E. S. Pettersen[1,2], D. Röhrich[2], O. H. Odland[1], H. Wang[3], C. Zhang[3], E. Rocco[3], T. Peitzmann[3]
[1]Haukeland University Hospital, Norway; [2]University of Bergen, Norway; [3]University of Utrecht, The Netherlands

M10C-8 The Use of CMOS Detectors for a 24 MeV Proton Beam Dosimetry
J. Constanzo, C. Finck, C. Mathieu, M. Pellicioli, J. Schuler, M. Vanstalle, M. Rousseau
IPHC, UNISTRA, CNRS, 23 rue du Loess, France

M10C-9 Dosimetric Evaluation of Proton CT Using a Prototype Proton CT Scanner
V. Giacometti[1], S. Guatelli[1], A. Zatserklyaniy[2], R. P. Johnson[2], H. Sadrozinski[2], T. E. Plautz[2], P. Piersimoni[3], C. E. Ordonez[4], V. A. Bashkirov[5], R. W. Schulte[5], A. B. Rozenfeld[1]
[1]Wollongong University, Australia; [2]Loma Linda University, USA; [3]Santa Cruz University, USA; [4]Northern Illinois University, USA; [5]University of San Francisco, USA

M10C-10 Scintillator-Based Measurement of off-Axis Neutron and Photon Dose Rates During Proton Therapy
C. A. Miller, M. A. Norsworthy, S. D. Clarke, S. A. Pozzi, *University of Michigan, USA*; R. W. Schulte, *Loma Linda University Medical Center, USA*

M10C-11 An Image Guided and Energy-Multiplexed Combinatorial Therapeutic Delivery System for X-Ray Induced Photodynamic Therapy
J. George, L. Giannoni, *University of Illinois at Urbana-Champaign, USA*; L. Luo, *National History Institute, Taiwan*; P. J. La Riviere, L.-J. Meng, *University of Chicago, USA*

M10C-12 Pulse by Pulse Timing Analysis in Adaptive Radiotherapy: a Preliminary Study
M. Duncan[1], M. K. Newall[1], V. Caillet[2], J. T. Booth[2,3], P. J. Keall[3], A. B. Rozenfeld[1], M. Petasecca[1]
[1]University of Wollongong, Australia; [2]Northern Sydney Cancer Care Centre, Australia; [3]University of Sydney, Australia

M10C-13 R&D of an Ultra-Low Noise (<= 1.8 E-) and High Sensitive (3 Photons) Light Field Camera for Next-Generation Real-Time Full 3D Scintillation Dosimetry
C. Wan[1], H. Qiao[1], X. Dai[2], D. Li[1], L. Yang[1], Z. Qi[1], X. Zhang[1]
[1]Lanzhou University, China; [2]China institute for radiation protection, China

M10C-14 Timing Performances of a Time-of-Flight Detection System for Fragmentation Cross Section Measurements in Carbon Therapy
S. Salvador, J. Colin, D. Cussol, J.-M. Fontbonne, M. Labalme, C. Divay
Normandie Univ, ENSICAEN, UNICAEN, CNRS/IN2P3, LPC Caen, France

M10C-15 Time-of-Flight Surface Imaging for 6 DoF Patient Positioning in Radiotherapy

M. Gilles[1,2], H. Fayad[1,3], S. Nazir[1], N. Boussion[1,4], O. Pradier[1,4], P. Miliglierini[4], D. Visvikis[1]
[1]Inserm UMR 1101, France; [2]Ecole Nationale d'Ingénieurs de Brest, France; [3]Université de Bretagne Occidentale, France; [4]CHRU Morvan, France

M10D Posters: CT I

Thursday, Nov. 3 16:30-18:30 Etoile

Session Chairs: **Volkmar Schulz**, RWTH Aachen University - Aachen, Germany
Magnus Dahlbom, David Geffen School of Medicine at UCLA, United States
Hadi Fayad, INSERM UMR1101, LaTIM, UBO, France

M10D-1 Prior-Based Metal Artifact Reduction in CT Using Statistical Metal Segmentation on Projection Images
M. A. Hegazy, M. H. Cho, S. Y. Lee
Kyung Hee University, S.Korea

M10D-2 Development of a Method to Obtain High-Contrast Photon Counting CT Images in the Case of Arteriosclerosis
K. Yokoi, I. Takahashi, K. Amemiya, *Hitachi, Ltd., Japan*

M10D-3 Dosimetry of Dual-Energy CT for the Detection of Acute-Stage Cerebral Infarction : a Phantom Study
H. Hara[1], H. Muraishi[1], H. Matsuzawa[2], T. Inoue[3], H. Satoh[4], S. Abe[4], S. Mizukami[1], T. Takeda[1], Y. Nakajima[3]
[1]Kitasato University, Japan; [2]Saitama Medical University, Japan; [3]St. Marianna University School of Medicine, Japan; [4]Ibaraki Prefectural University of Health Sciences, Japan

M10D-4 Improvement of Spatial Resolution in Two-Dimensional transXend Detector Consisting of Metal Absorbers and Flat Panel Detector
I. Kanno, K. Yamauchi, T. Hamaguchi
Kyoto University, Japan

M10D-5 Semi-Analytic X-Ray Source Model for MARS Spectral CT
M. Shamshad[1], M. Anjomrouz[1], D. J. Smithies[2], A. Largeau[3], G. S. Lu[4], A. Atharifard[1], J. Humphrey[4], L. Vandon Broeke[4], R. Aamir[1,2], B. Goulter[2], M. F. Walsh[2], R. K. Panta[1,2], D. Knight[4], K. Rajendran[1], S. Bheesette[1], N. D. Ruiter[1,2,4], A. Chernoglazov[2,4], V. B. H. Mandalika[4], R. M. Doesburg[2], C. J. Bateman[1,2,4], S. T. Bell[2,5], A. P. H. Butler[1,2,4,5], P. H. Butler[2,4,5]
[1]University of Otago, New Zealand; [2]MARS Bio-imaging Ltd., New Zealand; [3]Université de Strasbourg, France; [4]University of Canterbury, New Zealand; [5]European Centre for Nuclear Research (CERN), Switzerland

M10D-6 Estimation of an Atomic Density with a Singular Value Decomposition Method Using a Photon-Counting X-Ray CT
R. Ito, K. Ogawa
Graduate School of Engineering, Hosei University, Japan

M10D-7 CT Auto-Calibration by Consistent Contours
S. Maur[1,2], D. Stspankou[1], J. Hesser[1]
[1]Experimental Radiation Oncology, Germany; [2]Sirona Dental Systems GmbH, Germany

M10D-8 Implementation of Majorization-Minimization (MM) Algorithm for 3D Total Variation Minimization in DBT Image Reconstruction
A. Polat[1], N. Matela[2], A. M. Mota[2], I. Yildirim[1]
[1]Istanbul Technical University, Faculty of Electrical and Electronics Engineering, Institute of Informatics, Turkey; [2]Universidade de Lisboa, Faculdade de Ciencias, Instituto de Biofisica e Engenharia Biomedica, Portugal

M10D-9 Preliminary Study of Quantitative X-Ray Spectral Imaging with Spectral Deconvolution
S. Wang, L. Zhang, X. Xu, D. Wu, *Tsinghua University, China*

M10D-10 An Investigation of the Influence of Scatter in Energy-Resolved Computed Tomography
T.-H. Tsai, I. Kanno, *Kyoto University, Japan*

M10D-11 Empirical Noise Power Spectrum Based on the Image Subtraction in Radiography Imaging
D. S. Kim, E. Lee
Hankuk University of Foreign Studies, South Korea

M10D-12 Multi-View Scatter Estimation for Moving Blocker Scatter Correction of CBCT
C. Zhao[1], L. Ouyang[2], J. Wang[2], M. Jin[1]
[1]University of Texas at Arlington, USA; [2]University of Texas Southwestern Medical Center, USA

M10D-13 Beam Profile Assessment in MARS Spectral CT
M. Anjomrouz[1], M. Shamshad[1], D. J. Smithies[2], A. Largeau[3], L. Vandon Broeke[4], R. K. Panta[1,2], R. Aamir[1,2], A. Atharifard[1], M. F. Walsh[2], B. P. Goulter[2], D. Knight[4], S. Bheesette[1], N. D. Ruiter[1,2,4], A. Chernoglazov[2,4], V. B. H. Mandalika[4], C. J. Bateman[1,2,4], S. T. Bell[2,5], A. P. H. Butler[1,2,4,5], P. H. Butler[2,4,5]
[1]University of Otago, New Zealand; [2]MARS Bioimaging Ltd., New Zealand; [3]Université de Strasbourg, France; [4]University of Canterbury, New Zealand; [5]European Centre for Nuclear Research (CERN), Switzerland

M10D-14 Application of a Blind Image Deblurring Method Based on Compressed-Sensing (CS) Scheme in Dental Cone-Beam CT: Simulation and Experimental Studies

K. Kim, H. Cho, Y. Park, U. Je, C. Park, H. Lim, S. Park, G. Kim, S. Park, H. Lee
Yonsei University, South Korea

M10D-15 **Simultaneous Reconstruction and Separation in a Spectral CT Framework**
S. Tairi[1], S. Anthoine[2], C. Morel[1], Y. Boursier[1]
[1]Aix Marseille Université, CNRS/IN2P3, CPPM UMR 7346, France; [2]Aix Marseille Université, CNRS, Centrale Marseille, I2M UMR 7373, France

M10D-16 **Multitarget Data Association with Higher-Order Motion Models for Tracking in Proton CT Instrumentation**
L. Gong, X. Ye, N. Allinson, *University of Lincoln, UK*

M10D-17 **Object Removal in Gradient Domain of Cone-Beam CT Projections**
B. Bier[1], M. Berger[1], J. Maier[1], M. Unberath[1], S. Hsieh[2], S. Bonaretti[2], R. Fahrig[2], M. E. Levenston[2], G. E. Gold[2], A. Maier[1]
[1]Friedrich-Alexander-University Erlangen-Nuremberg, Germany; [2]Stanford University, USA

M10D-18 **Needle Detection in Interventional Pain Management with 3D Image Reconstruction**
E. A. Rashed[1], M. al-Shatouri[1], M. Selim[1,2], H. Kudo[3]
[1]Suez Canal University, Egypt; [2]Suez University, Egypt; [3]University of Tsukuba, Japan

M10D-19 **Bias-Corrected Spectrum Decomposition for X-Ray Computed Tomography (CT): Theory and Method**
H. Gao, *GE Healthcare, USA*; G. Fu, Y. Jin, P. Edic, *GE Global Research, USA*

M10D-20 **A Framework for Iterative Reconstruction in Phase Contrast Computed Tomography Dedicated to the Breast**
A. Sarno[1,2], B. Golosio[3,4], P. Russo[1,2], F. Arfelli[5,6], R. Bellazzini[7,8], A. Brez[7,8], F. Brun[5,6], P. Delogu[8,9], F. Di Lillo[1,2], D. Dreossi[10], C. Fedon[5,6], R. Longo[5,6], G. Mettivier[1,2], P. Oliva[3,4], L. Rigon[5,6], G. Spandre[7,8], G. Tromba[10]
[1]Universit? di Napoli, Italy; [2]INFN sez. di Napoli, Italy; [3]Universit? degli Studi di Sassari, Italy; [4]INFN Sez. di Cagliari, Italy; [5]Universit? di Trieste, Italy; [6]INFN sez. di Trieste, Italy; [7]PiXirad Imaging Counters srl, Italy; [8]INFN sez. di Pisa, Italy; [9]Universit? di Siena, Italy; [10]ELETTRA Sincrotrone Trieste, Italy

M10D-21 **Extended View Cone-Beam Reconstruction with a Movable Gantry**
A. V. Bronnikov, *Bronnikov Algorithms, Netherlands*

M10D-22 **An Improved Approach to Calculate the Presampling Modulation Transfer Function Using Edge Samples with Surface Irregularities for X-Ray Imaging Systems**
W. Sun[1], N. Flay[1,2], A. Konstantinidis[3], S. Brown[1], M. McCarthy[1]
[1]National Physical Laboratory, United Kingdom; [2]University of Southampton, United Kingdom; [3]Christie NHS Foundation Trust, United Kingdom

M10D-23 **Investigation of Non-Negativity Constraint on Basis Images in Half-Rotation Data Reconstruction in Spectral CT**
B. Chen[1], Y. Liu[2], Z. Zhang[1], Z. Yu[2], R. Thompson[2], E. Sidky[1], X. Pan[1]
[1]The University of Chicago, USA; [2]Toshiba Medical Research Institute USA, Inc., USA

M10D-24 **An ML-EM Spectrum Reconstruction Method Based on the Detector Response Model Calibrated by XRF Spectrums**
R. Li, L. Li, *Tsinghua University, China*

M10D-25 **XFCT Imaging System with Pinhole Collimation and Attenuation Correction**
S. Zhang, L. Li, Z. Chen, *Tsinghua University, China*

M10D-26 **CT Iterative Reconstruction Based on Both Noise Model and Image Constraint**
T. Zhang, L. Li, Z. Chen, *Tsinghua University, China*

M10D-27 **X-Ray Spectral Radiography for Cardiovascular Applications**
C. Paulus[1], M. Arques[1], M. Tartare[1], V. Rebuffel[1], J.-M. Vignolle[2], P. Rohr[2], P. Douek[3], L. Verger[1]
[1]CEA LETI MINATEC Campus, France; [2]Trixell, France; [3]Claude Bernard University Lyon 1, France

M10D-28 **Population-Based Scatter Correction Framework for Large FOV CBCT Scanner**
M. Sibomana, *Universite Catholique de Louvain, Belgium*; D. Benoit, *CHRU Brest, France*

M10D-29 **A New Material Decomposition Method Eliminating the K-Shell Photoelectric Effect for Dual-Energy CT**
T. Zhao, L. Li, Z. Chen, *Tsinghua University, China*

M10D-30 **Analog Non-Linear Transformation-Based Tone Mapping for Image Enhancement in C-Arm CT**
L. Shi[1], M. Berger[1], B. Bier[1], C. Soell[1], J. Roeber[1], R. Fahrig[2,3], B. Eskofier[1], A. Maier[1], J. Maier[1]
[1]Friedrich-Alexander-University Erlangen-Nuremberg, Germany; [2]Stanford University, USA; [3]Siemens Healthcare GmbH, Germany

M10E Posters: preclinical II

Thursday, Nov. 3 16:30-18:30 Etoile

Session Chairs: **Volkmar Schulz**, RWTH Aachen University - Aachen, Germany
Magnus Dahlbom, David Geffen School of Medicine at UCLA, United States
Hadi Fayad, INSERM UMR1101, LaTIM, UBO, France

M10E-1 **SAFIR: High Rate Test Inside the MR Bore with the Assessment of a MR-Compatibility**

R. Becker[1], A. Buck[2], C. Casella[1], V. Commichau[1], S. Corrodi[1], G. Dissertori[1], J. Fischer[1], A. S. Howard[1], M. Ito[1], P. Khateri[1], K. Kramer[1], W. Lustermann[1], J. F. Oliver[3], C. Ritzer[1], U. Röser[1], Q. Wang[4], G. Warnock[5], B. Weber[5]
[1]Institute for Particle Physics, Switzerland; [2]Division of Nuclear Medicine, Switzerland; [3]Instituto de Fisica Corpuscolar, Spain; [4]Institute of Medical Physics, China; [5]Institute of Pharmacology and Toxicology, Switzerland

M10E-2 Investigation of Factors Affecting a Potential Worldwide Network of Medical PET Scanners to Monitor the Decay Rate of Lu-176 and Detect Global Radiation Events
M. V. Green[1,2], J. Seidel[1,2], J. J. Vaquero[3], P. L. Choyke[1]
[1]National Cancer Institute, USA; [2]Leidos Biomedical Research, Inc., USA; [3]Universidad Carlos III de Madrid, Spain

M10E-3 Use of a Resistive Network to Estimate the 3D Positioning of Events in a Monolithic Crystal
F. Boisson[1,2], V. Bekaert[1,2], J. Wurtz[1,2], J. Sahr[1,2], D. Brasse[1,2]
[1]IPHC - CNRS/IN2P3, France; [2]Université de Strasbourg, France

M10E-4 easyPET – a New Approach for Axial Preclinical PET
P. M. Correia[1], I. F. Castro[1], A. L. Silva[1], N. Romanyshyn[1], V. Arosio[2], M. Caccia[2], R. Santoro[2], A. C. Santos[3], P. Sá[4], N. Matela[4], P. Almeida[4], J. F. Veloso[1]
[1]Universidade de Aveiro, Portugal; [2]Universita degli Studi dell'Insubria, Italy; [3]Faculty of Medicine of the University of Coimbra, Portugal; [4]Faculdade de Ciências, Universidade de Lisboa, Portugal

M10E-5 An Efficient Statistical Framework for Optimizing Complex SPECT System Designs
E. M. Zannoni[1], X.-C. Lai[1], L.-J. Meng[1,2]
[1]University of Illinois Urbana Champaign, USA; [2]Beckman Institute for Advance Science and Technology, USA

M10E-6 DoI Detector Design and Characterization for Open-Field Mouse Brain PET
A. Z. Kyme[1], M. S. Judenhofer[1], S. R. Meikle[2], S. R. Cherry[1]
[1]University of California Davis, USA; [2]University of Sydney, Australia

M10E-7 MRC-SPECT Imaging of Neural Stem Cells — An Exploration of Simultaneous SPECT and MR Image Acquisition for Detection and Localization of Small Cell Populations
E. M. Zannoni[1], X.-C. Lai[1], I. V. Balyasnikova[2], Q. Li[3], C.-T. Chen[4], L.-J. Meng[1,5]
[1]University of Illinois Urbana Champaign, USA; [2]Northwestern University, USA; [3]Harvard Medical School, USA; [4]University of Chicago, USA; [5]Beckman Institute for Advance Science and Technology, USA

M10E-8 Design and Initial Performance of HiPET, a High Sensitivity and High Spatial Resolution DOI PET Tomograph
Z. Gu[1], D. L. Prout[1], R. Taschereau[1], N. Vu[2], A. F. Chatziioannou[1]
[1]UCLA, United States; [2]Sofie Biosciences, United States

M10E-9 Development of a Prototype SPECT System Using a Variable Pinhole Collimator
H. Cha[1], Y.-J. Jung[1], E. Min[1], S. Bae[1], M. Ko[1], K. M. Kim[2], K. Lee[1], H. Lee[1]
[1]Korea university, Korea; [2]Korea Institute of Radiological and Medical Sciences, Korea

M10E-10 Real Time PET Imaging on the SuperArgus Preclinical Scanner
J. J. Vaquero[1,2], J. L. Herraiz[3], M. Desco[1,2], C. G. Fernandez[4], R. Matesanz[4], J. M. Udias[3]
[1]Universidad Carlos III, Spain; [2]Instituto de Investigación Sanitaria Gregorio Marañón, Spain; [3]Universidad Complutense, Spain; [4]SEDECAL, Spain

M10E-11 An Experimental Evaluation of a Hybrid Pixel-Waveform CdTe Based Prototype PET Detector Against Commercial MicroPET for Imaging Tau Protein Pathology in Transgenic Mouse Brain Tissue
A. Groll[1], K. Kim[2], J. B. Smith[1], J. Kroeger[1], H. Bhatia[1], J. Dutta[2], Q. Li[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Massachusetts General Hospital and Harvard Medical School, USA

M10E-12 Preliminary Results of an Embedded Timing Probe for Calibrating PET Scanner.
A. Samson, J. Bouchard, E. Gaudin, C. Thibaudeau, L. Arpin, R. Lecomte, R. Fontaine
Université de Sherbrooke, Canada

M10E-13 Development of MRC-SPECT-II System for Alzheimer 's Disease Mouse Models
X. Lai, E. M. Zannoni, L.-J. Meng
University of Illinois at Urbana-Champaign, United States

M10E-14 Tri-Modality X-Ray Luminescence, Fluorescence and Transmission Computed Tomography for Monitoring X-Ray Induced Photodynamic Therapies
J. George[1], L. Giannoni[1], K. Kim[2], J. Dutta[2], S.-H. Cheng[3], Q. Li[4], L.-W. Lo[3], C.-T. Chen[2], P. La Riviere[3], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Massachusetts General Hospital, USA; [3]University of Chicago, USA; [4]National Health Research Institutes, Taiwan

M10E-15 Pilot Tests of a PET Insert Based on Monolithic Crystals in a 7T MR
A. J. Gonzalez[1], A. Aguilar[1], P. Conde[1], A. Gonzalez-Montoro[1], S. Sanchez[1], S. Junge[2], S. Stanculovic[2], R. Wissmann[2], T. Bruckbauer[2], T. Greeb[2], R. Garcia[3], J. Barbera[4], C. Molinos[4], C. Correcher[4], F. Sanchez[1], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular Imaging, Spain; [2]Preclinical Imaging, Bruker BioSpin, Germany; [3]Institute of Design and Manufacture, Spain; [4]Oncovision, Spain

M12 Pre-clinical (small animal) emission/multimodality imaging II

Friday, Nov. 4 08:00-10:00 Schweitzer

Session Chairs: **Sybille Ziegler**, Technical University Munich, Germany,
Andrew L. Goertzen, University of Manitoba, Canada

M12-1 (08:00) LabPET II: Initial Results of a Time-over-Threshold APD-Based PET Scanner
E. Gaudin[1], L. Arpin[1], C. Thibaudeau[1], M. Paille[1], J.-F. Beaudoin[1], J.-D. Leroux[2], K. Koua[1], J. Bouchard[1], A. Samson[1], C. M. Pepin[1], R. Fontaine[1], R. Lecomte[1]
[1]Université de Sherbrooke, Canada; [2]Novalgo, Canada

M12-2 (08:15) Design of a Dual-Resolution, Rectangular-Pinhole Collimator with Improved Projection Tiling for Small-Animal SPECT
L. C. Johnson[1], Z. Liu[2], M.-A. Park[2], S. C. Moore[2], S. D. Metzler[1]
[1]University of Pennsylvania, USA; [2]Brigham and Women's Hospital and Harvard Medical School, USA

M12-3 (08:30) Whole-Body Preclinical SPECT Imaging: Scanning Without Multiplexing vs. Stationary Imaging with Multiplexing
S. C. Moore, M. F. Kijewski, *Brigham & Women's Hospital and Harvard Medical School, USA*; L. C. Johnson, S. D. Metzler, *University of Pennsylvania, USA*

M12-4 (08:45) Impact of a MR Transmit/Receive Coil on the Performance of a Dedicated Preclinical MR-Compatible PET-Insert
C.-C. Liu[1], H. F. Wehrl[1], A. Kolb[1], C. Parl[1], M. Rafecas[2], B. J. Pichler[1]
[1]University of Tuebingen,, Germany; [2]University of Luebeck, Germany

M12-5 (09:00) Small Animal and Endoscopic PET Detector Modules Based on Multichannel Digital Silicon Photomultipliers
E. Venialgo, S. Sinha, A. Carimatto, T. Gong, S. Mandai, E. Charbon
Delft University of Technology, Netherlands

M12-6 (09:15) Initial Evaluation of a State-of-the-Art Commercial Preclinical PET/CT Scanner
T.-S. Lee[1], A. Rittenbach[1], C. G. Fernández[2], J. Lopez-Longas[2], J. M. Arco[2], B. M. W. Tsui[1]
[1]Johns Hopkins University, USA; [2]SEDECAL Molecular Imaging, Spain

M12-7 (09:30) Investigation of Angled Crystals for a Depth-of-Interaction Detector
Y. Valenciaga, D. L. Prout, A. F. Chatziioannou
UCLA, United States

M12-8 (09:45) phenoPET - Results from the Plant Scanner
M. Streun[1], K. Borggrewe[1], A. Chlubek[1], M. Dautzenberg[1], C. Degenhardt[1], R. Dorscheid[2], D. Durini[1], A. Erven[1], L. Jokhovets[1], L. Meessen[2], R. Metzner[1], O. Mülhens[2], H. Nöldgen[1], D. Pflugfelder[1], S. Reinartz[2], J. Scheins[1], B. Zwaans[2], S. Jahnke[1], U. Schurr[1], S. van Waasen[1]
[1]Forschungszentrum Juelich, Germany; [2]Philips Digital Photon Counting, Germany

M11 CT imaging technologies

Friday, Nov. 4 08:00-10:00 Cassin

Session Chairs: **Adam Alessio**, University of Washington,
Xiaochuan Pan, The University of Chicago, United States

M11-1 (08:00) PRaVDA: a New Instrument and New Methods for Proton CT
N. M. Allinson, *University of LIncoln, UK*
On behalf of the PRaVDA Consortium

M11-2 (08:15) Noise Reduction in Low-Dose CT with Stacked Sparse Denoising Autoencoders
Z. Ma, Y. Zhang, W. Zhang, Y. Wang, F. Lin, K. He, X. Li, Y. Pu, J. Zhou
Sichuan University, China

M11-3 (08:30) Improving Basis Material Decomposition in the Presence of X-Ray Scatter with an Energy-Resolved Photon Counting Detector
A. Sossin[1], V. Rebuffel[1], J. Tabary[1], J. M. Létang[2], N. Freud[2], L. Verger[1]
[1]CEA-LETI, France; [2]Univ. Lyon, France

M11-4 (08:45) Direct measurement of the X-ray tube spectrum from the scanning plane of a CT system operating in its nominal configuration
N. Shapira, E. Lahoud, *Philips Healthcare, Israel*

M11-5 (09:00) Calibration Free Beam Hardening Correction Using Grangeat-Based Consistency Measure
S. Abdurahman, R. Frysch, R. Bismark, M. Friebe, G. Rose
Otto-von-Guericke University, Germany

M11-6 (09:15) Volume Dose Distribution in Digital Breast Tomosynthesis: a Phantom Study
M. Masi[1], F. Di Lillo[1,2], G. Mettivier[1,2], A. Sarno[1,2], R. Castriconi[1,2], P. Russo[1,2]
[1]Universita' di Napoli Federico II, Italy; [2]INFN, Italy

M11-7 (09:30) Large Area Photon Counting Detector with Cylindrical Surface for Applications in Small Animal CT
P. Soukup, J. Jakubek, M. Jakubek, E. Trojanova, D. Turecek
Advacam, Czech Republic

M11-8 (09:45) Low-Frequency Motion Artifact Correction for Myocardial Dual-Energy CT Perfusion Imaging
Z. Yin[1], J. D. Pack[1], G. Xiong[2,3], S. Dunham[2,3], K. Elmore[2,3], P. Mittal[2,3], P. M. Edic[1], J. K. Min[2,3]
[1]GE Global Research, United States; [2]Weill Cornell Medical College, United States; [3]Dalio Institute of Cardiovascular Imaging, United States

M13A Posters: image reconstruction II

Friday, Nov. 4 10:30-12:00 Etoile

Session Chairs: **Magdalena Rafecas**, University of Lubeck, Germany
Steven R. Meikle, University of Sydney, Australia
Stefaan Vandenberghe, Ghent University, Belgium

M13A-1 Time-of-Flight Parametric Image Reconstruction from Variable Random Fraction Dynamic PET Data
F. A. Kotasidis[1,2,3], H. Zaidi[3,1,4]
[1]University of Geneva, Switzerland; [2]University of Manchester, United Kingdom; [3]Geneva University Hospital, Switzerland; [4]University of Groningen, The Netherlands

M13A-2 A Modified Quantitative Multispectral Weight Reconstruction Approach for Cerenkov Luminescence Tomography
H. Guo, X. He, *School of Information Sciences and Technology, Northwest University, China*; M. Liu, Z. Zhang, Z. Hu, J. Tian, *Institute of Automation(IA),Chinese Academy of Sicences(CAS), China*

M13A-3 The Dual Head Panel PET Image Reconstruction Based on Simulated System Response Matrix
Y. Shang, S. Wang, Y. Liu, W. Cao, Q. Xie, P. Xiao
Huazhong University of Science and Technology, China

M13A-4 AMIAS: a Novel Statistical Method for Tomographic Image Reconstruction - Application in Thermal Emission Tomography
L. Koutsantonis[1], C. Papanicolas[1,2], A.-N. Rapsomanikis[2], E. Stiliaris[1,2]
[1]The Cyprus Institute, Cyprus; [2]National & Kapodistrian University of Athens, Greece

M13A-5 Null-Space Smoothing of Tomographic Images Using TV Norm Minimization
B. D. Smith, *University of Texas San Antonio, USA*

M13A-6 CASToR : A Generic Data Organization and Processing Code Framework for Multi-Modal and Multi-Dimensional Tomographic Reconstruction
T. Merlin[1], S. Stute[2], D. Benoit[1], J. Bert[1], T. Carlier[3], C. Comtat[2], F. Lamare[4], D. Visvikis[1]
[1]LaTIM - INSERM UMR 1101, France; [2]IMIV U1023 - SHFJ, France; [3]CRCNA -INSERM 892 - CNRS 6299, France; [4]INCIA, CNRS UMR 5287, France

M13A-7 Penalized MLAA with Spatially-Encoded Anatomic Prior in TOF PET/MR
K. Kim[1], J. Yang[2], G. El Fakhri[1], Y. Seo[2], Q. Li[1]
[1]Massachusetts General Hospital and Harvard Medical School, USA; [2]University of California, San Francisco, USA

M13A-8 Stepwise Linear Regression Modeling of the Point Spread Functions of a Multi-Pinhole SPECT Camera for I-123 DaTscan Imaging
J. M. Mukherjee, A. Konik, M. A. King
University of Massachusetts, United States

M13A-9 A Direct Image Reconstruction Algorithm for PET Scanners Based on Monolithic Crystals
A. Iborra[1], P. Conde[1], S. Sanchez[1], A. J. Gonzalez[1], M. J. Rodríguez-Álvarez[1], A. Aguilar[1], P. Bellido[1], E. Diaz-Caballero[2,1], J. J. Garcia-Garrigos[1], A. Gonzalez-Montoro[1], D. Grau-Ruiz[1], L. Hernández[1], F. Martos[1], L. Moliner[1], J. P. Rigla[2,1], F. Sánchez[1], M. Seimetz[1], A. Soriano[1], J. C. Valderas[1], L. F. Vidal[1], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular Imaging (i3M), UPV / CSIC, Spain; [2]Tesoro Imaging S. L., Spain

M13A-10 A Novel Approach to Image Reconstruction and Calibration for a Multi-Slit-Slat SPECT System
K. Erlandsson[1], D. Salvado[1], B. F. Hutton[1,2]
[1]University College London, UK; [2]University of Wollongong, Australia

M13A-11 Parameter Optimization for Blob-Based Image Reconstruction with Generalized Kaiser-Bessel Radial Functions
Y. Li, S. Matej, S. D. Metzler
University of Pennsylvania, USA

M13A-12 Comparison of Two Motion Compensation Models : Adding Ordered Subsets into the Mix
M. Toussaint, J.-P. Dussault, R. Lecomte
Université de Sherbrooke, Canada

M13A-13 Regularized MLEM Reconstrution with a Strong Anatomical Prior Using Newton Iterative Algorithm
H. Liu[1,2], J. Wu[3], W. Zhao[4], Y. Liang[4], X. Wang[4], S. Wang[1,2], Y. Liu[1,2], T. Ma[1,2]

[1]*Tsinghua University, China;* [2]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China;* [3]*Yale University, USA;* [4]*Navy General Hospital, China*

M13A-14 **Improvement of Simultaneous Radioactivity and Attenuation Estimation in TOF-PET Using MR-Based Attenuation Prior**
P.-H. Hsu[1], Y. Hsu[1], C.-M. Kao[2], C.-T. Chen[2], C.-Y. Chou[1]
[1]*National Taiwan University, Taiwan;* [2]*The University of Chicago, Chicago, USA*

M13B Posters: New radiation detectors II

Friday, Nov. 4 10:30-12:00 Etoile

Session Chairs: **Magdalena Rafecas**, University of Lubeck, Germany
Steven R. Meikle, University of Sydney, Australia
Stefaan Vandenberghe, Ghent University, Belgium

M13B-1 **A Novel Multiplexing Method Using Bipolar Pulse**
Y. K. Kim, Y. Choi, K. B. Kim, H. T. Leem
Sogang University, Korea

M13B-2 **Low-Cost Gamma Detector with Novel Light-Guide-PMT Geometry to Increase Usable Field-of-View**
B. Wang[1], R. Kreuger[1], F. J. Beekman[1,2], M. C. Goorden[1]
[1]*Delft University of Technology, The Netherlands;* [2]*MILabs B.V., the Netherlands*

M13B-3 **Sensitivity and Timing Resolution Improvement of Inter-Crystal Compton Scattered Events for Sub-250ps TOF-PET Detector**
G. Fu, A. Ivan, H. Qian, *GE Global Research Center, USA*

M13B-4 **Energy Discrimination Using First Emitted Photon Timestamps: an Exploratory Study**
A. C. Therrien[1], W. Lemaire[1], P. Lecoq[2], R. Fontaine[1], J.-F. Pratte[1]
[1]*Université de Sherbrooke, Canada;* [2]*CERN, Switzerland*

M13B-5 **Feasibility Study of Direct Beta Particle Detection Using Gas Electron Multiplier**
B. Izudike[1], C. Zhao[1], J. Yu[1], W. Chen[1], X. Sun[2], G. Balch[2], M. Jin[1]
[1]*University of Texas at Arlington, USA;* [2]*University of Texas Southwestern Medical Center, USA*

M13B-6 **Characterization of 0.5-Mm Lutetium Oxyorthosilicate Detector Arrays for High-Resolution PET Applications**
A. A. Refaey[1,2], M. S. Judenhofer[2], R. D. Badawi[2]
[1]*Minia University, Egypt;* [2]*University of California, USA*

M13B-7 **Light Transport in PET Scintillator Detectors Fabricated Using Laser Induced Optical Barriers**
L. Bläckberg[1,2], D. Uzun Oszahin[1], N. Moghadam[3], G. El Fakhri[1], H. Sabet[1]
[1]*Massachusetts General Hospital and Harvard, USA;* [2]*Uppsala University, Sweden;* [3]*Université de Sherbrooke, Canada*

M13B-8 **Testing and Development of an OWC MRI Compatible PET Insert Front-End**
G. D. Konstantinou[1], W. Ali[2], R. Chil[1,3], G. Cossu[2], E. Ciaramella[2], J. J. Vaquero[1,3]
[1]*Universidad Carlos III de Madrid, Spain;* [2]*Scuola Superiore Sant'Anna, Italy;* [3]*Investigación Sanitaria Gregorio Marañón, Spain*

M13B-9 **drimPET: Assessment of DoI in LYSO Crystals Using SiPMs and Wavelength Shifters**
P. M. M. Correia, I. F. Castro, N. Romanyshyn, P. Quinta, J. F. C. A. Veloso
University of Aveiro, Portugal

M13B-10 **Delay Grid Multiplexing: Light Sharing Capable and Scalable Time-Based Positioning Method**
J. Y. Won, G. B. Ko, J. S. Lee
Seoul National University, South Korea

M13B-11 **An Investigation of Crystal Surface Treatment on Timing and DOI Resolution of SiPM Based Dual-Ended Readout TOF-DOI PET Detector: an Experimental and Optical Simulation Study**
H.-G. Kang[1], S. H. Song[1], K. M. Kim[2], Y. B. Han[1], S. J. Hong[1]
[1]*Eulji University, Korea;* [2]*Korea Institute of Radiological and Medical science, Korea*

M13B-12 **PET Detector Using a Ceramic Scintillator Array (GLuGAG:Ce) Coupled with Digital SiPMs**
S. I. Kwon[1], G. Baldoni[2], Y. Wang[2], K. S. Shah[2], S. R. Cherry[1]
[1]*University of California, Davis, USA;* [2]*Radiation Monitoring Devices, Inc., USA*

M13B-13 **Reconstruction of Spatial Response of Compact Gamma Camera from Flood Field Irradiation Data**
A. Morozov[1,2], F. Alves[2], V. Chepel[1,2], J. Marcos[1], V. Solovov[1]
[1]*LIP-Coimbra, Portugal;* [2]*University of Coimbra, Portugal*

M13B-14 **Investigating CeBr3 for Ultra-Fast TOF-PET Detector Designs**
J. P. Schmall[1], S. Surti[1], P. Dokhale[2], A. Ferri[3], A. Gola[3], C. Piemonte[3], K. Shah[2], J. S. Karp[1]
[1]*University of Pennsylvania, USA;* [2]*Radiation Monitoring Devices, Inc., USA;* [3]*Fondazione Bruno Kessler, Italy*

M13B-15 **Design and Optimization of Direct Conversion Photon-Counting Detector for Dual-Energy CT Imaging**

Y. Jin[1], G. Fu[1], H. Gao[2], P. M. Edic[1]
[1]GE Global Research, USA; [2]GE Healthcare, USA

M13B-16 **Effect of Scintillation Crystal Surface Finish in the Light Sharing TOF PET Detector**
C. L. Kim, M. Ito, D. L. Mcdaniel, *GE Healthcare, USA*

M13C Posters: Application specific

Friday, Nov. 4 10:30-12:00 Etoile

Session Chairs: **Magdalena Rafecas**, University of Lubeck, Germany
Steven R. Meikle, University of Sydney, Australia
Stefaan Vandenberghe, Ghent University, Belgium

M13C-1 **Development of a Cost-Effective Compton Camera for MeV-Gamma-Ray Imaging Applications**
Y. Nagao[1,2], M. Yamaguchi[1], N. Kawachi[1], H. Watabe[1,2]
[1]National Institutes for Quantum and Radiological Science and Technology (QST), Japan; [2]Tohoku University, Japan

M13C-2 **Development of a Si-PM Based Intraoperative PET System for Breast Tumor Resection**
H. Watabe[1], S. Yamamoto[2], G. Watanabe[1]
[1]Tohoku University, Japan; [2]Nagoya University Graduate School of Medicine, Japan

M13C-3 **Assessment of shielding materials for the add-on PET at different magnetic field strengths of MRI**
M. Fujiwara[1], M. Suga[1,2], F. Nishikido[2], M. Nitta[1,2], Y. Kawabata[3], T. Yamaya[2], T. Obata[2]
[1]Chiba Univesity, Japan; [2]National Institute of Radiological Sciences, Japan; [3]Takashima Seisakusho Co., Ltd, Japan

M13C-4 **Optimization of Pinhole Aperture Size of a Combined MPH/Fan-Beam SPECT System for I-123 DAT Imaging**
A. Konik[1], J. M. Mukherjee[1], J. D. Beenhouwer[2], G. Zubal[3], M. A. King[1]
[1]Umass Medical School, USA; [2]University of Antwerp, Belgium; [3]Z-Concepts LLC, USA

M13C-5 **Performance Evaluation of the MindView PET Using GATE and STIR**
S. Sanchez[1], E. Preziosi[2,3], C. Correcher[4], A. J. Gonzalez[1], P. Conde[1], A. Iborra[1], P. Bellido[1], D. Grau-Ruiz[1], E. Diaz-Caballero[1], A. Gonzalez-Montoro[1], A. Aguilar[1], M. J. Rodriguez-Alvarez[1], M. Seimetz[1], L. Moliner[1], F. Sánchez[1], M. Bettiol[5], C. Borrazzo[2,3], A. Soriano[1], J. P. Rigla[1], J. J. Garcia-Garrigos[1], R. Pani[3], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular imaging (I3M), Spain; [2]Morphofunctional Sciences - Biophysics, Italy; [3]Sapienza University of Rome, Italy; [4]Oncovision (GEM Imaging S.A.), Spain; [5]Campus Bio-Medico University, Italy

M13C-6 **Contrast Recovery Performance of a 1mm³ Resolution Clinical PET System**
D. F. C. Hsu, D. L. Freese, D. R. Innes, C. S. Levin
Stanford University, USA

M13C-7 **Hardware Parameter Optimization for a 1mm³ Resolution Clinical PET System**
D. F. C. Hsu, D. L. Freese, D. R. Innes, C. S. Levin
Stanford University, USA

M13C-8 **Performances Evaluation of an Intraoperative Positron Imaging Probe with Radioactive Phantoms**
S. Spadola[1], C. Esnault[1], L. Pinot[1], M.-A. Verdier[2], N. Dinu[3], B. Y. Ky[3], D. Breton[3], Y. Charon[2], M.-A. Duval[1], L. Menard[2]
[1]IMNC CNRS/IN2P3, France; [2]Univ. Paris-Diderot, France; [3]LAL CNRS/IN2P3, France

M13C-9 **Performance Characteristics of Position Sensitive Sparse Sensor (PS3) PET Detectors for Organ Specific PET Systems**
R. S. Miyaoka, W. C. Hunter, D. Q. DeWitt
University of Washington, USA

M13C-10 **Development of the Second "add-on PET" Prototype: a Head Coil with DOI-PET Detectors for MRI**
F. Nishikido[1], M. Suga[2], K. Shimizu[3], M. Fujiwara[2], H. Tashima[1], T. Obata[1], E. Yoshida[1], M. S. H. Akram[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan; [3]Hamamatsu Photonics K. K., Japan

M13C-11 **Detector Size and Geometry Optimization for the Helmet-Chin PET**
A. M. Ahmed, H. Tashima, E. Yoshida, T. Yamaya
National Institute of Radiological Sciences, Japan

M13C-12 **Bayesian Tissue Decomposition Method for Spectral Mammography**
Y. Pavia[1,2], A. Brambilla[1], V. Rebuffel[1], J. M. Letang[2], N. Freud[2], L. Verger[1]
[1]CEA LETI, France; [2]CREATIS, France

M13C-13 **Design of Wireless Dual-Energy Dual-Source Versatile Pediatric Imaging System Based on CMOS Flat-Panel Detectors**
Y. Qi, Z. Zhou, Y. Wang, J. Chu, Z. Li, K. Wang
Sun Yat-sen University, China

M13C-14 **First Clinical Tests of an Intra-Operative ?eta- Detecting Probe for Radio-Guided Surgery in Tumour Resection**

E. Solfaroli[1,2], C. Mancini Terracciano[1,3], V. Bocci[1], M. Colandrea[4], F. Collamati[1,3], M. Cremonesi[4], R. Donnarumma[2], M. E. Ferrari[4], P. Ferroli[5], F. Ghielmetti[5], C. M. Grana[4], M. Marafini[1,6], S. Morganti[1], M. Patanè[5], G. Pedroli[4], B. Pollo[4], L. Recchia[1], A. Russomando[1,2,7], M. Schiariti[5], M. Toppi[8], G. Traini[1,2], R. Faccini[1,2]
[1]INFN Sezione di Roma1, Italy; [2]Dip. Fisica, Sapienza Univ. di Roma, Italy; [3]Dip. Scienze di Base e Applicate per l'Ingegneria, Sapienza Univ. di Roma, Italy; [4]Istituto Europeo di Oncologia, Italy; [5]Istituto Neurologico Carlo Besta, Italy; [6]Museo Storico della Fisica e Centro Studi e Ricerche "E. Fermi", Italy; [7]Center for Life Nano Science @ Sapienza, IIT, Italy; [8]Laboratori Nazionali di Frascati dellINFN, Italy

M13C-15 **Evaluation of Geometrical Arrangements of High Resolution Sensors in PET Probe Configuration**
A. Studen[1,2], V. Cindro[1], N. H. Clinthorne[3], H. Kagan[4], C. Lacasta[5], G. Llosa[5], M. Mikuž[1,2], J. F. Oliver[5], D. Žontar[1]
[1]Jožef Stefan Institute, Slovenia; [2]University of Ljubljana, Slovenia; [3]University of Michigan, USA; [4]Ohio State University, USA; [5]IFIC/CSIC-UVEG, Spain

M13C-16 **Developing a Method for Estimation of Internal 131I Contamination in Nuclear Medicine Staff Using Imaging with Gamma Cameras in Emergency and Normal Working Situations Using a Home-Made Thyroid Phantom**
S. MehdizadehNaderi, F. Lotfalizadeh, M. Karimipoorfard, Z. MolaieManesh, R. Faghihi, S. Sina
School of Engineeing,Shiraz university, Shiraz, Iran, Iran

M13C-17 **PET and MRI-Guided Focused Ultrasound Surgery for Neurologic Applications**
C. Borrazzo[1,2], M. Carnì[2], G. Borasi[3], M. Bettiol[2], E. Preziosi[1], E. di Castro[1,2], A. Napoli[1], P. Bennati[4], R. Pellegrini[1], R. Pani[1]
[1]Sapienza, Italy; [2]Policlinico Umberto I, Italy; [3]Bocconi, Italy; [4]KTH, Sweden

M13C-18 **Motion Correction for 3D PET-MR with High Sensitivity and Resolution**
G. M. Soultanidis[1,2], I. Polycarpou[1,3], P. K. Marsden[1]
[1]King's College London, United Kingdom; [2]University of Hull, United Kindom; [3]European University of Cyprus, Cyprus

M13C-19 **A Multimodal System with Endo-PET/NIRF/visible for Sentinel Lymph Node and Tumor Detection for Laparoscopic Surgery: a Feasibility Study**
S. H. Song[1], H. G. Kang[1], H.-Y. Lee[2], K. M. Kim[3], S. J. Hong[1,4]
[1]Eulji Unversity, Korea; [2]Seoul National University, Korea; [3]Korea Institute of Radiological and Medical science, Korea; [4]Eulji University, Korea

M13C-20 **The Impact of Detector-Detector Sensitivity Variation on a Dedicated Cardiac SPECT Camera**
R. G. Wells, *University of Ottawa Heart Institute, Canada*

M13D Posters: simulation II

Friday, Nov. 4 10:30-12:00 Etoile

Session Chairs: **Magdalena Rafecas**, University of Lubeck, Germany
Steven R. Meikle, University of Sydney, Australia
Stefaan Vandenberghe, Ghent University, Belgium

M13D-1 **Design of a Novel Quantitative Imaging System for Molecular Radiotherapy**
S. J. Colosimo[1], L. J. Harkness-Brennan[1], D. S. Judson[1], L. McAreavey[1], A. J. Boston[1], H. C. Boston[1], P. J. Nolan[1], G. Flux[2], A. M. Denis-Bacelar[2,3], M. Carroll[4], B. Harris[5], I. Radley[5]
[1]University of Liverpool, UK; [2]Royal Marsden Hospital, UK; [3]The Institute of Cancer Research, UK; [4]The Royal Liverpool and Broadgreen University Hospitals, UK; [5]Kromek, UK

M13D-2 **Non-Diverging Analytical Expression for the Sensitivity of Converging SPECT Collimators**
J. van Roosmalen[1], F. J. Beekman[1,2,3], M. C. Goorden[1]
[1]Delft University of Technology, the Netherlands; [2]MILabs B.V., the Netherlands; [3]University Medical Center Utrecht, the Netherlands

M13D-3 **The Use of a Fast Monte Carlo Tool for Dose Verification in Image-Guided Proton Therapy**
T. V. R. Almeida[1,2], M. Senzacqua[3], F. R. Cassetta Jr.[2], D. Iuso[3], V. Denyak[1], M. Riboldi[2], A. Pella[4], G. Magro[4], G. Baroni[2,4], V. Patera[3], A. Schiavi[3]
[1]Faculdades Pequeno Príncipe & Instituto Pele Pequeno Príncipe, Brazil; [2]Politecnico di Milano, Italy; [3]Università di Roma "La Sapienza", Italy; [4]Centro Nazionale di Adroterapia Oncologica, Italy

M13D-4 **Characterisation of Angular Detection Dependence of Prompt Gamma-Rays with Respect to the Bragg Peak in a Water Phantom Using Proton Beam Irradiations**
M. Zarifi[1], S. Guatelli[1], D. Bolst[1], B. Hutton[2], A. Rosenfeld[1], Y. Qi[1]
[1]University of Wollongong, Australia; [2]University College London, UK

M13D-5 **Time of Flight Impact in Brain Studies**
P. Solevi[1], L. Caldeira[2], J. E. Gillam[3], C. Hoeschen[1], C. Lerche[2], I. Torres-Espallardo[4]
[1]Institut für Medizintechnik, Otto-von-Guericke University, Germany; [2]Institute of Neuroscience and Medicine, Forschungszentrum Jülich GmbH, Germany; [3]Brain & Mind Centre, University of Sydney, Australia; [4]Nuevo Hospital La Fe, Spain

M13D-6 **Scattering proton CT using filtered backprojection along most likely paths**
C. T. Quiñones, J. M. Létang, S. Rit
Université de Lyon, CREATIS, CNRS UMR5220, Inserm U1206, INSA-Lyon, Université Claude Bernard Lyon 1, Centre Léon Bérard, France, France

M13D-7 **In Beam Prompt Gamma Proton-Range Monitoring During Proton Therapy**

G. Lönn[1], P. Bennati[1], D. Larsson[1], A. Dasu[2], M. Colarieti-Tosti[1]
[1]Royal Institute of Technology, KTH, Sweden; [2]Linköping University, LIU, Sweden

M13D-8 Validation of the Poisson Nature of PET Simulations Performed Using GATE
E. K. Leung[1,2], J. Qi[1], R. D. Badawi[1,2]
[1]UC DAVIS, UNITED STATES; [2]UC DAVIS MEDICAL CENTER, UNITED STATES

M13D-9 Influence of Tissue Non-Homogeneities on the Accuracy of 3-D Dose Distribution Monitoring During Gamma-Ray Radiotherapy
M. Miklavec[1,2], S. Sirca[1,3], D. Savran[4], M. Vencelj[1]
[1]Jozef Stefan Institute, Slovenia; [2]Higher Education Centre Sezana, Slovenia; [3]University of Ljubljana, Slovenia; [4]GSI Helmholtzzentrum für Schwerionenforschung, Germany

M13D-10 Feasibility of On-line Multiple Scanning Beam Range Verification with PET Imaging: Monte Carlo Simulation Studies
Y. Zhong, W. Lu, X. Jia, Y. Shao
UT Southwestern Medical Center, US

M13D-11 Montecarlo Simulation to Evaluate Factors Affecting Imaging Performances of Monolithic Scintillation Gamma Camera
C. Borrazzo[1], M. Bettiol[1], P. Bennati[2], E. Preziosi[1], A. Fabbri[3], R. Scafè[1], R. Pellegrini[1], R. Pani[1]
[1]Sapienza, Italy; [2]KTH, Sweden; [3]Roma Tre, Italy

M13D-12 Implementation of a Lens on GATE Monte-Carlo Software for Optical Imaging Application and Its Validation Using ZEMAX
H.-G. Kang[1], S. H. Song[1], H.-Y. Lee[2], K. M. Kim[3], S. J. Hong[1]
[1]Eulji University, Korea; [2]Seoul National University, Korea; [3]Korea Institute of Radiological and Medical science, Korea

M13D-13 Tomographic Imaging with Carbon Ion Beams
S. Meyer[1], L. Magallanes[1,2], B. Kopp[1,2], T. Tessonnier[1,2], G. Landry[1], G. Dedes[1], B. Voss[3], O. Jäkel[2,4,5], C. Gianoli[1,6], K. Parodi[1,4]
[1]Ludwig-Maximilians Universität München, Germany; [2]Heidelberg University Hospital, Germany; [3]GSI Helmholtz Centre for Heavy Ion Research, Germany; [4]Heidelberg Ion Beam Therapy Center, Germany; [5]German Cancer Research Center, Germany; [6]Klinikum Ludwig-Maximilians-Universität München, Germany

M13D-14 Including Inter Crystal Scattering Data in PET Image Reconstruction: a Monte Carlo Study for MADPET4
N. Omidvari[1], J. Cabello[1], F. R. Schneider[1], S. Paul[2], S. I. Ziegler[1]
[1]Klinikum rechts der Isar, Germany; [2]Technischen Universität München, Germany

M13E Posters: Other imaging modalities

Friday, Nov. 4 10:30-12:00 Etoile

Session Chairs: **Magdalena Rafecas**, University of Lubeck, Germany
Steven R. Meikle, University of Sydney, Australia
Stefaan Vandenberghe, Ghent University, Belgium

M13E-1 Formation of T2* Mapping Using Mixed-Effects Model
H.-M. Huang
Institute of Radiological Research, Chang Gung University and Chang Gung Memorial Hospital, Taiwan

M13E-2 Dose Distribution in Phase-Contrast Tomography
L. Xu, A. Pan, G. Barbastathis
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, USA

M13E-3 PhoSim: a Software Simulation Package Designed for Macroscopic and Microscopic Studies in the Time-Resolved Optical Tomography
A.-N. Rapsomanikis[1], A. Eleftheriou[1], M. Mikeli[1], M. Zioga[1], C. Pafilis[1,2], E. Stiliaris[1,3]
[1]National & Kapodistrian University of Athens, Greece; [2]Greek Atomic Energy Commission, Greece; [3]Institute of Accelerating Systems & Applications, Greece

M13E-4 A Combined Partial Volume Reduction and Super-Resolution Reconstruction for Magnetic Resonance Images
F. Fallah[1,2], B. Yang[1], F. Schick[2], F. Bamberg[2]
[1]Institute of Signal Processing and System Theory, University of Stuttgart, Germany; [2]Department of Diagnostic and Interventional Radiology, University of Tübingen, Germany

M13E-5 New Thermal Breast Phantom Dedicated to Experimentally Test a Novel Approach to 3D Dynamic AngioThermography (DATG)
R. Brancaccio[1,2,3], M. Bontempi[4], F. Casali[3], M. P. Morigi[1,2,3], M. Bettuzzi[1,2,3], G. Baldazzi[1,2], G. Levi[1,2]
[1]University of Bologna, Italy; [2]INFN (National Institute for Nuclear Physics), Italy; [3]Centro Studi e Ricerche Enrico Fermi, Italy; [4]Istituto Ortopedico Rizzoli, Italy

M13E-6 Compensation of Periodic Motion for Averaging of Magnetic Particle Imaging Data
M. Schlüter[1,2], N. Gdaniec[1,2], A. Schlaefer[1], T. Knopp[1,2]
[1]Hamburg University of Technology, Germany; [2]University Medical Center Hamburg-Eppendorf, Germany

M13E-7 X-Ray Fluorescence Computed Tomography with a Compton Camera for a Clinical Application
D. Vernekohl[1], M. Ahmad[2], G. Chinn[2], X. Lei[1]

[1]*Department of Radiation Oncology, Stanford, USA;* [2]*Department of Radiology, Stanford, USA*

M13E-8 **Comparison of a Large Area CZT Detector to a Spectroscopic CdTe Detector for X-Ray Fluorescence Computed Tomography.**
D. Vernekohl[1], M. Streicher[2], M. Ahmad[3], L. Xing[1], Z. He[2]
[1]*Department for Radiation Oncology, Stanford, USA;* [2]*Department of Nuclear Engineering and Radiological Science, USA;* [3]*Department of Radiology, USA*

M13E-9 **Investigation of the Image Characteristics in Single Grid-Based Phase Contrast X-Ray Imaging (PCXI) by Simulation and Experimental Studies**
H. Lim, H. Cho, Y. Park, U. Je, C. Park, K. Kim, G. Kim, S. Park, S. Park, H. Lee
Yonsei University, South Korea

M13E-10 **Brain Extraction from MR Images Using a Combination of Segmentation Fusion and Marker-Controlled Watershed Transform**
A. K. Thanellas, M. Pollari, T. Alhonnoro, M. Lilja
Aalto University, Finland

M13E-11 **Comparison of Sensitivity Models for Image Reconstruction of a Compton Telescope**
P. G. Ortega, *European Organization for Nuclear Research (CERN), Switzerland*; E. Muñoz, A. Etxebeste, J. Barrio, C. Lacasta, G. Llosá, C. Solaz, J. F. Oliver, *Instituto de Física Corpuscular (IFIC)/ Universidad de Valencia-CSIC, Spain*

M13E-12 **Prototype of a Handheld Laparoscopic Compton Camera for Radio Guided Surgery**
K. Shimazoe, Y. Nakamura, H. Takahashi, S. Yoshimura, Y. Seto, S. Kato, M. Takahashi, T. Momose
The University of Tokyo, Japan

M13E-13 **Quantitative Cherenkov Luminescence Imaging: Measurements and Simulations**
E. Ciarrocchi[1,2], N. Belcari[1,2], A. G. Cataldi[3], P. A. Erba[3], A. Del Guerra[1,2]
[1]*University of pisa, Italy;* [2]*Istituto Nazionale di Fisica Nucleare, Italy;* [3]*Azienda Ospedaliera Universitaria Pisana, Italy*

M13E-14 **Feasibility Study of a Gradient Coil for a Dedicated and Portable Single-Sided MRI System**
D. Grau-Ruiz[1], J. P. Rigla[1,2], E. Diaz-Caballero[1,2], A. Nacev[3], A. Aguilar[1], P. Bellido[1], P. Conde[1], A. González-Montoro[1], A. González[1], L. Hernández[1], A. Iborra[1], L. Moliner[1], M. J. Rodriguez-Álvarez[1], S. Sanchez Goez[1], M. Seimetz[1], A. Soriano[1], L. F. Vidal[1], I. N. Weinberg[3], F. Sanchez[1], J. M. Benlloch[1]
[1]*Institute for Instrumentation in Molecular Imaging, I3M-CSIC, SPAIN;* [2]*Tesoro Imaging S.L., Spain;* [3]*Weinberg Medical Physics, USA*

M13E-15 **The Influence of Field Distortions on Multi-Patch Image Reconstruction in Magnetic Particle Imaging**
P. Szwargulski[1,2], M. Hofmann[1,2], N. Gdaniec[1,2], T. Knopp[1,2]
[1]*Institute for Biomedical Imaging, Germany;* [2]*Section for Biomedical Imaging, Germany*

M13E-16 **Tumor Microvasculature in Lung Cancer and DW-MRI**
Y. Yin[1,2], O. Sedlaczek[3,4,5], K. Breuhahn[6], D. Drasdo[1,2,7], I. E. Vignon-Clementel[1,2]
[1]*INRIA, France;* [2]*Sorbonne Universités UPMC Univ. Paris 6, Laboratoire Jacques-Louis Lions, France;* [3]*Translational Lung Research Center Heidelberg (TLRC), member of the German Centre for Lung Research (DZL), Germany;* [4]*Department of Diagnostic & Interventional Radiology, University Hospital of Heidelberg, Germany;* [5]*Department of Diagnostic and Interventional Radiology with Nuclear Medicine, Thoraxklinik at University of Heidelberg, Germany;* [6]*Institute of Pathology, University Hospital Heidelberg, Germany;* [7]*IZBI, University of Leipzig, Germany*

M13E-17 **Total Variation Assisted Fourier Shift Manipulation to Remove Gibbs' Artifacts in Compressive Sensing Techniques**
P. Adibpour, M. Smith, *University of Calgary, Canada*

M13E-18 **Improving RF Field (B1) Penetration Efficiency by Implementing Concept of Multiple Full-Ring PET Insert for MRI System**
M. S. H. Akram, C. S. Levin, T. Obata, T. Yamaya
National Institute of Radiological Sciences, Japan

M13E-19 **Simulation of a Table-Top Analyzer Based Phase Contrast Imaging System**
O. Caudevilla[1], W. Zhou[1], S. Stoupin[2], J. G. Brankov[1]
[1]*Illinois Institute of Tehnology, USA;* [2]*Argonne National Laboratory, USA*

M14 New radiation detectors / technologies for medical imaging II

Friday, Nov. 4 14:00-16:00 Schweitzer

Session Chairs: **Craig S. Levin**, Stanford University, United States
Alberto Del Guerra, University Pisa, Italy

M14-1 **(14:00) Demonstration of Multi-Color 3D Imaging of Gamma Rays Based on Ultra-Compact Compton Camera**
A. Kishimoto, J. Kataoka, Y. Iwamoto, *Waseda University, Japan*; S. Ohsuka, *Hamamatsu Photonics, Japan*

M14-2 **(14:15) Design Concepts and Characterization of a Next Generation Clinical PET Detector**
J. W. Cates, C. S. Levin, *Stanford University, USA*

M14-3 **(14:30) Development of a 3D Silicon Coincidence Avalanche Detector for Charged Particle Tracking in Medical Applications**
M. Vignetti, F. Calmon, R. Cellier, P. Pittet, *INL - Institut des Nanotechnologies de Lyon, France*; G. Pares, *CEA - LETI, France*; A. Savoy-Navarro, *Laboratoire d'AstroParticule et Cosmologie, France*

M14-4 (14:45) Geant4 Simulation and Measurements of the GEMPix Detector as Beam Monitor for Carbon Ions at CNAO
A. Tamborini[1], F. Murtas[2,3], A. Rimoldi[1,4], J. Leidner[2,5], A. De Maggi[1,4], M. Silari[2], A. Mirandola[6], M. Ciocca[6], M. Donetti[6,7]
[1]INFN Section of Pavia, Italy; [2]CERN, Switzerlandand; [3]LNF-INFN, Italy; [4]University of Pavia, Italy; [5]Rheinisch-Westfaelische Tech. Hoch., Germany; [6]National Center for Oncological Hadrontherapy (Fondazione CNAO), Italy; [7]INFN Section of Torino, Italy

M14-5 (15:00) Comprehensive and Fast Pulse-Shape Characterization in Segmented HPGe Detectors for Gamma-Ray Tracking and Imaging
M. Ginsz[1], G. Duchêne[2], B. Pirard[1], F. Didierjean[2]
[1]Canberra Specialty Detectors, France; [2]IPHC, UNISTRA, CNRS, France

M14-6 (15:15) Characterization of SiPM Non-Linearity and Energy Resolution for Prompt Gamma Imaging Applications
V. Regazzoni[1,2,3], F. Acerbi[2,3], G. Cozzi[4], A. Ferri[2,3], C. Fiorini[4], A. Gola[2,3], G. Paternoster[2,3], C. Piemonte[2,3], G. Zappalà[1,2,3], N. Zorzi[2,3]
[1]University of Trento, Italy; [2]Fondazione Bruno Kessler, Italy; [3]Trento Institute for Fundamental Physics and Applications, Italy; [4]Politecnico di Milano, Italy

M14-7 (15:30) Calibration Method for Time Measurement with the Best Linear Unbiased Estimator for Digital Silicon Photomultipliers
W. Lemaire, A. Corbeil Therrien, J.-F. Pratte, R. Fontaine
Université de Sherbrooke, Canada

M14-8 (15:45) Investigation of Electron Multiplication Effect in Optical Property Modulation-Based Radiation Detection Method for PET
L. Tao, H. M. Daghighian, C. S. Levin
Stanford University, USA

M15 Image reconstruction techniques II

Friday, Nov. 4 14:00-16:00 Cassin

Session Chairs: **Andrew J. Reader**, King's College London, United Kingdom
Claude Comtat, SHFJ, CEA, France

M15-1 (14:00) Pitfalls in MLAA and MLACF
K. Salvo, M. Defrise, *Vrije Universiteit Brussel, Belgium*

M15-2 (14:15) Synergistic Longitudinal PET Image Reconstruction
S. Ellis, A. J. Reader, *King's College London, UK*

M15-3 (14:30) Accurate Detector Response Modeling in PET Reconstruction for Systems Using Monolithic Scintillators
A. Autret[1], J. Bert[1], E. Preziosi[2], A. J. González[3], J. M. Benlloch[3], D. Visvikis[1]
[1]INSERM UMR1101, LaTIM, France; [2]Sapienza University of Rome, Italy; [3]Institute for Instrumentation in Molecular Imaging, Spain

M15-4 (14:45) Preliminary Study of TV-Constrained-Likelihood-Maximization Image Reconstruction from List-Mode TOF-PET Data
Z. Zhang[1], J. Ye[2], S. Rose[1], A. Perkins[2], C.-M. Kao[1], E. Sidky[1], C.-H. Tung[2], X. Pan[1]
[1]University of Chicago, USA; [2]Philips Healthcare, USA

M15-5 (15:00) Imaging of Freely-Moving Mice in PET Using Partially Rigid Transformations During List-Mode Reconstruction
D. Mannweiler[1,2], S. Schmid[1,3], X. Jiang[3], F. Wübbeling[2], K. Schäfers[1]
[1]European Institute for Molecular Imaging - EIMI, Germany; [2]Institute for Computational and Applied Mathematics, Germany; [3]Department of Computer Science, Germany

M15-6 (15:15) Calibration of a Micro CT System Based on Data Consistency Conditions
J. Lesaint[1], S. Rit[2], R. Clackdoyle[1], L. Desbat[1]
[1]TIMC IMAG, Université Grenoble Alpes, France; [2]CREATIS, France

M15-7 (15:30) Composite System Modelling for High Accuracy Brain PET Image Reconstruction using GATE
M. A. Belzunce, A. J. Reader
King's College London, United Kingdom

M15-8 (15:45) Respiratory Gated PET Image Reconstruction Using Composite Image Prior
M. Zhang[1], W. Qi[2], J. Zhou[2], G. Wang[1], M. Teshigawara[3], T. Kawano[4], M. Ogawa[4], E. Asma[2], W. Wang[2], J. Qi[1]
[1]Department of Biomedical Engineer, UC davis., USA; [2]Toshiba Medical Research Institute USA, Inc, USA; [3]Toshiba Medical Systems Corporation, Japan; [4]Yokohama City University Hospital, Japan

M16A Posters: signal processing II

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16A-1 Texture-Preserved Low-Dose CT Reconstruction Using Region Recognizable Patch-Priors from Previous Normal-Dose CT Images
X. Jia[1,2], Z. Bian[1,2], J. He[1,2], Y. Wang[1,2], J. Huang[1,2], D. Zeng[1,2], Z. Liang[3], J. Ma[1,2]
[1]Southern Medical University, China; [2]Guangdong Provincial Key Laboratory of Medical Image Processing, China; [3]State University of New York at Stony Brook, USA

M16A-2 MRI Multicomponent Relaxometry Based on Compressive Sensing
M. Ambrosanio[1], F. Baselice[1], G. Ferraioli[1], F. Lenti[2], V. Pascazio[1]
[1]Universita' di Napoli Parthenope, Italy; [2]Université de Toulouse, France

M16A-3 Effective Dose Kernel, a Concept for Partial Volume Effect Restoration in Voxel Dosimetry: Introduction and Limitations
M. Sanchez-Garcia, R. Lebtahi, A. Dieudonne
Beaujon Hospital, France

M16A-4 Segmentation and Kinetic Modeling of Human Arteries in PET/CT Imaging
M. Alenezi, M. Bentourkia, A. Khalil
Université de Sherbrooke, Canada

M16A-5 Automated Multiscale 3D Feature Learning for Vessels Segmentation in Thorax CT Images
T. Konopczynski[1,2,3], T. Kröger[3], L. Zheng[1], C. S. Garbe[2], J. Hesser[1,2]
[1]
University Medical Center Mannheim, Heidelberg University, Germany; [2]Heidelberg University, Germany; [3]Volume Graphics GmbH, Germany

M16A-6 Bayesian MRI Noise Filtering in Complex Domain
A. Sorriso, F. Baselice, G. Ferraioli, V. Pascazio
Universita' di Napoli Parthenope, Italy

M16A-7 3D Denosing of Magnetic Resonance Images Exploiting Bayesian Estimation Theory
F. Baselice, G. Ferraioli, V. Pascazio
Universita' di Napoli Parthenope, Italy

M16A-8 FDG-PET and the Assessment of Spinal Cord Metabolism in Amyothrophic Lateral Sclerosis (ALS)
A. M. Massone, *CNR - SPIN, Italy*; C. Campi, *Università degli Studi di Roma, Italy*; M. C. Beltrametti, *Università degli Studi di Genova, Italy*; C. Marini, *CNR - IBFM, Italy*

M16A-9 Noise rejection in monolithic SiPM based PET detector
P. Conde, A. Iborra, A. J. González, P. Bellido, D. Grau-Ruiz, E. Diaz-Caballero, A. Gonzalez-Montoro, A. Aguilar, M. J. Rodriguez-Álvarez, M. Seimetz, L. Moliner, S. Sánchez, F. Sánchez, A. Soriano, J. P. Rigla, J. M. Benlloch
Institute for Instrumentation in Molecular Imaging (I3M), Spain

M16A-10 A Random Location Index Classifier for Computer-Aided Diagnosis (CADx) of Colorectal Polyps
Y. Hu[1], P. J. Pickhardt[2], W. Zhu[1], Z. Liang[1]
[1]Stony Brook University, USA; [2]University ofWisconsin School of Medicine and Public Health, USA

M16A-11 Statistical Feature Selection and Classification Models for Alzheimer's Disease Progression Assessment
A. Domínguez, J. Ramírez, J. M. Górriz, F. Segovia, D. Salas-Gonzalez, F. J. Martínez-Murcia, I. A. Illán
University of Granada, Spain

M16A-12 A Novel Fast PCA Based Denoising Technique for Ultra-High-Rate Computed Tomography
M. Taki[1], K. Zarei[2], Z. Mortezai[1]
[1]university of qom, Iran; [2]University of Antwerp, Belgium

M16A-13 Development and Evaluation of Two Interventricular Sulcus Extraction Methods for Cardiac PET
J. Wang, T. Feng, B. Tsui, *Johns Hopkins University, USA*

M16A-14 Three-Dimensional Blood Vessels Detection from Small Number of Views CT Reconstruction
E. A. Mohamed, E. A. Rashed, *Suez Canal University, Egypt*

M16A-15 Indirect Bilateral Filtering to Sharpen and Denoise Dynamic PET Images
P. A. Gonzalez, F. L. Tirado, A. Ubilla, *Universidad Católica del Maule, Chile*; C. Tauber, *Université Francois Rabelais Tours, France*

M16A-16 PET Image Denoising Using Anatomically Guided Non-Local Euclidean Medians
J. Dutta[1,2], G. El Fakhri[2], Q. Li[2]
[1]University of Massachusetts Lowell, USA; [2]Massachusetts General Hospital, USA

M16A-17 Applying J-Optimal Channelized Quadratic Observers (J-CQO) to a Clinical Imaging Study for Ovarian Cancer Detection
M. Kupinski, A. Rouse, A. Gmitro
University of Arizona, USA

M16A-18 MR-Guided PET Image Restoration for Neurological Applications
M. S. Tahaei[1,2], A. J. Reader[3], D. L. Collins[1,2]
[1]McGill University, Canada; [2]Montreal Neurological Institute, Canada; [3]King's College London, St. Thomas' Hospital, Uk

M16A-19 Spatial Response of Double-Sided Strip High-Purity Germanium Detectors for SPECT Imaging
R. S. Perea[1,2], D. L. Campbell[2], S. Shokouhi[2], T. E. Peterson[2]
[1]Vanderbilt University, USA; [2]Vanderbilt University Medical Center, USA

M16A-20 Rapid Measurement of Fluorescence Lifetimes Using SiPM Detection and Waveform Sampling

H.-M. Tsai[1], J. S. Souris[1], H. Kim[1], S.-H. Cheng[1], C.-T. Chen[1], L.-W. Lo[1,2], L. Chen[3], C.-M. Kao[1]
[1]The university of chicago, United States; [2]National Health Research Institute, Taiwan; [3]University of Illinois at Chicago, United States

M16A-21 **Atlas-Based Myocardial Segmentation Using ^{18}F Myocardial PET**
J. W. Kim[1], S. Seo[1], H. S. Kim[2], D.-Y. Kim[2], J.-J. Min[2], J. S. Lee[1]
[1]Seoul National University, South Korea; [2]Chonnam National University Hwasun Hospital, South Korea

M16A-22 **Medical Image Processing Using Brain Emulation**
C.-L. Sotiropoulou[1,2], S. Citraro[1,2], M. Dell'Orso[1,2], P. Giannetti[2], S. Gkaitatzis[3], P. Luciano[4], A. Retico[2], M. Viti[1]
[1]University of Pisa and INFN Pisa Section, Italy; [2]INFN Pisa Section, Italy; [3]Aristotle University of Thessaloniki, Greece; [4]University of Cassino and Southern Lazio, Italy

M16A-23 **Novel Active Contour Model-Based Automated Segmentation of PET Images**
M. Zhuang, R. A. Dierckx, *University of Groningen, Netherlands*; H. Zaidi, *Geneva University Hospital, Switzerland*

M16A-24 **Iterative Structural Functional Synergistic Resolution Recovery (iSFS-RR) for Improving the Performance of PET Quantification on Focal Cortical Dysplasia**
J. Silva-Rodríguez[1,2], J. Cortés[2], X. Rodríguez-Osorio[2], Á. Ruibal[2], C. Tsoumpas[3], P. Aguiar[1,2]
[1]Health Research Institute, Spain; [2]University Hospital, Spain; [3]University of Leeds, United Kingdom

M16A-25 **Multiple Timestamp Estimation with Analog Silicon Photomultipliers**
E. Venialgo[1], K. O'Neill[2], S. Gnecchi[2], C. Jackson[2], E. Charbon[1]
[1]Delft University of Technology, Netherlands; [2]SensL Technologies Ltd., Ireland

M16B Posters: quantitative imaging II

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16B-1 **First Clinical Results of a CZT-Based Blood Counter for Quantitative Molecular Imaging Studies**
R. Espagnet[1], A. Frezza[1], J.-P. Martin[2], L.-A. Hamel[2], J.-M. Beauregard[1,3], P. Després[1]
[1]Université Laval, Canada; [2]Université de Montréal, Canada; [3]CHU de Québec – Université Laval, Canada

M16B-2 **Ultra Efficient and Robust Estimation of the Attenuation Map in PET Imaging**
W. Zhu[1], T. Feng[1], M. Chen[2], Y. Dong[2], J. Bao[2], H. Li[1]
[1]UIH America Inc, United States; [2]Shanghai United Imaging Healthcare, China

M16B-3 **Investigation of Sub-Centimeter Nodule Quantification Using PET/CT**
Y. Lu[1], K. Fontaine[1], M. Germino[1], T. Mulnix[1], M. E. Casey[2], R. E. Carson[1], C. Liu[1]
[1]Yale University, USA; [2]Siemens Medical Solutions, USA

M16B-4 **Robust Optimization of Coincidence Timing Resolution for PET Using a Huber Penalty**
D. L. Freese, D. F. C. Hsu, D. Innes, C. S. Levin
Stanford University, United States

M16B-5 **Performance of an Image-Based Motion Compensation Algorithm for the HRRT: a Striatum-Phantom Study with True Motion**
J. J. Johansson[1], S. H. Keller[2], J. Tuisku[1], M. Teräs[1]
[1]Turku University Central Hospital, Finland; [2]University of Copenhagen, Denmark

M16B-6 **Elastic Motion Correction for Continuous Bed Motion Whole-Body PET/CT**
I. Hong, J. Jones, J. Hamill, C. Michel, M. Casey
Siemens Healthcare, United States

M16B-7 **Exploring the relationship between MR ZTE Intensity and bone density: Application to MR Attenuation Correction in PET/MR.**
M. M. Khalifé[1], C. C. Nioche[1], B. B. Fernandez[2], I. I. Buvat[1], M. M. Soussan[1], S. S. Desarnaud[1], C. C. Comtat[1]
[1]CEA/I2BM/SHFJ, France; [2]GE Healthcare, France

M16B-8 **X-Ray Scatter Correction Method for Planar Radiography Based on a Beam Stopper: a Simulation Study**
A. Martinez[1], R. Polo[1], C. De Molina[1], C. Martinez[1], J. Garcia[1], M. Desco[1,2,3], M. Abella[1]
[1]Universidad Carlos III de Madrid, Spain; [2]Instituto de Investigación Sanitaria Gregorio Marañón (IiSGM), Spain; [3]Centro de Investigación en Red de Salud Mental (CIBERSAM), Spain

M16B-9 **Effects of the Collimator Magnification Factor in the Geometrical Calibration of SPECT Systems**
D. Salvado[1], K. Erlandsson[1], B. F. Hutton[1,2]
[1]Institute of Nuclear Medicine, United Kingdom; [2]Centre for Medical Radiation Physics, Australia

M16B-10 **Attenuation Correction in PET Using LSO Background**
A. R. Selfridge, E. Berg, M. Judenhofer, J. Qi, S. Cherry
University of California, Davis, USA

M16B-11 Quantifying Pulmonary Strain During Respiration by Dynamic 4D-CT Scans
M. J. Pomeroy, Z. Liang, Y. Hu, A. Brehm
SUNY Stony Brook, USA

M16B-12 Towards Personalized Injected Patient Doses for Cardiac Perfusion SPECT Imaging: a Retrospective Study
P. H. Pretorius, M. A. King, K. L. Johnson, *University of Massachusetts Medical School, USA*; Y. Yang, M. N. Wernick, *Illinois Institute of Technology, USA*

M16B-13 MEMS Gating: A new dual gating technique for eliminating motion-related inaccuracies in PET imaging
M. Jafari Tadi[1], J. Teuho[1], E. Lehtonen[1], A. Saraste[1], T. Koivisto[1], M. Pänkäälä[1], M. Teräs[2,1]
[1]University of Turku, Finland; [2]Turku University Central Hospital, Finland

M16B-14 Validation of 3D Model-Based Maximum-Likelihood Estimation of Normalisation Factors for Partial Ring Positron Emission Tomography
T. Niknejad, S. Tavernier, J. Varela, K. Thielemans
Laboratory of Instrumentation and Experimental Particles Physics, Portugal

M16B-15 Quantitative Accuracy of Time-of-Flight PET at High Count Rates
M. E. Daube-Witherspoon, V. Viswanath, S. Surti, S. Matej, J. S. Karp
University of Pennsylvania, USA

M16B-16 Real-Time Data-Driven Respiratory Gating with Optimized Automatic VOI Selection
T. Feng[1], W. Zhu[1], Z. Deng[2], G. Yang[2], Y. Sun[2], Y. Dong[2], J. Bao[2], H. Li[1]
[1]United Imaging Healthcare America, Inc, US; [2]United Imaging Healthcare, China

M16B-17 Quality Control Algorithms Studies for a PMT-Based Time-of-Flight PET System
H. Du, K. C. Burr
Toshiba Medical Research Institute USA, Inc., United States

M16B-18 Maximum Likelihood Activity and Attenuation Estimation with LSO Background Radiation
L. Cheng[1,2], T. Ma[2], J. Qi[1]
[1]University of California, Davis, USA; [2]Tsinghua University, China

M16B-19 Simulating the Accuracy of the Fotonic E Serie Range Imager for Respiratory Motion Tracking
E. Golkar, A. A. Abd. Rahni
Universiti Kebangsaan Malaysia, Malaysia

M16B-20 Direct Regional Quantification and Uncertainty Estimation Using Origin Ensembles
J. E. Gillam, G. I. Angelis, S. R. Meikle
The University of Sydney, Australia

M16B-21 Optimization of Supplemental Transmission Source Imaging for Joint Transmission-Emission Scanning on an Integrated PET-MR System
S. L. Bowen, *Virginia Tech Carilion Research Institute, USA*

M16B-22 Implications of Bias-Correction on Mean-Squared Error for Optimizing Reconstruction
S. D. Metzler, M. E. Daube-Witherspoon, J. S. Karp, S. Matej
University of Pennsylvania, USA

M16B-23 Uniform acquisition modelling across PET imaging systems: unified scatter modelling
P. J. Markiewicz[1], M. J. Ehrhardt[2], N. Burgos[1], D. Atkinson[1], S. R. Arridge[1], B. F. Hutton[1], S. Ourselin[1]
[1]University College London, UK; [2]University of Cambridge, UK

M16B-24 Impact and Correction of the Bladder Uptake on Tumor Quantification
M. I. Oloniyo[1], N. Efthimiou[1,2], P. Wadhwa[1], J. Silva-Rodriguez[3], C. Tsoumpas[1]
[1]University of Leeds, United Kingdom; [2]Technological Educational Institute of Athens, Greece; [3]Health Research Institute (IDIS), Spain

M16B-25 Analysis of SPECT/CT Quantitation in Soft Tissue and Lung Density Phantoms
W. C. J. Hunter, R. S. Miyaoka, T. K. Lewellen, R. Harrison, W. McDougald
University of Washington, USA

M16B-26 Noise-Weighted FBP Algorithm for Uniformly Attenuated SPECT Projections
G. L. Zeng[1,2]
[1]Weber State University, USA; [2]University of Utah, USA

M16C Posters: CT II

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16C-1 **Statistical Image Reconstruction for Low-Dose Dual Energy CT Using Alpha-Divergence Constrained Spectral Redundancy Information**
D. Zeng[1,2], Z. Bian[1,2], J. Huang[1,2], Y. Liao[1,2], J. Wang[3], Z. Liang[4], J. Ma[1,2]
[1]Southern Medical University, China; [2]Guangdong Provincial Key Laboratory of Medical Image Processing, China; [3]University of Texas Southwestern Medical Center, USA; [4]State University of New York at Stony Brook, USA

M16C-2 **Four Dimensional Cone-Beam Computed Tomography Reconstruction Using Multi-Phase Projections**
H. Zhang, Y. Liu, X. Tao, Z. Bian, J. Ma, W. Chen
Southern Medical University, China

M16C-3 **The Use of a Contactless ToF Camera for 4D CT Binning**
M. Gilles[1,2], H. Fayad[1,3], S. Nazir[1], N. Boussion[1,4], O. Pradier[1,4], P. Miliglierini[4], D. Visvikis[1]
[1]INSERM UMR1101, LaTIM, France; [2]Ecole Nationale d'Ingénieurs de Brest, France; [3]Université de Bretagne Occidentale, France; [4]CHRU Morvan, France

M16C-4 **TV Constrained CT Image Reconstruction with Discretized Natural Pixels**
S. D. Rose, E. Y. Sidky, X. Pan
University of Chicago, United States

M16C-5 **Reconstruction and Multi-Material Decomposition of Spectral CT in Dynamic-Threshold-Based Counting and Integrating Modes**
Z. Chen, *Tsinghua University, China*; L. Li, ,

M16C-6 **New Generation of Photon Counting Pixelized Detector, Medipix3RX, Used in Mammography.**
J. P. Idarraga Munoz, J. Visser, *Nikhef, Netherlands*; A. Mischke, *Utrecht University, Netherlands*; H. W. A. M. de Jong, *University Medical Centre Utrecht, Netherlands*

M16C-7 **Atlas Based Interior Tomography**
M. Selim[1,2], E. A. Rashed[2], H. Kudo[3]
[1]Suez University, Egypt; [2]Suez Canal University, Egypt; [3]University of Tsukuba, Japan

M16C-8 **Impact of a Data-Derivative Fidelity on Truncation-Data Reconstruction in CBCT**
D. Xia[1], D. A. Langan[2], S. B. Solomon[3], H. Lai[2], Z. Zhang[1], B. Chen[1], E. Y. Sidky[1], X. Pan[1]
[1]The University of Chicago, U.S.A.; [2]GE Global Research Center, U.S.A.; [3]Memorial Sloan Kettering Cancer Center, U.S.A.

M16C-9 **Reconstructing Dynamic Magnification CBCT Scans with Optimization-Based Reconstruction**
A. M. Davis, X. Pan, C. A. Pelizzari
University of Chicago, USA

M16C-10 **In-Line Phase Contrast Tomography of the Breast with a Dedicated Micro-CT Scanner**
G. Mettivier[1,2], K. Bliznakova[3], A. Sarno[1,2], F. Di Lillo[1,2], R. Castriconi[1,2], P. Russo[1,2]
[1]Università di Napoli Federico II, Italy; [2]INFN, Italy; [3]Technical University of Varna, Bulgaria

M16C-11 **Evaluation of an Image-Based Dual-Energy CT Material Characterization Method**
K. Grogg, X. Zhu, G. El Fakhri, N. M. Alpert
Massachusetts General Hospital/Harvard Medical School, USA

M16C-12 **Model Based Iterative Reconstruction of Ultra Low Dose CT Scans for PET Attenuation Correction**
X. Rui[1], T.-C. Lee[2], A. M. Alessio[2], P. E. Kinahan[2], B. De Man[1]
[1]General Electric - Global Research, USA; [2]Imaging Research Laboratory, USA

M16C-13 **An Empirical Material Decomposition Method for Spectral CT**
C. Feng, Q. Shen, K. Kang, Y. Xing
Tsinghua University, China

M16C-14 **Few-View CT Reconstruction Method Based on Deep Learning**
J. Zhao, Z. Chen, L. Zhang
Key Laboratory of Particle and Radiation Imaging (Tsinghua University), China

M16C-15 **Dual-Energy CT Reconstruction Using Guided Image Filtering**
H. Yang[1], K. Kim[2], G. El Fakhri[2], K. Kang[1], Y. Xing[1], Q. Li[2]
[1]Tsinghua University, China; [2]Massachusetts General Hospital and Harvard Medical School, USA

M16C-16 **CT Reconstruction Method Based on Prior Knowledge of Histogram**
J. Zhao, Z. Chen, L. Zhang
Key Laboratory of Particle and Radiation Imaging (Tsinghua University), China

M16D Posters: Parametric imaging

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16D-1 **Regularizing Direct Parametric Reconstruction for Dynamic PET with the Method of Sieves**
L. Szirmay-Kalos, Á. Kacsó
Budapest University of Technology and Economics, Hungary

M16D-2 **Image Derived Input Function for Rapid PET Measurement of CBF, OEF, and $CMRO_2$**
N. Kudomi[1], Y. Maeda[2], H. Yamamoto[1], Y. Yamamoto[3], T. Hatakeyama[4], Y. Nishiyama[3]
[1]Facl Of Medicine, Kagawa University, Japan; [2]Clinical Radiology, Japan; [3]Radiology, Japan; [4]Neurological Surgery, Japan

M16D-3 **CBV Computation from a Rapid PET Scan Data with Sequential Administration of $^{15}O_2$ and $C^{15}O_2$**
N. Kudomi[1], Y. Maeda[2], H. Yamamoto[1], Y. Yamamoto[1], T. Hatakeyama[1], Y. Nishiyama[1]
[1]Facl of Medicine, Kagawa University, Japan; [2]Hospital, Kagawa University, Japan

M16D-4 **Novel quantitative whole-body parametric PET imaging utilizing multiple clustering realizations**
H. Bal[1], V. Panin[1], N. Karakatsanis[2], A. Rahmim[3], M. Casey[1]
[1]Siemens Medical Solutions USA, Inc, U.S.A; [2]ICAHN School of Medicine at Mount Sinai, U.S.A; [3]Johns Hopkins University School of Medicine, U.S.A

M16D-5 **Influence of Heating Conditions on 18F-FDG PET Imaging Quantification and Kinetics: Results on Biodistribution in Mice**
C. Goetz[1,2,3], M. Podein[3], F. Braun[3], W. A. Weber[4], P. Choquet[1,2], A. Constantinesco[1,2], M. Mix[3]
[1]Pole dimagerie, CHU Hautepierre, Hopitaux Universitaires de Strasbourg, France; [2]CNRS, France; [3]University of Freiburg, Faculty of Medicine, University of Freiburg, Germany; [4]Memorial Sloan-Kettering Cancer Center, USA

M16D-6 **Joint Direct Dynamic Analysis in Dual-Tracer PET Imaging**
W. Zhu[1], T. Feng[1], M. Chen[2], Y. Dong[2], J. Bao[2], H. Li[1]
[1]UIH America Inc, United States; [2]Shanghai United Imaging Healthcare, China

M16D-7 **MRI-Guided PET Kinetic Modeling Pipeline in a Rat Brain Tumor Model**
M. A. Richard, J. P. Fouquet, R. Lebel, M. Lepage
Université de Sherbrooke, Canada

M16D-8 **Automated Time-Activity Curve Extraction Using a Novel PET Rat Brain Template**
K. M. Kläser[1], G. I. Angelis[1], G. Cowin[2], A. Janke[2], K. Mardon[2], J. E. Gillam[1], A. Z. Kyme[1,3], R. R. Fulton[1], S. R. Meikle[1], W. J. Ryder[1]
[1]The University of Sydney, Australia; [2]University of Queensland, Australia; [3]University of California Davis, USA

M16D-9 **Spectral Analysis of [18F]ML-10 Time Activity Curves in Glioblastoma Multiforme Subjects.**
M. J. Oborski, C. M. Laymon, F. S. Lieberman, J. Drappatz, J. M. Mountz
University of Pittsburgh, USA

M16D-10 **Direct 4D Slice-Wise Whole-Body Parametric PET Image Reconstruction for Continuous Bed Motion Acquisitions**
N. A. Karakatsanis[1,2], A. Mehranian[3], M. E. Casey[4], H. Zaidi[2,5,6]
[1]Icahn School of Medicine at Mount Sinai, USA; [2]Geneva University Hospital, Switzerland; [3]King's College London, UK; [4]Siemens Molecular Imaging, USA; [5]University of Geneva, Switzerland; [6]University of Groningen, Netherlands

M16E Posters: Clinical emission

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16E-1 **A High Resolution Clinical PET/MR System with Optimized Design: Simulation and Preliminary Result**
X. Cao, W. Xie, *United Imaging Healthcare, China*; L. Hu, H. Li, *UIH America, USA*

M16E-2 **Multi-Pinhole SPECT System with a Triple Head Gamma Camera**
H. Kubota[1], Y. Hemuki[1], N. Motomura[2], K. Ogawa[1]
[1]Graduate School of Engineering, Hosei University, Japan; [2]Toshiba Medical Systems, Japan

M16E-3 **Positron Emission Tomography with Additional ?-Ray Detectors for Multiple Probe Imaging**
T. Fukuchi[1], H. Haba[1], S. Yamamoto[2], Y. Watanabe[1], S. Enomoto[1]
[1]RIKEN, Japan; [2]Nagoya University Graduate School of Medicine, Japan

M16E-4 **Detector Shielding Design of a PET Insert in a 3T MRI System**
B. J. Lee, R. D. Watkins, C.-M. Chang, I. Kwon, C. S. Levin
Stanford University, USA

M16E-5 **Investigation of Cooling Structure Design for PET Detector Thermal Regulation Methods**
B. J. Lee, C.-M. Chang, I. Kwon, C. S. Levin
Stanford University, USA

M16E-6 **The "bed-PET": a Proposed Geometry for a Highly Sensitivite and Affordable Whole Body PET Scanner**
A. M. Ahmed, H. Tashima, E. Yoshida, T. Yamaya
National Institute of Radiological Sciences, Japan

M16E-7 **Time-Based Signal Sampling Using Saw-Tooth Shaped Threshold**
G. B. Ko, J. S. Lee, *Seoul National University, South Korea*

M16E-8 **Performance of the MediPROBE Compact Gamma Camera for Coded Aperture Imaging**
F. Di Lillo[1,2], V. Corvino[1], G. Mettivier[1,2], A. Sarno[1,2], P. Russo[1,2]
[1]Universita' di Napoli Federico II, Italy; [2]INFN, Italy

M16E-9 **An RF-Penetrable Oval Body PET Insert for MRI: Initial Experimental Study for Efficient MR Imaging Performance**
M. S. H. Akram[1], C. S. Levin[2], T. Obata[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Stanford University, USA

M16E-10 **Development of the Second Prototype of RF Coil Integrated DOI-PET Insert: MRI Compatibility Study**
M. S. H. Akram[1], T. Obata[1], M. Suga[2], F. Nishikido[1], E. Yoshida[1], K. Shimizu[3], M. Fujiwara[1], A. Mohammadi[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan; [3]Hamamatdu Photonics K.K., Japan

M16E-11 **Characterization and Quantitation of Emission Contamination of Dedicated Transmission Images in Breast SPECT-CT**
F. A. McDougal[1], J. P. Shah[2,1], M. P. Tornai[1,2]
[1]Duke University Medical Center, USA; [2]Duke University, USA

M16E-12 **Characterizing CNR of Super-Resolution and Sub-Resolution PET**
G. Chinn, J. W. Cates, C. S. Levin
Stanford School of Medicine, USA

M16E-13 **Geometry Optimization of Dual-Layer Offset Detectors for Compact Ring Diameter PET Systems**
M. Teimoorisichani, A. L. Goertzen
University of Manitoba, Canada

M16E-14 **Development of Tachyon Time-of-Flight PET Cameras**
Q. Peng, W. W. Moses
Lawrence Berkeley National Laboratory, USA

M16E-15 **Progresses of designing a high-sensitivity high-resolution dodecahedron PET for brain imaging**
J. Xu[1], Q. Huang[2], J. Chen[1], Z. Zhao[2], S. Xie[1], Q. Peng[3]
[1]Huazhong University of Science and Technology, China; [2]Shanghai Jiaotong University, China; [3]Lawrence Berkeley National Laboratory, USA

M16F Posters: Image Quality

Friday, Nov. 4 16:30-18:30 Etoile

Session Chairs: **Vesna Sossi**, University of British Columbia, Canada
John N. Aarsvold, Atlanta Veterans Affairs Medical Center & Emory University, United States
Michel Defrise, Dept. of Nuclear Medicine, Vrije Universiteit Brussel, Belgium

M16F-1 **Comparison Study of Noise Reduction Algorithms in Dual Energy Chest Digital Tomosynthesis**
D. Lee, Y.-S. Kim, S. Choi, H. Lee, S. Choi, H.-J. Kim
Yonsei University, Korea

M16F-2 **Impact of Time-of-Flight and Scanner Sensitivity on Lesion Recovery in PET**
X. Jin[1], S. G. Ross[1], W. T. Peterson[1], H. Qian[2], G. Fu[2], C. W. Stearns[1]
[1]GE Healthcare, USA; [2]GE Global Research Center, USA

M16F-3 **The Importance of Specifying Detector Sensitivity and Quantum-limited Dose in DQE Characterizations of Flat Panel Detectors to Ensure High-quality Images**
M. J. Petrillo, I. D. Job, *Varian Medical Systems, United States*; I. Cunningham, *Robarts Research Inst, Western University, and DQE Instruments, Inc., Canada*

M16F-4 **Evaluation of Imaging Accuracy for Limited Field of View (LFOV) in Digital Tomosynthesis System**
D. Kim, B. Jo, H. Lee, C. Zhen, H.-J. Kim
College of Health Science, Yonsei University, Korea

M16F-5 **Performance analysis of ML and ART methods in newly developed chest digital tomosynthesis(CDT)**
H. Lee, Y.-S. Kim, S. Choi, D. Lee, D. Kim, S. Choi, H.-J. Kim
Research Institute of Health Science, Yonsei University, Korea

M16F-6 **Comparative Evaluation of Image Reconstruction Methods for the Siemens PET-MR Scanner Using STIR Library**
D. Deidda[1], N. Efthimiou[1], R. Manber[2], P. Markiewicz[2], K. Thielemans[2], R. Aykroyd[1], C. Tsoumpas[1]
[1]University of Leeds, United Kingdom; [2]University College London, United Kingdom

M16F-7 **First Experimental Comparison Between the Cartesian and the Lissajous Trajectory for Magnetic Particle Imaging**
F. Werner[1,2], T. Knopp[1,2]
[1]University Medical Center Hamburg-Eppendorf, Germany; [2]University of Technology, Germany

M16F-8 **Improving the Contrast-to-Noise Ratio by Averaging in Scintillation Detectors**
M. Vopalensky, I. Kumpova, D. Vavrik
Institute of Theoretical and Applied Mechanics, Academy of Sciences of the Czech Republic, Czech Republic

M16F-9 **Low Trues Statistics and High Randoms Rates Degrade Quantitative Accuracy in PET Iterative Reconstruction Methods**
N. M. Maughan, P. J. Parikh, R. Laforest
Washington University in St Louis, United States

M16F-10 **Dynamic PET Reconstruction Using the Split Bregman Formulation**
J. F. P. J. Abascal[1], E. Lage[2], J. L. Herraiz[3], M. E. Martino[4], M. Desco[1,4], J. J. Vaquero[1,4]
[1]Universidad Carlos III de Madrid, Spain; [2]Universidad Autonoma de Madrid, Spain; [3]Universidad Complutense de Madrid, Spain; [4]Hospital G. U. Gregorio Maranon, Spain

M16F-11 **Towards Truly Comprehensive Quality Assurance to Optimize Detectability in Digital Radiography**
I. A. Cunningham, T. R. Escartin, T. Nano
Western University, Canada

M16F-12 **Evaluation of Time-of-Flight Benefit on Clinical Imaging Using the Tachyon PET Scanner**
X. Zhang[1], Q. Peng[2], J. Zhou[1], J. S. Huber[2], R. H. Huesman[2], W. W. Moses[2], J. Qi[1]
[1]University of California, Davis, USA; [2]Lawrence Berkeley National Laboratory, USA

M17 Application specific emission imaging

Saturday, Nov. 5 08:30-10:30 Schweitzer

Session Chairs: **Antonio J. Gonzalez Martinez**, Institute for Instrumentation in Molecular Imaging, Spain
Robert S. Miyaoka, University of Washington, United States

M17-1 **(08:30) J-PET: a Novel TOF-PET Detector Based on Plastic Scintillators**
P. Moskal, *Jagiellonian University, Poland*
On behalf of the J-PET Collaboration

M17-2 **(08:45) First Clinical Test of the Helmet-Chin PET Prototype**
H. Tashima[1], E. Yoshida[1], Y. Iwao[1], H. Wakizaka[1], S. Tazawa[2], C. Seki[1], Y. Kimura[1], T. Suhara[1], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]ATOX Co. Ltd, Japan

M17-3 **(09:00) Design Study of a Practical-Entire-Torso PET (PET-PET) with Low-Cost Depth-of-Interaction Detectors**
W. H. Wong, Y. Zhang
The University of Texas M. D. Anderson Cancer Center, USA

M17-4 **(09:15) A New Brain PET Insert MR Compatible: Final Design and First Results**
A. J. Gonzalez[1], A. Gonzalez-Montoro[1], A. Aguilar[1], P. Conde[1], G. Cañizares[1], L. Hernandez[1], L. F. Vidal[1], S. Sanchez[1], R. Garcia[2], J. Barbera[3], C. Correcher[3], S. Aussenhofer[4], D. Gareis[4], M. Galasso[5], A. Fabbri[5], F. Sanchez[1], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular Imaging, Spain; [2]nstitute of Design and Manufacture, Spain; [3]Oncovision, Spain; [4]Noras, Germany; [5]INFN Sezione Roma III, Italy

M17-5 **(09:30) Development of a Prototype OpenPET-Guided Surgery System**
H. Tashima, Y. Yoshii, Y. Iwao, E. Yoshida, H. Wakizaka, H. Takuwa, T. Yamaya
National Institute of Radiological Sciences, Japan

M17-6 **(09:45) A Novel Approach for an Integrated NIR/Gamma/Visible Imaging System Using a Single Endoscopic Fiber Bundle for Laparoscopic Surgery**
H.-G. Kang[1], S. H. Song[1], H.-Y. Lee[2], K. M. Kim[3], S. J. Hong[1]
[1]Eulji University, Korea; [2]Seoul National University, Korea; [3]Korea Institute of Radiological and Medical science, Korea

M17-7 **(10:00) Markerless Motion Tracking of Awake and Unrestrained Rat Brain PET**
A. Miranda[1], S. Staelens[1], S. Stroobants[2], J. Verhaeghe[1]
[1]University of Antwerp, Belgium; [2]Antwerp University Hospital, Belgium

M17-8 **(10:15) Fine-Grained Temporal Measurement of Volume Activation with the DoPET-L Particle Therapy Monitoring System**
N. Camarlinghi[1,2], N. Belcari[1,2], M. G. Bisogni[1,2], L. Cristoforetti[3], A. Del Guerra[1,2], F. Fracchiolla[3], M. Morrocchi[1,2], R. Righetto[3], M. Schwarz[3,4], G. Sportelli[1,2], E. Zaccaro[1,2], V. Rosso[1,2]
[1]University of pisa, Italy; [2]INFN, Italy; [3]Trento Hospital, Italy; [4]TIFPA-INFN, Italy

M18 Radiotherapy imaging and dosimetry

Saturday, Nov. 5 08:30-10:30 Cassin

Session Chairs: **Taiga Yamaya**, National Institute of Radiological Sciences,
Yiping Shao, University of Texas Southwestern Medical Center, United States

M18-1 (08:30) Proof-of-Principle Results of Proton Computed Tomography
M. Bruzzi[1], C. Civinini[2], M. Scaringella[2], D. Bonanno[3], M. Brianzi[2], M. Carpinelli[4,5], G. A. P. Cirrone[5], G. Cuttone[5], D. Lo Presti[3], G. Maccioni[4], S. Pallotta[1,2], N. Randazzo[3], F. Romano[5], V. Sipala[4,5], C. Talamonti[1,2], E. Vanzi[6]
[1]University of Florence, Italy; [2]INFN Firenze, Italy; [3]INFN Catania, Italy; [4]University of Sassari, Italy; [5]Laboratori Naz Sud INFN, Italy; [6]Fisica Sanitaria, Azienda Ospedaliero-Universitaria Senese, Italy

M18-2 (08:45) Clinical Validation of a New Digital Spectrometer System for Range Verification in Proton Therapy
T. Werner[1], J. Petzoldt[1], F. Hueso-González[2], K. Römer[2], J. Berthold[3], A. Rinscheid[4], W. Enghardt[1,2,5,6], G. Pausch[1]
[1]OncoRay, Germany; [2]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [3]Technische Universität Dresden, Germany; [4]Martin Luther University Halle-Wittenberg, Germany; [5]German Cancer Consortium, Germany; [6]German Cancer Research Center, Germany

M18-3 (09:00) Improved Laboratory and in-Beam Results of a Compton Telescope with LaBr3 and SiPMs
E. Muñoz[1], J. Barrio[1], A. Etxebeste[1], C. Lacasta[1], J. F. Oliver[1], P. G. Ortega[2], C. Solaz[1], L. Gabriela[1]
[1]Instituto de Física Corpuscular, Spain; [2]CERN, Switzerland

M18-4 (09:15) Absorbed Energy Monitoring During Hadrontherapy via Prompt Gamma Detection
J. Krimmer[1], L. Balleyguier[1], D. Dauvergne[1,2], M. Fontana[1], N. Freud[3], J. Herault[4], J. M. Létang[3], H. Mathez[1], M. Pinto[5], E. Testa[1], Y. Zoccarato[1], C. Koumeir[6]
[1]IPNL, France; [2]LPSC, France; [3]CREATIS, France; [4]CAL, France; [5]LMU, Germany; [6]ARRONAX, France

M18-5 (09:30) Prostate Brachytherapy Optimization Using GPU Accelerated Simulated Annealing and Monte Carlo Dose Simulation
K. Mountris, J. Bert, Y. LeMarechal, D. Visvikis
UMR1101, INSERM, LaTIM, France

M18-6 (09:45) An Assessment of Photoacoustic and Photon Counting Multispectral X-Ray Imaging Techniques for Imaging GNRs in vivo as Part of Predicting Dose Enhancing Effects.
O. L. P. P. Scienti, A. J. Shah, J. C. Bamber, D. G. Darambara
Institute of Cancer Research and Royal Marsden NHS Foundation Trust, United Kingdom

M18-7 (10:00) Construction of personalized computational phantoms of pregnant patients for assessment of CT radiation dose
T. Xie[1], P.-A. Poletti[1], C. Becker[1], H. Zaidi[1,2]
[1]Geneva University Hospital, Switzerland; [2]University Medical Center Groningen, Netherlands

M18-8 (10:15) An Analytical Treatment Plan for Proton Preclinical Irradiation
M. Vanstalle, Y. Karakaya, J. Constanzo, C. Finck, M. Rousseau
IPHC, France

M19 Assessment & comparison of image quality

Saturday, Nov. 5 11:00-12:30 Schweitzer

Session Chairs: **Georges El Fakhri**, Harvard Medical School and Massachusetts General Hospital, United States
Kris Thielemans, University College London, United Kingdom

M19-1 (11:00) Evaluation of Penalized Maximum-Likelihood PET Image Reconstruction for ROI Quantification
L. Yang, J. Zhou, E. Asma, W. Wang
Toshiba Medical Research Institute USA, Inc., USA

M19-2 (11:15) Ex Vivo and in Vivo Study Evaluating Edge-Preserving and Anatomical Priors for Partial Volume Correction in Cardiac PET
A. Turco[1], J. Duchenne[1], J. Nuyts[1], O. Gheysens[1,2], J.-U. Voigt[2], P. Claus[1], K. Vunckx[1]
[1]KU Leuven, België; [2]UZ Leuven, België

M19-3 (11:30) PET Imaging Lesion Detection Study for Penalized Likelihood Image Reconstruction with Relative Difference Penalty
K. A. Wangerin[1,2], S. Ahn[2], S. D. Wollenweber[3], S. Ross[3], P. E. Kinahan[1], R. M. Manjeshwar[2]
[1]University of Washington, United States; [2]General Electric Global Research, United States; [3]General Electric Healthcare, United States

M19-4 (11:45) Effect of Reducing PET Injected Activity for the Assessment of Non-Lesional Epilepsy with PET/MR.
J. Cal-Gonzalez[1], K. Vunckx[2], I. Rausch[1], J. Nuyts[2], T. Traub-Weidinger[1], T. Beyer[1]
[1]Medical University of Vienna, Austria; [2]KU Leuven, Belgium

M19-5 (12:00) Dose Optimization of SPECT-MPI Reconstruction Algorithms for Perfusion-Defect Detection
A. Juan Ramon[1], Y. Yang[1], P. H. Pretorius[2], P. Slomka[3], M. A. King[2], M. N. Wernick[1]
[1]Illinois Institute of Technology, USA; [2]University of Massachusetts Medical School, USA; [3]Cedars-Sinai Medical Center, USA

M19-6 (12:15) Study of [11C]-PE2I Binding Potential Accuracy and Precision for Various Iterative Image Reconstruction Algorithms
S. Stute, C. Comtat
IMIV - Service Hospitalier Frédéric Joliot, France

M20 Other imaging modalities

Saturday, Nov. 5 11:00-12:30 Cassin

Session Chairs: **Joel S. Karp**, University of Pennsylvania, United States
Christian Morel, CPPM, Aix-Marseille University, CNRS/IN2P3, France

M20-1 (11:00) Tabletop MRI System Development for Intraoperative Biopsy Analysis
J. P. Rigla[1,2], D. Grau-Ruiz[2], E. Diaz-Caballero[1], A. Nacev[3], P. Stepanov[3], R. Hilaman[3], L. Mair[3], I. N. Weinberg[3], E. Anasking[3], S. T. Fricke[4], L. Hernandez[2], A. Aguilar[2], A. J. Gonzalez[2], C. D. Vera-Donoso[5], J. M. Benlloch[2]
[1]Tesoro Imaging S.L., Spain; [2]Institute for Instrumentation in Molecular Imaging, Spain; [3]Weinberg Medical Physics, USA; [4]Children´s National Medical Center, USA; [5]La Fe University and Polytechnic Hospital, Spain

M20-2 (11:15) Improved Resolution in Positron Attenuation Tomography Using Multiple Views
C. C. Watson, *Siemens Healthcare Molecular Imaging, USA*

M20-3 (11:30) Feasibility of Marker-Free Motion Tracking for Motion Corrected MRI and PET-MRI
A. Z. Kyme, *University of California Davis, USA*; J. Maclaren, M. Aksoy, R. Bammer, *Stanford University, USA*

M20-4 (11:45) Deconvolution-Based Reconstruction for Selective-Plane X-Ray Induced Luminescence Imaging
C. D. Smith, B. Quigley, P. La Rivière
University of Chicago, 60615

M20-5 (12:00) Calibrating and Validating a Predictive Model for X-Ray Induced Luminescence (XIL) Imaging Using Lanthanide-Doped Nanophosphors and an Optical Gel Phantom
B. Quigley, C. Smith, S.-H. Cheng, J. Souris, C.-T. Chen, C. Pelizzari, S. Kron, L.-W. Lo, R. Wiersma, P. La Riviere
The University of Chicago, United States

M20-6 (12:15) Tumor Cell Load Estimation Based on Diffusion-Weighted MRI and Histology Data
Y. Yin[1,2], O. Sedlaczek[3,4,5], A. Warth[3,6], M. González-Vallinas[6], K. Breuhahn[6], I. E. Vignon-Clementel[1,2], D. Drasdo[1,2,7]
[1]INRIA Paris, France; [2]Sorbonne Universités UPMC Univ. Paris 6, Laboratoire Jacques-Louis Lions, France; [3]Translational Lung Research Center Heidelberg (TLRC), member of the German Centre for Lung Research (DZL), Germany; [4]Department of Diagnostic & Interventional Radiology, University Hospital of Heidelberg, Heidelberg, Germany, Germany; [5]Department of Diagnostic and Interventional Radiology with Nuclear Medicine, Thoraxklinik at University of Heidelberg, Germany; [6]Institute of Pathology, University Hospital Heidelberg, Germany; [7]IZBI, University of Leipzig, Germany

---

RTSD Program

R01 RTSD Opening

Monday, Oct. 31 08:00-10:00 Schuman

Session Chair: **Zhong He**, The University of Michigan, United States

R01-1 (08:30) Introductory and Welcoming Remarks
R. B. James, *Savannah River National Laboratory, USA*; M. Fiederle, *University of Freiburg, Germany*

R01-2 (08:35, invited) Can 3-D Position Sensitive Detectors Enable a Drastically Increased Photon Sensitivity in Positron Emission Tomography?
C. S. Levin, *Stanford University, USA*

R01-3 (08:55, invited) Large Volume, High Performance CZT for Nuclear, Medical, and Security Applications – Recent Breakthroughs
H. Chen, M. Prokesch, A. Sundaram, M. Reed, S. Soldner, H. Li, J. Eger, J. W. Hugg
Kromek USA, USA

R01-5 (09:35, invited) Analysis of Strategies to Decrease Tellurium Inclusions in CZT via Bridgman Crystal Growth and the Accelerated Crucible Rotation Technique
M. S. Divecha[1], S. K. Swain[2], S. Kakkireni[2], J. J. McCoy[2], K. G. Lynn[2], J. J. Derby[1]
[1]University of Minnesota, USA; [2]Washington State University, USA

R01-6 (09:55, invited) A Full Energy Resolved Photon-Counting Chip for High Count Rate X-Ray Detectors
L. Verger, P. Ouvrier-Buffet, V. Moulin, A. Peizerat, J.-P. Rostaing, S. Stanchina, *CEA-LETI MINATEC Campus, France*; E. Marche, P. Radisson, *MULTIX, France*

R01-7 (10:15) Localization and Identification of Radiological/Nuclear Material Dispersed in the Environment by Means of Unmanned Aerial Vehicle Equipped with Spectroscopic CdZnTe Detector

M. Bettelli[1], G. Micconi[2], J. Aleotti[2], S. Caselli[2], N. Zambelli[3], G. Benassi[3], D. Calestani[1], A. Zappettini[1]
[1]IMEM-CNR, Italy; [2]University of Parma, Italy; [3]due2lab s.r.l., Italy

R02 Applications1

Monday, Oct. 31 10:30-11:50 Schuman

Session Chair: **Michael Fiederle**, Freiburger Materialforschungszentrum, Germany

R02-1 (10:30, invited) Arrays of Position-Sensitive Virtual Frisch-Grid CdZnTe
A. E. Bolotnikov, G. S. Camarda, Y. Cui, G. De Geronimo, R. Gul, J. Fried, A. Hossain, E. Vernon, G. Yang, *Brookhaven National Laboratory, USA*; R. B. James, *Savannah River National Laboratory, USA*

R02-2 (10:50, invited) Recent Improvements to HiSPECT Imaging Module
G. Montémont, O. Monnet, S. Stanchina, M. Bernard, L. Verger
CEA, LETI, Minatec campus, France

R02-3 (11:10) Investigation of High-Z Sensors with Charge Integrating Pixel Detectors with a High Spatial Resolution
D. Greiffenberg, B. Schmitt, A. Bergamaschi
Paul-Scherrer-Institut (PSI), Switzerland

R02-4 (11:30, invited) Study on Achievable Energy Resolution of 3-D CdZnTe Gamma-Ray Detectors
Z. He, Y. Zhu, M. Streicher, J. Xia, B. Williams
University of Michigan, USA

R03 Pixel Detectors

Monday, Oct. 31 14:00-16:05 Schuman

Session Chairs: **Kris Iniewski**, redlen technologies, Canada
Vincenzo Lordi, Lawrence Livermore National Lab, United States

R03-1 (14:00, invited) Fast and Spectroscopic X-ray Imaging with Timepix and Timepix3 Detectors with CdTe and CZT Sensors
J. Jakubek, M. Jakubek, P. Soukup, E. Trojanova, D. Turecek, *ADVACAM Cameras, Czech Republic*; S. Vahanen, *ADVACAM Semiconductors, Finland*

R03-2 (14:20) Comparison of CdZnTe and CdTe Schottky Pixel Sensors for Construction of a High Spatial Resolution Spectroscopic Photon Counting Large Area Camera
J. J. Kalliopuska[1], J. Jakubek[2], D. Turecek[2], P. Soukup[2], M. Jakubek[2], S. Vähänen[1], J. Salmi[1]
[1]Advacam Oy, Finland; [2]ADVACAM s.r.o, Czech Republic

R03-3 (14:35) Characterization of High-Z Sensor Materials with the IBEX ASIC
V. Radicci, P. Zambon, C. Disch, M. Rissi, T. Sakhelashvili, M. Schneebeli, P. Trueb, C. Broennimann
DECTRIS Ltd., Switzerland

R03-4 (14:50) Spectroscopic Performance of Timepix Chips with Different CdTe Sensor Configurations
S. Procz[1], F. Fischer[1], A. Fauler[1], E. Hamann[2], M. Fiederle[1]
[1]FMF University Freiburg, Germany; [2]KIT Karlsruhe Institute of Technology, Germany

R03-5 (15:05) Characterisation and Development of GaAs:Cr High Frame Rate X-Ray Imaging Systems
M. C. Veale, B. Cline, J. Coughlan, M. Hart, J. Lipp, T. Nicholls, M. French, A. Schneider, P. Seller, *STFC Rutherford Appleton Laboratory, UK*; P. Sellin, *University of Surrey, UK*; I. Paper, K. Swahney, E. Gimenez-Navarro, I. Horswell, N. Tartoni, *Diamond Light Source, UK*; A. Lozinskaya, V. Novikov, O. P. Tolbanov, A. Tyazhev, A. Zarubin, *Tomsk State University, Russia*

R03-6 (15:20) Evaluation of Semi-Insulating GaAs Radiation Detectors with a Novel Electrodes Concept
F. Dubecký, B. Zatko, P. Bohácek, M. Sekácová, *Inst. of Electrical Engineering, Slovak Academy of Sciences, Slovakia*; V. Necas, *Inst. of Nuclear and Physical Engineering, Slovak University of Technology, Slovakia*

R03-7 (15:35) D2R1: a 2D ASIC for CdTe Based Fine Pitch and High Energy Resolution Imaging Spectrometer
A. Michalowska, D. Baudin, S. Dubos, O. Gevin, O. Limousin, D. Maier, D. Renaud, P. Serrano, *CEA Saclay, FRANCE*; S. Watanabe, T. Takahashi, *JAXA, Japan*

R03-8 (15:50) Study of Experimental and Simulated Performances at Various Fluence Rates on CdTe Spectrometric Imaging Detector
D. Perion, S. Lux, E. Gaborieau-Borissenko, S. Deloule, M. Bunel, B. Rodriguez, S. Cordaro, P. Radisson
MULTIX, France

R04 Crystal Growth

Monday, Oct. 31 16:30-18:30 Schuman

Session Chairs: **Arnold Burger**, Fisk University, United States
Petro Fochuk, Chernivtsi National University, Ukraine

R04-1 (16:30, invited) Melt Growth of Detector Grade CdZnTe: Challenges and Prospects
K. G. Lynn, S. K. Swain, *Washington State University, USA*

R04-2 (16:50) Using a Focused Laser Beam to Investigate the Feasibility of Achieving Sub-Pixel Resolution with Time-Correlated Transient Signals in Pixelated CdZnTe Detectors
L. A. Ocampo Giraldo[1], A. E. Bolotnikov[2], G. S. Camarda[2], Y. Cui[2], S. Cheng[2], G. De Geronimo[2], A. McGilloway[2], R. Gul[2], J. Fried[2], D. R. Hodges[3], A. Hossain[2], K. Unlu[1], M. Petryk[2], V. Vidal[3], E. Vernon[2], G. Yang[2], R. B. James[4]
[1]Pennsylvania State University, USA; [2]Brookhaven National Laboratory, USA; [3]University of Texas - El Paso, USA; [4]Savannah River National Laboratory, USA

R04-3 (17:05, invited) Cd1-xZnxSeyTe1-Y: a Potential Candidate for Low Cost Alternative to CdZnTe
U. N. Roy, G. Camarda, Y. Cui, R. Gul, A. Hossain, G. Yang, P. Vanier, *Brookhaven National Laboratory, US*; J. Zazvorka, V. Dedic, J. Franc, *Charles University, Czech Republic*

R04-4 (17:25, invited) Recent Progress in CdTe/n⁺-Si Epitaxial Layer Based Heterojunction Diode-Type Gamma Detectors
M. Niraula, K. Yasuda, M. Kojima, S. Kitagawa, S. Tsubota, T. Yamaguchi, J. Ozawa, Y. Agata
Nagoya Institute of Technology, Japan

R04-5 (17:45) Control of Te Inclusion Size Distribution in CdZnTe Crystals Through Exogenous Modification of Convection During THM Growth
S. Motakef, P. Becla, K. Becla, I. Abselem, M. Overholt, A. Datta
CapeSym, Inc., US

R04-6 (18:00) First-Principles Investigations of the Electronic Properties and Thermodynamic Stability of CdZnTeSe Alloys for Room Temperature Radiation Detectors
J. B. Varley[1], V. Lordi[1], U. N. Roy[2], R. B. James[2,3]
[1]Lawrence Livermore National Laboratory, USA; [2]Brookhaven National Laboratory, USA; [3]Savannah River National Laboratory, USA

R04-7 (18:15) Analysis of Strategies to Increase Growth Rates of CZT via the Traveling Heater Method
J. H. Peterson, J. J. Derby, *University of Minnesota, USA*

R05 Materials1

Tuesday, Nov. 1 08:00-10:00 Schuman

Session Chair: **Ernesto Dieguez**, PROFESSOR, Spain

R05-1 (08:00, invited) Perovskite Semiconductor Materials for Hard Radiation Detection
B. W. Wessels, *Northwestern University, USA*
On behalf of the Kanatzidis-Freeman-Wessels collaboration

R05-2 (08:20, invited) High Temperature Measurements of N-Type 4H-SiC Epitaxial Schottky Barrier Radiation Detectors
K. C. Mandal, R. O. Pak, C. Oner, T. A. Chowdhury
University of South Carolina, USA

R05-3 (08:40) Advances in CdZnTe and CdMnTe Semiconductors for Detection of Radiological and Nuclear Threats
S. U. Egarievwe[1], R. B. James[2], U. N. Roy[3], A. E. Bolotnikov[3], E. D. Lukosi[4], G. S. Camarda[3], G. Yang[3], A. Hossain[3]
[1]Alabama A&M University, USA; [2]Savannah River National Laboratory, USA; [3]Brookhaven National Laboratory, USA; [4]University of Tennessee, USA

R05-4 (08:55) Towards a High-Z Room Temperature GaSb/GaAs APD - Investigation of the Gamma-Ray Response of GaSb
B.-C. Juang[1], D. L. Prout[1], B. Liang[1], A. F. Chatziioannou[1], D. L. Huffaker[1,2]
[1]University of California at Los Angeles, United States; [2]Cardiff University, United Kingdom

R05-5 (09:10) High Linearity Silicon Carbide Detectors for Medical Applications
N. S. Mohamed[1,2], N. Wright[1], A. Horsfall[1]
[1]Newcastle University, UK; [2]Universiti Sultan Zainal Abidin, Malaysia

R05-6 (09:25) Evaluation of Suitability of GaAs:Cr Sensors for X-Ray Transmission Technology of Diamond-Bearing Ore Enrichment
A. V. Tyazhev, A. N. Zarubin, O. P. Tolbanov, M. S. Skakunov, *Functional Electronics Laboratory of Tomsk State University, Russia*; S. A. Ryabkov, *XDiCon LLC, Russia*; E. N. Vladimirov, T. E. Romanovskaya, *Bourevestnik, Inc., Russia*; S. R. Belotserkovskii, *ALROSA Co., Ltd, Russia*

R05-7 Laser-Induced Formation of Surface State and Highly Doped Layer in CdTe for Diode Type Detectors
V. A. Gnatyuk[1,2], S. N. Levytskyi[1], O. I. Vlasenko[1], T. Aoki[2]
[1]Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine, Ukraine; [2]Research Institute of Electronics, Shizuoka University, Japan

R06 RTSD Award

Tuesday, Nov. 1 10:30-11:10 Schuman

Session Chair: **Ralph B. James**, Savannah River National Laboratory, United States

R06-1 (10:30) RTSD Scientist Award Presentation
R. B. James, *Savannah River National Laboratory, USA*; M. Fiederle, *University of Freiburg, Germany*

R06-2 (10:35, invited) Photon Counting Detectors for X-Ray Spectral Imaging
J. S. Iwanczyk, *DxRay, Inc., USA*

R07 Imaging1

Tuesday, Nov. 1 16:30-18:20 Schuman

Session Chair: **Simon Procz**, FMF Universität Freiburg, Germany

R07-1 (16:30, invited) Gamma-Ray Imaging and Spectroscopy for Nuclear-Power Applications
C. G. Wahl, W. R. Kaye, F. Zhang, W. Wang, Y. A. Boucher, J. M. Jaworski, K. Moran, D. Tefft, H. Yang, B. Kitchen, M. Ulrich, A. King, T. Slatina, T. Matthews, Z. He
H3D, Inc., USA

R07-2 (16:50) COMPTON AND CODED APERTURE RADIATION IMAGE RECONSTRUCTION USING STOCHASTIC ORIGIN ENSEMBLES IN 3-D POSITION SENSITIVE CdZnTe DETECTORS
D. I. Goodman, Z. He, *University of Michigan, MI*

R07-3 (17:05) Hybrid Imaging Reconstruction Method at Intermediate Energy Range
Y. Liu[1,2], Y. Li[1,2], J. Fu[1,2], Y. Li[1,2], Y. Xing[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

R07-4 (17:20) Performance Improvement of an X-Ray Diffraction Imaging System Using Sub-Pixel Positioning Within CZT-Detectors
J. Tabary[1], D. Kosciesza[2], O. Monnet[1], G. Montémont[1], J.-P. Schlomka[2], S. Stanchina[1], J.-M. Casagrande[1], L. Verger[1]
[1]CEA LETI MlNATEC Campus, France; [2]Morpho Detection Germany GmbH, Germany

R07-5 (17:35) CdZnTe Detector Prototype for Boron Imaging by SPECT During BNCT Treatment: Simulations and Measurements in a Neutron Field
M. Bettelli[1], S. Fatemi[2,3], S. Altieri[2,3], S. Bertolussi[2,3], I. Postuma[2,3], N. Protti[2,3], A. De Bari[2,3], G. Benassi[4], N. Zambelli[4], A. Zappettini[1]
[1]IMEM-CNR, Italy; [2]University of Pavia, Italy; [3]INFN, Italy; [4]due2lab s.r.l., Italy

R07-6 (17:50) Digital CZT Detector System for High Flux Energy-Resolved X-Ray Imaging
L. Abbene, F. Principato, G. Gerardi, *Dipartimento di Fisica e Chimica, University of Palermo, Italy*; G. Benassi, N. Zambelli, *due2lab s.r.l., Italy*; A. Zappettini, M. Bettelli, *IMEM/CNR Parma, Italy*; P. Seller, M. C. Veale, *Rutherford Appleton Laboratory, U.K.*

R07-7 (18:05) Experimental Material Discrimination in Spectral Tomography
C. Lacroix, V. Rebuffel, C. Paulus, V. Moulin, L. Verger
CEA, LETI, MINATEC Campus, France

R08 Neutron Detectors

Wednesday, Nov. 2 08:00-10:05 Schuman

Session Chair: **Henry Chen**, Brimrose, United States

R08-1 (08:30, invited) Development of the Semiconductor 6LiInSe2 as a Neutron Detector
J. Tower[1], H. Hong[1], H. Kim[1], A. Gueorguiev[1], K. Shah[1], A. C. Stowe[2,3], B. Wiggins[2,3], Z. Bell[4], P. Bhattacharya[5], E. Tupitsyn[5], L. Matei[5], M. Groza[5], A. Burger[5]
[1]Radiation Monitoring Devices, Inc., United States; [2]Vanderbilt University, United States; [3]Y-12 National Security Complex, United States; [4]Oak Ridge National Laboratory, United States; [5]Fisk University, United States

R08-2 (08:50) Low Energy Threshold Measurements Using Digital 3-D CdZnTe Spectrometers for Fast Neutron Detection
M. W. Streicher, D. Goodman, Y. Zhu, Z. He
University of Michigan, USA

R08-3 (09:05) Ultra-High Resolution Semiconductor Detectors for Neutron Imaging Based on the Timepix Technology
C. Frojdh, D. Krapohl, G. Thungstrom

Mid Sweden University, Sweden

R08-4 (09:20) Multi Modal CZT Detector - Neutron/Gamma
M. J. Anderson, *University of Lancaster, UK*

R08-5 (09:35) Solid-State Neutron Detectors Based on Hexagonal Boron Nitride Epilayers
A. Maity, T. C. Doan, J. Li, J. Lin, H. Jiang
Texas Tech University, USA

R08-6 (09:50) Dual Detection Charge Collection and Light Emission in LiInSe2 and ZnSe
K. B. Ucer[1], D. R. Onken[1], S. Gridin[1], P. Li[1], R. T. Williams[1], E. Tupitsyn[2], P. Bhattacharya[2], E. Rowe[2], L. Matei[2], M. Groza[2], V. Buliga[2], B. Wiggins[3], A. Stowe[3], A. Burger[2]
[1]Wake Forest University, USA; [2]Fisk University, USA; [3]Y-12 National Security Complex, USA

J01 Joint Session I - MIC-NSS-RTSD

Wednesday, Nov. 2 10:30-12:00 Schweitzer

Session Chairs: **Loick Verger**, CEA-LETI, France
Andrew J. Blue, University Of Glasgow, United Kingdom

J01-1 (10:30) Evolution of Diamond Based Microdosimetry
J. A. Davis[1], K. Ganesan[2], D. A. Prokopovich[3], M. Petasecca[1], S. Guatelli[1], D. N. Jamieson[2], M. L. F. Lerch[1], A. B. Rosenfeld[1]
[1]Centre for Medical Radiation Physics, Australia; [2]University of Melbourne, Australia; [3]Australian Nuclear Science and Technology Organisation, A

J01-2 (10:45) Tackling the Count Rate Problem in Spectral CT by Means of a GaAs-Based Medipix3RX Detector Operated in Edge-on Geometry
S. Haaga[1], E. Hamann[1], M. Zuber[1], A. Fauler[2], M. Fiederle[1,2], T. Baumbach[1], T. Koenig[1,3]
[1]Karlsruhe Institute of Technology, Germany; [2]University of Freiburg, Germany; [3]Ziehm Imaging GmbH, Germany

J01-3 (11:00) CZT Sensor – Readout ASIC Interfaces for High-Flux Photon Counting Systems
K. Iniewski, *Redlen Technologies, Canada*

J01-4 (11:15) Breast Microcalcification Classification Using Energy Dispersive X-Ray Coherent Scatter Computed Tomography
B. Ghammraoui, L. M. Popescu
U.S Food and Drug Administration, United States

J01-5 (11:30) Scintillator-Based Photon Counting Detector: Is It Feasible?
L. Bläckberg[1,2], N. Moghadam[3], D. Uzun-Ozsahin[1], G. El Fakhri[1], H. Sabet[1]
[1]Massachusetts General Hospital, Harvard Medical School, United States; [2]Uppsala University, Sweden; [3]GRAMS Lab, Institut interdisciplinaire d'innovation technologique (3IT), Université de Sherbrooke, Canada

J01-6 (11:45) Scintillating Glass GEM Detector for High Resolution X-ray Imaging
T. Fujiwara[1], Y. Mitsuya[2], H. Takahashi[2], H. Toyokawa[1]
[1]National Institute of Advanced Industrial Science and Technology (AIST), Japan; [2]The University of Tokyo, Japan

R09 RTSD Poster Session

Wednesday, Nov. 2 14:00-16:00 Etoile

Session Chairs: **Giuseppe S. Camarda**, Brookhaven National Lab, United States
KiHyun Kim, Korea University, South Korea

R09-1 Accelerated Maximum-Likelihood Reconstruction in the Spatial-Energy Domain Using Energy-Block Subsets Algorithm
J. Chu, Z. He, *University of Michigan, United States*

R09-2 Noise Reduction for Pixelated Room-Temperature Detectors Using VAD_UM V2.2 Digitizer ASIC
Y. Zhu, Z. He, *University of Michigan, USA*

R09-3 Energy Resolution Improvement Through Digital Pulse Shape Analysis at CdZnTe-Cross-Strip-Detectors
D. Weinberger[1], T. Kormoll[2], F. Fiedler[1]
[1]HZDR – Helmholtz-Zentrum Dresden-Rossendorf e.V., Germany; [2]OncoRay-National Center for Radiation Research in Oncology, Germany

R09-4 Weighting Potential Cross-Talk Correction for Charge Sharing Events in Pixelated CZT Detectors
J. Xia, Z. He, *University of Michigan, United States*

R09-5 Recent Results from Pixelated TlBr Detectors with Tl Electrodes Operated at Room-Temperature
C. Leak, W. Koehler, S. O'Neal, Z. He, *University of Michigan, USA*; K. Hitomi, *Tohoku University, Japan*

R09-6 Electric Field Profile in CdZnTe Coplanar Grid Detectors Examined by Laser Induced Transient Current Waveforms: Compared to Theoretical Calculation
P. Praus, E. Belas, R. Grill, J. Kunc, J. Pekarek
Charles University in Prague, Czech republic

R09-7 Characterization of High Mobility Transistor Channels for Terahertz Detectors Applications
F. Z. Mahi, *university of Algeria, Algeria*

R09-8 Imaging from Polycrystalline HgI2 Film Flat Panel Detector
L. Zhang, X. Ma, B. Li, X. Cao, W. Wang
Nuctech Company Limited, China

R09-9 Structural Peculiarities of CdTe Crystals Doped with Rare Earths
N. V. Sochinskii, S. Rubio, J. L. Plaza, E. Diéguez
UAM, Spain

R09-10 Deep Levels in High Resistive CdTe and CdZnTe Explored by Photo-Hall Effect Spectroscopy with Double Wavelength Illumination
A. Musiienko, R. Grill, P. Moravec, J. Zázvorka, G. Korcsmáros, J. Franc, I. Vasylchenko
Charles University in Prague, Czech Republick

R09-11 Influence of Guard Ring Electrode on Performance of (CdZn)Te Pixel Detector Characterized by Laser-Induced Transient Current Technique
I. Vasylchenko, R. Grill, E. Belas, P. Praus, A. Musiienko
Charles University in Prague, Czech Republic

R09-12 A Study on a Photon-Counting Detector Applying Pixel Shift Technology and Charge Sharing Correction
D. Lee, K. Park, D.-U. Kang, H. Chang, H. Kim, G. Cho
KAIST, republic of Korea

R09-13 Improvement of the Spatial Resolution using Charge Sharing in X-Ray Photon Counting Detectors
K. Park, D. Lee, D.-U. Kang, G. Cho, H. Kim, H. Chang
Korea Advanced Institute of Science and Technology, Republic of Korea

R09-14 Improved Charge Collection in Large-Volume CZT Detectors Using a Modified Contact Configuration
A. Hossain[1], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], V. Dedic[2], R. Gul[1,3], U. N. Roy[1], G. Yang[1], R. B. James[1,4]
[1]Brookhaven National Laboratory, USA; [2]Charles University, Czech Republic; [3]Alabama A&M University, USA; [4]Savannah River National Laboratory, USA

R09-15 Electrical and detecting properties of undoped ?-?d?? crystals
P. Fochuk, V. Sklyarchuk, Z. Zakharuk, *Chernivtsi National University, Ukraine*; Y. Nykoniuk, *National University of Water Management and Natural Resources Application, Ukraine*; A. Bolotnikov, R. James, *Brookhaven National Laboratory, USA*

R09-16 Cd(Mn)Te-Based Diode Structures
V. Sklyarchuk[1], P. Fochuk[1], Z. Zakharuk[1], Y. Nykoniuk[2], O. Kopach[1], O. Sklyarchuk[1], A. Bolotnikov[3], R. James[3]
[1]Chernivtsi National University, Ukraine; [2]National University of Water Management and Natural Resources Application, Ukraine; [3]Brookhaven National Laboratory, USA

R09-17 State Stabilization of CMT Crystals' Defect-Dopant System
P. Fochuk, Z. Zakharuk, *Chernivtsi National University, Ukraine*; Y. Nykoniuk, *National University of Water Management and Natural Resources Application, Ukraine*; A. Bolotnikov, R. James, *Brookhaven National Laboratory, USA*

R09-18 Fabrication of Organic Radiation Detector with Ink-Jet Printing Techonlogy
E. Takada, M. Nogami, H. Imai, T. Chaki, *National Institute of Technology, Toyama College, Japan*; F. Nishikido, *National Institutes for Quantum and Radiological Science and Technology, Japan*; S. Naka, H. Okada, *University of Toyama, Japan*

R09-19 Surface Processing of CdTe Crystals in H_2/Ar Electron Cyclotron Resonance Plasma
M. Niraula, K. Yasuda, S. Kitagawa, M. Kojima, T. Yamaguchi, J. Ozawa, S. Tsubota, Y. Agata
Nagoya Institute of Technology, Japan

R09-20 Peculiarities of Melting and Crystallization Processes in $Cd_{1-x}Mn_xTe$ Solid Solutions
P. Fochuk, Z. Zakharuk, S. Dremlyuzhenko, V. Deibuk, I. Yuriychuk
Chernivtsi National University, Ukraine

R09-21 Charge Transport Properties and Detector Performance of CdZnTe Sample with an Inhomogeneous Distribution of Resistivity
J. Pekarek, J. Zazvorka, E. Belas, P. Praus, R. Grill, J. Bok
Charles Univerzity in Prague, Czech Republic

R09-22 Space Charge Limited Photocurrents in CdZnTe/CdTe Detectors in the Case of Strongly Absorbed Light
K. Ridzonova, E. Belas, R. Grill, P. Praus, J. Pekarek
Charles University in Prague, Czech Republic

R09-23 Basic Study of a Compton Scattering Camera Using a Pixelated TlBr Detector
M. Matsumura, K. Watanabe, A. Yamazaki, S. Yoshihashi, A. Uritani, *Nagoya University, Japan*; H. Sunaba, N. Nagano, K. Hitomi, *Tohoku University, Japan*

R09-24 Determination of the Charge Collection Efficiency in Pixelated TlBr Detectors for Accurate Measurement of Ionization Energy

S. O'Neal, W. Koehler, Z. He, *University of Michigan, United States*; H. Kim, L. Cirignano, K. Shah, *RMD, Inc., United States*

R09-25 Growth of (Cd,Zn)Te by THM under Microgravity
M. Fiederle[1], A. Fauler[1], A. Senchenkov[2], A. Egorv[1]
[1]Freiburger Materialforschungszentrum, Germany; [2]2Research and Development Institute for Launch Complexes NIISK, Russia

R09-26 Ionizing Radiation Detectors Comprised of Micrometer-Scale PbS Star-Shaped Dendrites and Laminar Nanocubes Exhibiting Strong-Confinement Effects
M. D. Hammig, B. Davis, M. Jeong, B. Van
University of Michigan, United States

R09-27 A Study on Improvement in Material Decomposition Capability for Photon Counting Detectors
D.-U. Kang, D. Lee, K. Park, M. S. Kim, G. Cho
KAIST, Republic of Korea

R09-28 Dose Evaluation for Medipix Based µCT
F. Fischer, S. Procz, M. Fiederle, A. Fauler
Freiburg Materials Research Center (FMF), Germany

R09-29 Influence of Low-Temperature Annealing on Bulk and Surface Properties of CdZnTe Detector
M. Rejhon, J. Franc, V. Dedic, J. Zázvorka
Charles University in Prague, Czech republic

R09-30 Exploiting Subpixel Positioning in CZT-Detectors for Baggage X-Ray Diffraction Imaging: an Experimental Implementation
J. Tabary, C. Paulus, G. Montémont, L. Verger
CEA LETI MlNATEC Campus, France

R09-31 Monte Carlo Simulation of a CZT 3D Spectro-Imager for Scattering Polarimetry
E. Caroli[1], G. De Cesare[1], R. M. Curado da Silva[2], N. Auricchio[1], C. Budtz-Jørgensen[3], S. Del Sordo[4], P. Ferrando[5], J. L. Galvèz[6], M. Hernanz[6], J. Isern[6], I. Kuvvetli[3], P. Laurent[5], O. Limousin[5], J. M. Maia[2], A. Meuris[5], M. Moita[2], N. Produit[7], J. B. Stephen[1], A. Zappettini[8]
[1]INAF/IASF-Bologna, Italy; [2]LIP-Coimbra, Portugal; [3]DTU Space, Denmark; [4]INAF/IASF-Palermo, Italy; [5]CEA-Saclay, France; [6]IEEC-CSIC/UAB, Spain; [7]ISDC/University of Geneva, Switzerland; [8]IMEM/CNR, Italy

R09-32 Passive Algebraic Tomography of Nuclear Fuel with Electronically Collimated CdZnTe-Detectors
O. V. Maslov, V. A. Mokritsky, N. N. Kornieva
Odessa National Polytechnic University, Ukraine

R09-33 A Simulation Tool to Explore Next Generations of Hybrid Pixel Detectors for Synchrotron Applications
T. Johng-ay, P. Fajardo, T. Martin, C. Ponchut, P.-A. Douissard, M. Ruat
European Synchrotron (ESRF), France

R09-34 Measurement and Simulation of the Response to Fast Neutrons of VPE GaAs Detectors with a Polyethylene Converter
S. V. Chernykh[1], A. V. Chernykh[1], F. M. Baryshnikov[1], S. I. Didenko[1], N. Burtebayev[2], G. I. Britvich[3], A. P. Chubenko[4], Z. Kerimkulov[2], T. Zholdybayev[2], M. Nassurlla[2], M. Nassurlla[2]
[1]National University of Science and Technology ï¿½MISISï¿½, Russia; [2]Institute of Nuclear Physics, Kazakhstan; [3]Institute of High Energy Physics, Russia; [4]Lebedev Physical Institute of the Russian Academy of Sciences, Russia

R09-35 A Portable Position Sensitive Neutron Detecting Device Based on a Multilayer Silicon Strip Detector
T. Slavicek, Z. Kohout, P. Masek, S. Pospisil, *IEAP CTU in Prague, Czech Republic*; D. Meier, *Integrated Detector Electronics AS, Norway*; A. Kok, T.-E. Hansen, O. Koybasi, *SINTEF, Norway*

R09-36 Space-Charge Limited Transport in CdTe-Based X- and G-Ray Detectors
O. L. Maslyanchuk[1], M. M. Solovan[1], V. V. Kulchynsky[1], V. A. Gnatyuk[2,3], T. Aoki[3]
[1]Yury Fedkovych Chernivtsi National University, Ukraine; [2]Institute of Semiconductor Physics of NAS of Ukraine, Ukraine; [3]Research Institute of Electronics, Shizuoka University, Japan

R09-37 Diffusion Coefficient and Drift Parameter Evaluation in Telluride Solid-State Detectors
A. Santi[1], M. Bettelli[2], A. Zappettini[2], M. Zanichelli[1], M. Pavesi[2]
[1]University of Parma, Italy; [2]IMEM-CNR, Italy

R09-38 Tuning Optical and Scintillation Properties of 6LiInSe2: a Dopant Study
A. C. Stowe[1,2], B. Wiggins[1,2], K. Stassun[2,3], A. Burger[2,3]
[1]CNS Y-12 National Security Enterprise, USA; [2]Vanderbilt University, USA; [3]Fisk University, USA

R09-39 Possibilities of CdTe-Based ?/?-Ray Detectors with MoO Contacts
O. L. Maslyanchuk[1], M. M. Solovan[1], P. D. Maryanchuk[1], V. V. Kulchynsky[1], V. A. Gnatyuk[2,3], T. Aoki[3]
[1]Yury Fedkovych Chernivtsi National University, Ukraine; [2]Institute of Semiconductor Physics of NAS of Ukraine, Ukraine; [3]Research Institute of Electronics, Shizuoka University, Japan

R09-40 Theoretical Approach to the Energy Resolution of Semiconductor Detectors
V. V. Samedov
National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russian Federation

R09-41 On-the-Fly Fast X-Ray Tomography Inspection of the Three Point Bending Test
I. Kumpova[1], T. Fila[2], D. Kytyr[2], J. Jakubek[1], V. Vesely[3], D. Vavrik[2], M. Vopalensky[1]

[1]*The Institute of Theoretical and Applied Mechanics AS CR, v. v. i, Centre of Excellence Telc, Czech Republic;* [2]*The Institute of Theoretical and Applied Mechanics AS CR, v. v. i, Czech Republic;* [3]*Brno University of Technology, Faculty of civil engineering, Institute of Structural Mechanics, Czech Republic*

R09-42 **Bias Dependence of the Energy Resolution of Semiconductor Hemispherical Detectors**
V. V. Samedov
National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russian Federation

R09-43 **KALYPSO: a Linear Array Detector with a MHz Line-Rate for Real-Time Beam Monitoring Applications**
L. Rota[1], M. Caselle[1], M. Balzer[1], S. Kudella[1], M. Weber[1], A. Mozzanica[2], N. Hiller[2], M. J. Nasse[1], P. Schönfeldt[1], S. Walther[3], B. Steffen[3], C. Gerth[3], D. Makowski[4], A. Mielczarek[4]
[1]*Karlsruhe Institute of Technology (KIT), Germany;* [2]*Paul Scherrer Institute (PSI), Switzerland;* [3]*DESY, Germany;* [4]*University of Lodz, Poland*

R09-44 **First Steps in the Deposition of Heavy Metal Iodides Layers by Spin Coating**
L. Fornaro, I. Aguiar, M. E. Perez Barthaburu, I. Galain, H. Bentos Pereira
Universidad de la Republica, Uruguay

R09-45 **Interaction Position-Sensing in CZT Detectors Using Proximity Electrodes**
A. M. Alhawsawi, A. T. Farsoni, L. Ranjbar, E. M. Becker
Oregonstate University, USA

R09-46 **Response to Alfa-Particles of SiC UV Sensors**
A. Fazzi[1,2], G. Bertuccio[1,2], D. Giove[2]
[1]*Politecnico di Milano, Italy;* [2]*INFN, Italy*

R09-47 **Diamond-Based Neutron Scatter Camera**
A. Alghamdi, E. Lukosi, *University of Tennessee, USA*

R09-48 **Detectors Based on Wide Bandgap Semiconductors (CdTe, CdZnTe) in the Post-Soviet Space**
Y. Petukhov, *Center of Radiation and Nuclear Safety Technologies, Latvia*
On behalf of the Y. Petukhov Mulivanov S. (RNIIRP Riga) Khrunov V. Fedorkov V. Smirnov Al., Gazizov I, Kharitonov Yu (Dubna IFTP)

R09-49 **First Imaging Measurements of a Timepix3 ASIC Bump Bonded to a 1mm GaAs:Cr Sensor**
M. Zuber[1], E. Hamann[1], L. Tlustos[2], T. König[1,3], M. Fiederle[1,2], T. Baumbach[1]
[1]*Karlsruhe Institute of Technology, Germany;* [2]*Universität Freiburg, Germany;* [3]*Ziehm Imaging GmbH, Germany*

R09-50 **Laser-Based Technique of Formation of CdTe-Metal Diode Structures for High Energy Radiation Detectors**
K. Zelenska, *Taras Shevchenko National University of Kyiv, Ukraine*; D. Gnatyuk, T. Aoki, *Shizuoka University, Japan*

R09-51 **(14:00) Development of CdZnTe Position-Sensitive Detector Module for Integration into Handheld Spectrometer**
Y. Cui[1], A. E. Bolotnikov[1], H. Brands[2], G. S. Camarda[1], R. Gul[1], G. De Geronimo[1], J. Fried[1], A. Hossain[1], L. Hoy[2], F. Liang[2], J. Preston[2], E. Vernon[1], G. Yang[1], R. B. James[1]
[1]*Brookhaven National Laboratory, USA;* [2]*FLIR Systems, Inc., USA*

R09-52 **Characterization of 3 and 4 Inch GaAs:Cr Wafers**
A. Tyazhev, D. Budnitskyi, V. Novikov, A. Zarubin, A. Lozinskaya, I. Kolesnokiva, A. Shemeryankina, T. Mikhailov, M. Skakunov, O. Tolbanov, I. Chsherbakov
Functional Electronics Laboratory of Tomsk State University, Russia

R09-53 **Surface Passivation and Contacts in CdZnTe X-Rays and Gamma-Rays Detectors**
S. U. Egarievwe[1], E. D. Lukosi[2], O. K. Okobiah[1], A. Hossain[3], U. N. Roy[3], A. L. Adams[1], R. Gul[1], R. B. James[4]
[1]*Alabama A&M University, USA;* [2]*University of Tennessee, USA;* [3]*Brookhaven National Laboratory, USA;* [4]*Savannah River National Laboratory, USA*

R09-54 **Batch Annealing of CdMnTe Wafers for Nuclear Detector Applications**
A. L. Adams[1], S. U. Egarievwe[1], E. O. Agbalagba[2], R. D. Martin[1], J. O. Jow[1], U. N. Roy[3], R. B. James[4]
[1]*Alabama A&M University, USA;* [2]*Federal University of Petroleum Resources, Nigeria;* [3]*Brookhaven National Laboratory, USA;* [4]*Savannah River National Laboratory, USA*

R09-55 **Thermally Evaporated B- and Li-Doped Amorphous Selenium Alloy Based Radiation Detectors**
K. C. Mandal, R. O. Pak, C. Oner, T. A. Chowdhury
University of South Carolina, USA

R09-56 **Characterization of Large-Area, High-Resolution $Cd_{0.9}Zn_{0.1}Te$ Nuclear Radiation Detectors**
K. C. Mandal, R. O. Pak, C. Oner, T. A. Chowdhury
University of South Carolina, USA

R10 Detector Devices1

Wednesday, Nov. 2 16:30-18:30 Schuman

Session Chair: **Elias Hamann**, IPS, Karlsruhe Institute of Technology (KIT), Germany

R10-1 **(16:30) Measurements on the Physical Properties of Semiconductor and Scintillator Detectors at the Advanced Light Source (ALS)**

G. S. Camarda, A. E. Bolotnikov, Y. Cui, R. Gul, A. Hossain, U. Roy, G. Yang, R. James
Brookhaven National Lab, USA

R10-2 (16:45) Cathode Signal Analysis in CdTe Hybrid Pixel-Waveform (HPWF) Detectors: Interpreting Interaction Information from Electron-Hole Drifting
A. Groll[1], K. Kim[2], J. B. Smith[1], J. Kroeger[1], H. Bhatia[1], J. Dutta[2], Q. Li[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Massachusetts General Hospital and Harvard Medical School, USA

R10-3 (17:00) Micro-Bump Connections for 3D Stacked Detectors and Sensors
M. Motoyoshi[1], K. Yanagimura[1], T. Fushimi[1], H. Yonekura[1], J. Takanohashi[1], T. Miyoshi[2], M. Ikebe[3], Y. Arai[2]
[1]Tohoku-MicroTec Co., Ltd., Japan; [2]High Energy Accelerator Research Organization, Japan; [3]Hokkaido University, Japan

R10-4 (17:15) The New Generation 3DCZT High Resolution Detector with Improved Position Sensitivity Developed at DTU Space
I. Kuvvetli, C. Budtz-Jørgensen
DTU Space National Space Institute, Technical University of Denmark, Denmark

R10-5 (17:30) Discrimination of Single-Site and Multi-Site Events in CZT-CPG Detectors for the COBRA Experiment
S. Zatschler, *TU Dresden, Germany*
On behalf of the COBRA Collaboration

R10-6 (17:45) Spatially Resolved Investigation of Large CdZnTe Detectors with a Coplanar Quad-Grid
R. Temminghoff, *TU Dortmund, Germany*
On behalf of the COBRA Collaboration

R10-7 (18:00) Conception and Validation of a Virtual Coplanar Grid for a 11x11 Pixelated CZT Detector
R. Espagnet[1], L. Lechippey[1,2], A. Frezza[1], J.-P. Martin[3], L.-A. Hamel[3], P. Després[1]
[1]Université Laval, Canada; [2]Institut national des sciences et techniques nucléaires, France; [3]Université de Montréal, Canada

R10-8 (18:15, invited) Improvement of Properties of CdZnTe Coplanar Grid Detector by Tuning Electric Field and Weighing Potential
S. Xi[1], W. Jie[1], G. Zha[2], T. Wang[1]
[1]Northwestern Polytechnical University, China; [2]Imdetek Co., Ltd, China

R11 Defects1

Thursday, Nov. 3 08:00-09:55 Schuman

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

R11-1 (08:00, invited) Laser Induced Transient Current Technique as a Powerful Tool to Determine Charge Transport Properties, Electric Field and Weighing Field Distribution in CdZnTe Detectors
A. Zappettini[1], A. Santi[2], M. Bettelli[1], G. Piacentini[2], M. Zanichelli[2], M. Pavesi[2]
[1]IMEM-CNR, Italy; [2]University of Parma, Italy

R11-2 (08:20, invited) Analysis of Trapping and De-Trapping in CdZnTe Detectors by Pockels Effect
J. Franc, M. Rejhon, V. Dedic, R. Grill
Institute of Physics, Charles University, Czech Republic

R11-3 (08:40) Investigation of the Electric Field of CdZnTe and CdZnTeSe Radiation Detectors with Different Electrode Materials and Configurations
G. Yang[1], A. E. Bolotnikov[1], Y. Cui[1], G. S. Camarda[1], A. Hossain[1], U. N. Roy[1], R. Gul[1], S. Sun[1,2], R. B. James[1,3]
[1]Brookhaven National Laboratory, United States; [2]Shanghai Institute of Technical Physics, PRC; [3]Savannah River National Laboratory, United States

R11-4 (08:55) Characterization of Crystallographic Defects in Detector-Grade CdTe-Based Crystals
A. Hossain[1], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], R. Gul[1,2], U. N. Roy[1], G. Yang[1], R. B. James[1,3]
[1]Brookhaven National Laboratory, USA; [2]Alabama A&M University, USA; [3]Savannah River National Laboratory, USA

R11-5 (09:10) Influence of IR Depolarization on CdZnTe Spectroscopic Detector Operating under High Flux of X-Rays
V. Dedic, J. Pekarek, J. Franc, E. Belas, *Institute of Physics of Charles University, Czech Republic*; J. Tous, *Crytur Ltd., Czech Republic*; P. Masek, *Institute of Technical and Experimental Physics, Czech Technical University, Czech Republic*

R11-6 Space-Charge-Limited Photocurrent in Semi-Insulating Semiconductors
R. Grill, E. Belas, K. Ridzonová, J. Pekárek, J. Zázvorka, P. Praus, J. Franc, A. Musiienko, I. Vasylchenko, P. Höschl
Charles University, Czech Republic

R11-7 (09:40) A Compensation Model for Material Resistivity and Electric Fields in Semi-Insulating CdTe Radiation Detectors
A. Cola, I. Farella, J. Pousset, A. Valletta, *CNR, Italy*

R12 Special Tribute to Paul Siffert

Thursday, Nov. 3 10:30-12:00 Schuman

Session Chair: **Andrea Zappettini**, IMEM-CNR, Italy

R12-1 (10:30) Growth of (Cd,Zn)Te
M. Fiederle, A. Fauler
Freiburger Materialforschungszentrum, Germany

R12-2 (11:00, invited) Developments of Germanium Spectroscopy Detectors :from Pioneering Times to the Current Most Challenging Applications
M. Fiederle, *Freiburger Materialforschungszentrum, Germany*; M. O. Lampert, *Canberra, France*

R12-3 (11:20, invited) 30 Years of Cdte and Cdznte Detectors Medical Applications
C. Scheiber, *Hospices Civils de Lyon, France*

R12-4 (11:40, invited) Crystals Based on (Cd,Mn)Te with Mg and Se as Materials for X- and Gamma Ray Detectors.
A. P. Mycielski[1], D. D. Kochanowska[1], M. D. Witkowska-Baran[1], M. D. Szot[1], M. P. Moszynski[2], J. D. Domagala[1], R. D. Jakiella[1], B. E. Witkowska[1], W. E. Kaliszek[1]
[1]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; [2]National Centre for Nuclear Research, Poland

R13 Imaging2

Thursday, Nov. 3 14:00-15:50 Schuman

Session Chair: **Jan Iwanczyk**, DxRay, Inc., United States

R13-1 (14:00, invited) High Frame Rate CdTe Flat Panel Detector for Application to Material Identification CT
T. Aoki[1,2], K. Nozawa[1], K. Sugiyama[1], T. Terao[1,2], K. Takagi[1,2], H. Morii[1,2], T. Okunoyama[2], A. Koike[1,2]
[1]Shizuoka University, Japan; [2]ANSeeN Inc., Japan

R13-2 (14:20) Multimodal Analysis of the Cultural Herritage Artefacts Utilizing Computed Tomography and X Ray Flourescence Imaging
D. Vavrik, J. Jakubek, *Institute of Theoretical and Applied Mechanics, v. v. i., Czech Republic*; J. Zemlicka, *Institute of Experimental and Applied Physics, CTU in Prague, Czech Republic*

R13-3 (14:35) 3D Non-Destructive Fluorescent X-Ray Computed Tomography (FXCT) with a CdTe Array
C. Yoon, Y. Kim, W. Lee, *Korea Univ., Korea*

R13-4 (14:50) ORIGAMIX: Current State and Results of a Technology Transfer Project from High Energy Astrophysics Space Grade Detector to Nuclear Safety Gamma Camera
P.-A. Bausson, C. Blondel, F. Carrel, C. Force, O. Gevin, A. Gros, O. Limousin, J. Martignac, S. Schanne, V. Schoepff, *CEA Saclay, FRANCE*; M.-C. Vassal, F. Soufflet, *3D PLUS, FRANCE*

R13-5 (15:05) Material Discrimination and Imaging Improvement Using High Count Rate X-Ray CdTe Spectrometric Detector for Non-Destructive Testing and Security Applications
D. Perion, E. Gaboriau-Borissenko, P. Radisson
MULTIX, France

R13-6 (15:20) An Energy-Independent Gamma Camera
Y. Cui, G. S. Camarda, A. Hossain, P. O'Connor, U. Roy, G. Yang, R. B. James, *Brookhaven National Laboratory, USA*; Y. Seo, S. Bagchi, *University of California at San Francisco, USA*; F. Weng, Q. Huang, *Shanghai Jiao Tong University, China*; Z. Deng, Y. Chen, *Tsinghua University, China*

R13-7 (15:35) Metrological Characterization of the GAMPIX Gamma Camera
F. Carrel, G. Amoyal, T. Branger, C. Force, H. Lemaire, V. Lourenco, V. Schoepff
CEA, France

R14 Detector Devices2

Thursday, Nov. 3 16:30-18:10 Schuman

Session Chairs: **Aleksey E. Bolotnikov**, Brookhaven National Laboratory, United States
Krishna C. Mandal, University of South Carolina, United States

R14-1 (16:30, invited) GAMPIX Gamma Camera: Past, Present and Future
V. Schoepff, F. Carrel, C. Force, O. Gal, M. Gmar, F. LAINï¿½, H. Lemaire
CEA, LIST, FRANCE

R14-2 (16:50, invited) CZT Detector Assemblies for OEM Applications in Medical, Security, and Nuclear Power Markets
J. W. Hugg[1], B. W. Harris[1], A. Emerick[1], S. Soldner[1], F. Walker[1], D. Kuhn[1], B. McVay[1], J. Samstag[1], M. Prokesch[1], H. Li[1], A. Cherlin[2], A. Sundaram[1], M. Reed[1], C. Jones[1], H. Chen[1]

[1]*Kromek USA, USA;* [2]*Kromek Group, PLC, UK*

R14-3 (17:10) High Bias Voltage CZT Detectors for High-Flux Measurements
N. Zambelli[1], L. Abbene[2], G. Gerardi[2], A. A. Turturici[2], G. Benassi[1], M. Bettelli[3], F. Principato[2], A. Zappettini[3]
[1]*due2lab s.r.l., Italy;* [2]*Dipartimento di Fisica e Chimica, University of Palermo, Italy;* [3]*IMEM/CNR Parma, Italy*

R14-4 (17:25) Performance Assessment of CdZnTe Detectors with ZnO:Al Contacts
U. N. Roy, G. Camarda, Y. Cui, R. Gul, A. Hossain, G. Yang, P. Vanier, R. James, *Brookhaven National Laboratory, US*; A. K. Pradhan, R. Mundle, M. Roul, J. Skuza, *Norfolk State University, US*

R14-5 (17:40) Hybrid Direct X-Ray Detectors
H. Thirimanne, I. Jayawardena, A. Lohstroh, S. Pani, C. Mills, R. Silva
University of Surrey, UK

R14-6 (17:55) Demonstration of a High Spectroscopic Range CdTe Detector
M. D. Wilson[1], W. H. Baumgartner[2], S. D. Christe[2], D. D. Duarte[1], J. A. Gaskin[3], P. S. Grant[4], L. L. Jones[1], E. Liotti[4], A. Lui[4], M. Panessa[2], M. Prydderch[1], P. Seller[1], A. Y. Shih[4], S. Thomas[1], M. C. Veale[1]
[1]*STFC, UK;* [2]*NASA Goddard Space Flight Centre, USA;* [3]*NASA Marshall Space Flight Centre, USA;* [4]*University of Oxford, UK*

R15 Materials2

Friday, Nov. 4 08:00-10:00 Schuman

Session Chair: **Shariar Motakef**, , United States

R15-1 (08:30) X-Ray Transparent Multi-Channel Dosimeter Based on Organic Photodiodes and Plastic Scintillators for Real-Time IVR Monitoring
F. Nishikido[1], E. Takada[2], M. Nogami[2], T. Maeda[2], T. Moritake[3], T. Yamaya[1]
[1]*National Institute of Radiological Sciences, Japan;* [2]*National Institute of Technology, Toyama College, Japan;* [3]*University of Occupational and Environmental Health, Japan*

R15-2 (08:45, invited) Flexible, Ultra-Low Voltage, Fully Printed Radiation Detectors Based on Organic Semiconductors
B. Fraboni, *University of Bologna, Italy*

R15-3 (09:00, invited) X-Ray Imaging with Scintillator-Sensitized Hybrid Organic Photodetectors
O. Schmidt, P. Büchele, S. F. Tedde, R. Fischer, J. Hürdler
Siemens Healthcare GmbH, Germany

R15-4 (09:15) Performance of Thallium Bromide devices for Room Temperature Field Applications
A. Datta, J. Fiala, P. Becla, K. Becla, S. Motakef
CapeSym, Inc., US

R15-5 (09:30) Direct Gamma-Ray Detection with Strip TlBr Detectors for Nuclear Medicine Applications
G. Ariño-Estrada[1], J. Du[1], L. Cirignano[2], H. Kim[2], K. Shah[2], S. R. Cherry[1], G. S. Mitchell[1]
[1]*Department of Biomedical Engineering, University of California Davis, USA;* [2]*Radiation monitoring Devices, Inc., Watertown, USA*

R15-6 (09:45) Characterization of pin GaN diodes radiation detection for a-ray
T. Arikawa[1], K. Mochizuki[1], M. Sugiura[1], H. Nakagawa[1], S. Usami[2], M. Kushimoto[2], Y. Honda[2], H. Amano[2], S. Schütt[3], A. Vogt[3], M. Fiederle[3], H. Mimura[1], Y. Inoue[1], T. Aoki[1], T. Nakano[1]
[1]*Shizuoka University, Japan;* [2]*Nagoya University, Japan;* [3]*University of Freiburg, Germany*

R15-7 (10:00, invited) Growth of TlBr Crystals by the Vertical Bridgman Method and the Traveling Molten Zone Method for Gamma-Ray Detector Applications
K. Hitomi[1], T. Onodera[2], N. Nagano[1], K. Watanabe[3], M. Matsumura[3], S.-Y. Kim[1], T. Ito[1], K. Ishii[1]
[1]*Tohoku University, Japan;* [2]*Tohoku Institute of Technology, Japan;* [3]*Nagoya University, Japan*

R16 Defects2

Friday, Nov. 4 10:30-12:15 Schuman

Session Chair: **Beatrice Fraboni**, Department of Physics and Astronomy, University of Bologna, Italy

R16-1 (10:30, invited) The Effects of Low and High Temperature Annealing in CdZnTe Detector
K. Kim, S. Hwang, *Korea University, Republic of Korea*; A. E. Bolotnikov, *Brookhaven National Laboratory, USA*; R. B. James, *Savannah River National Laboratory, USA*

R16-2 (10:50) CdTe/CdZnTe Detector Crystals Quality Search by Using Nondestructive Methods
M. Sowinska, G. Hennard, L. Mengus, *EURORAD, France*; P. Siffert, *E-MRS Headquarters, France*

R16-3 (11:05) Interaction of Point Defects with Dislocations in CdTe and Nucleation of Te Precipitates
K. Kweon, V. Lordi, *Lawrence Livermore National Lab, USA*

R16-4 (11:20) Twin-Shaping Filter Technique Applied to CZT Detectors Grown by the Vertical Bridgman Method
N. Auricchio, E. Caroli, F. Schiavone, A. Basili, J. B. Stephen, *INAF, Italy*; A. Zappettini, *CNR, Italy*

R16-5 A Comparison of Point Defects and Their Effects on Transport Properties in CdTe- Based Crystals Grown by the Bridgman and Traveling Heater Methods
R. Gul[1,2], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], S. U. Egarievwe[2], A. Hossain[1], U. N. Roy[1], G. Yang[1], P. Vanier[1], R. B. James[1,3]
[1]Brookhaven National Laboratory., United States; [2]Alabama A&M University, United States; [3]Savannah River National Laboratory, United States

R16-6 (11:50) Combined Computational/Experimental Study of Semiconductor-Metal Contact Interfaces in TlBr Radiation Detectors
K. G. Ray[1], J. B. Varley[1], A. M. Conway[1], A. J. Nelson[1], L. F. Voss[1], E. L. Swanberg[1], R. T. Graff[1], S. A. Payne[1], H. Kim[2], L. Cirignano[2], K. Shah[2], Z. Dai[1], V. Lordi[1]
[1]Lawrence Livermore National Laboratory, USA; [2]Radiation Monitoring Devices, Inc., USA

R16-7 (12:05) Concluding Comments
R. B. James, M. Fiederle
Savannah River National Laboratory, USA

WKSP Program

Satellite Workshops

(WKSP) Instrumentation and Measurement in Nuclear Environments (Reactors, Fuel Cycles and Safeguards)

NE1 Advanced Measurements and Instrumentation for Reasearch Reactors

Sunday, Oct. 30 08:30-11:15, Londres

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Patrick Le Du, IPNL,IN2P3, France

NE1-1 (08:30) Key Technologies Challenges and Prospective for Nuclear Measurements in Reactors and Fuel Facilities
M. Morichi
International Expert in Nuclear Instrumentation and Measurements, France

NE1-2 (09:15) State of the Art of the CEA R&D for Instrumentation and Measurements in Experimental Nuclear Reactor
C. Destouches, *CEA-Cadarache, France*

NE1-3 (09:45) Energy Rate Induced by Nuclear Ray-Matter Interactions. How to Improve Its Measurement Inside MTRs
C. Reynard-Carette
Aix Marseille Université, CNRS, Université de Toulon, IM2NP UMR 7334, FRANCE

NE1-4 (10:15) Neutron Flux Monitoring Using Self-Powered Neutron Detectors: Modeling and Validation
L. Vermeeren, *SCK•CEN, Belgium*

NE1-5 (10:45) Recent Achievements in Single Neutron Counting Using CMOS Cameras and Future Developments
P. Mutti, E. Ruiz Martinez, P. Van Esch
Institut Laue-Langevin, France

NE2 Non Destructive Assay for material, fuel and radiactive wastes Characterization and Control

Sunday, Oct. 30 10:30-12:00, Londres

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Massimo Morichi, HPS, ANIMMA, ANS, France

NE2-1 (10:30) Developments of Nondestructive Nuclear Measurements in the Nuclear Industry and for Homeland Security
B. Pérot, *CEA, DEN, Cadarache, France*

NE2-2 (11:00) Imaging of Special Nuclear Material Inside and Outside of Nuclear Reactors by Muon Scattering Tomography
K. Borozdin[1], C. Morris[2], H. Miyadera[3], C. Milner[4], Z. Lukic[5], J. Bacon[2], E. Guardincerri[2], V. Iyer[1], J. Perry[2], M. Saltus[1]
[1]Decision Sciences International Corporation, United States; [2]Los Alamos National Laboratory, United States; [3]Toshiba Corporation Power Systems Company, Japan; [4]Southern Methodist University, United States; [5]Lawrence Berkeley National Laboratory, United States

NE2-3 (11:30) Preliminary Results on the Irradiation Test for Innovative Proliferation Resistant U-Mo/Mg Fuel
V. Golovko, P. Pfeiffer, J. Budgell, X. Wang
Canadian Nuclear Laboratories, Canada

NE3 Innovative Sensors and Detection Devices

Sunday, Oct. 30 14:00-16:30, Londres

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Paolo Mutti, Institut Laue-Langevin ,

NE3-1 (14:00) Thermal and Fast Neutron Detectors : a Comparison Between Silicon-Carbide and Diamond
L. Ottaviani, O. Obraztsova, V. Vervisch, *Aix Marseille University, France*; A. Klix, *KIT, Germany*; R. Prokopowicz, *NCBJ, Poland*; A. Lyoussi, *INSTN, France*

NE3-2 (14:30) Modelling of a Self-Powered Detector for Fast Neutrons
P. Raj, *Karlsruhe Institute of Technology, Germany*

NE3-3 (15:00) Neutron Measurement Instrumentation Development at KIT for the EU ITER TBM
A. Klix[1], M. Angelone[2], U. Fischer[1], D. Gehre[3], A. Lyoussi[4], P. Raj[1], T. Reimann[1], D. Szalkai[1], K. Tian[1]
[1]Karlsruhe Institute of Technology, Germany; [2]ENEA C.R., Italy; [3]Technical University of Dresden, Germany; [4]CEA, France

NE3-4 (15:30) Room Temperature Large Sensitive Area High Resolution Spectroscopic Silicon Drift Detectors
A. G. Vacchi, *INFN - Trieste Italy, Italy*
On behalf of the REDSOX

NE3-5 (16:00) Diamond-like Heat Spreaders in the Form of Cheap Synthetic Graphite Tape for Cooling of Instrumentation in Radiation Intense Environments
W. de Boer, C. Beskidt, S. Maier, *KIT, Germany*

(WKSP) Detectors for Ultra-Rare Event Processes

UR1 Light detection in Noble Gas Experiment (Part I)

Sunday, Oct. 30 08:30-10:10, Madrid

Session Chair: **Luca Grandi**, University of Chicago, United States

UR1-1 (08:30) Photodetectors for the XENON1T Dark Matter Experiment
Y. Wei, *Zurich University, Switzerland*
On behalf of the XENON1T Collaboration

UR1-2 (08:55) The PandaX Project for Dark Matter and Neutrinoless Double Beta Decay
K. Giboni, *Shanghai Jiao Tong University, China*
On behalf of the PandaX Collaboration

UR1-3 (09:20) Development of Photomultipliers for the XMASS Experiment
S. Moriyama, *Institute for Cosmic Ray Research, The University of Tokyo, Japan*
On behalf of the XMASS Collaboration

UR1-4 (09:45) Light Detection Technologies for the DarkSide Experiment
G. Fiorillo[1,2], *[1]Università degli Studi di Napoli Federico II, Italy; [2]INFN, Italy*
On behalf of the DarkSide Collaboration

UR2 Light detection in Noble Gas Experiment (Part II)

Sunday, Oct. 30 10:30-12:10, Madrid

Session Chair: **Elena Aprile**, Columbia University,

UR2-1 (10:30) ArDM, a Ton-Scale Liquid Argon Detector for Direct Dark Matter Searches
C. Regenfus, *ETH Zurich, Switzerland*
On behalf of the ArDM collaboration

UR2-2 (10:55) Single-Photon Counting in Dark Matter Search: DEAP-3600 Achievements and Promising Light Detector for the Next Generations.
P. Gorel, *SNOLAB, Canada*
On behalf of the DEAP-3600 Collaboration

UR2-3 (11:20) The Low-Background Detector EXO-200
T. Brunner, *McGill University, Canada*
On behalf of the EXO-200 Collaboration

UR2-4 (11:45) Status and Prospects of the NEXT Experimental Program
J. J. Gomez-Cadenas, *IFIC (CSIC-UV), Spain*
On behalf of the NEXT collaboration

UR3 Light detection in Other Technique Experiments

Sunday, Oct. 30 14:00-14:50, Madrid

Session Chair: **Luca Grandi**, University of Chicago, United States

UR3-1 (14:00) The liquid argon scintillation light instrumentation of GERDA Phase II
S. Schönert, *Technische Universität München, Germany*

UR3-2 (14:25) The Central Detector of JUNO
Y. Heng, *Institute of High Energy Physics, China*
On behalf of the JUNO

UR4 Light detection: new directions (Part I)

Sunday, Oct. 30 14:50-15:40, Madrid

Session Chair: **Luca Grandi**, The University of Chicago,

UR4-1 (14:50) Silicon Photomultipliers for nEXO and Other Rare Event Searches
I. Ostrovskiy, *University of Alabama, USA*
On behalf of the nEXO collaboration

UR4-2 (15:15) New Directions in Noble-Liquid Detectors of Rare Events
L. Arazi, *Weizmann Institute of Science, Israel*

UR5 Light detection: new directions (Part II)

Sunday, Oct. 30 16:10-17:25, Madrid

Session Chair: **Elena Aprile**, Columbia University,

UR5-1 (16:10) Low Dose 3 Gamma Medical Imaging for Small Animals with the XEMIS2 Single- Phase Liquid Xenon Compton Camera
L. Gallego[1], J. P. Cussonneau[1], D. Thers[1], L. Scotto Lavina[1], J. Masbou[1], E. Morteau[1], N. Beaupere[1], L. Virone[1], P. Leray[1], J.-S. Stutzmann[1], S. Bouvier[1], S. Acounis[1], F. Lefevre[1], D. Roy[1], O. Lemaire[1], S. Bassetto[2], P. Briend[2], M. Staempflin[2], J. Butterworth[2], T. Carlier[3], M. Cherel[4], F. Kraeber-Bodere[3], H. Mathez[5], L. Royer[5], Y. Xing[1], A. Bongrand[1], N. Pillet[5], H. Chanal[5], M. Dahoumane[6], R. Vandaele[5], S. Mihara[7], T. Tauchi[7]
[1]Subatech, Ecole des Mines de Nantes, CNRS/IN2P3, France; [2]Air Liquide Advanced Technologies,, France; [3]Centre Hospitalier Universitaire de Nantes, France; [4]INSERM U892, France; [5]LPC, France; [6]IPNL Université de Lyon, France; [7]High Energy Accelerator Research Organization (KEK), Japan

UR5-2 (16:35) Innovative Devices for Amplification of Ionisation Charge in Liquid Argon Time Projection Chamber Detectors
A. Fava, *Fermilab, United States*; F. Pietropaolo, *CERN, Switzerland*

UR5-3 (17:00) The Performance of ABALONE Photosensors for the Detection of Ultra-Rare Processes
D. Ferenc, A. Chang, *University of California, Davis, USA*; M. Segedin Ferenc, *PHOTONLAB, Inc., USA*

(WKSP) Technology Frontier for Single Photon Detection and Advanced Scintillator Timing

SP1 Challenges and Demands on fast and large area Photon Detection Devices: the point of industrials

Friday, Nov. 4 08:00-09:40, Londres

Session Chairs: **Karl Ziemons**, FH Aachen University of Applied Sciences, Germany
Etiennette Auffray, CERN, Switzerland
Lorenzo Fabris, Oak Ridge National Laboratory, United States
Fabrice Retiere, TRIUMF, Canada

SP1-1 (08:00) Fast Timing with Scintillators: Towards 10ps Coincidence Time Resolution for Pet?
P. Lecoq, *CERN, Switzerland*

Fast Advanced Scintillator Timing - Overview of the Working Group Photodetectors
E. Charbon, *TU Delft, Netherlands*
On behalf of the FAST network a COST TDP Action

SP1-2 (08:40) Silicon Photomultipliers (SiPM) for Timing and Scintillation Applications
J. Murphy, *SensL Technologies Ltd., Ireland*; C. Jackson, D. Herbert, ,

SP1-4 (08:55) Introduction of KETEK's latest SiPM generation and Evaluation Kits
W. Hartinger, C. Dietzinger, T. R. Ganka, F. Schneider, P. Iskra, E. Engelmann, S. Loebner, W. Gebauer, A. Márquez Seco, F. Düsberg, F. Wiest
KETEK GmbH, Germany

SP1-5 (09:10) New Silicon Photomultiplier Technologies and Time-Resolution Measurements Techniques
F. Acerbi, A. Ferri, A. Gola, G. Zappala, C. Piemonte, N. Zorzi
FBK, Italy

SP1-7 (09:25) Progress in Development of a Solar-Blind Photosensor for Readout of the Fast Scintillation Component of Barium Fluoride
D. Hitlin, K. Flood, J. H. Kim, J. Trevor, *Caltech, USA*; M. Hoenk, J. Hennessy, A. Jewell, *Jet Propulsion Laboratory, USA*; M. McClish, *RMD, Inc., USA*

SP2 Performance Measurements of new Single Photon Detection Devices

Friday, Nov. 4 10:30-12:25, Londres

Session Chairs: **Karl Ziemons**, FH Aachen University of Applied Sciences, Germany
Etiennette Auffray, CERN, Switzerland

SP2-1 (10:30) Influence of SiPM Single Photon Timing Resolution on Coincidence Timing Resolution with Fast Scintillator
D. Philippov[1], E. Popova[1], V. Belyaev[1], P. Buzhan[1], A. Stifutkin[1], S. Vinogradov[2,3,4]
[1]National Research Nuclear University "MEPhI", Russian Federation; [2]Lebedev Physical Institute of the Russian Academy of Sciences, Russian Federation; [3]University of Liverpool, United Kingdom; [4]Cockcroft Institute of Accelerator Science and Technology, United Kingdom

SP2-2 (10:45) Active SiPM– Fast Analogue CMOS SiPM Prototypes with Integrated Amplifiers
E. Popova[1], S. Ageev[2], D. Philippov[1], P. Buzhan[1], A. Stifutkin[1], S. Klemin[1], P. Iskra[3], W. Butler[3], E. Engelmann[4], F. Wiest[3], R. Fojt[3], F. Kayumov[5]
[1]MEPhI, Russia; [2]EXELTEK, Russia; [3]KETEK GmbH, Germany; [4]Universitaet der Bundeswehr Muenchen, Germany; [5]P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russia

SP2-3 (11:00) Precise Metrology of SiPM: Measurement and Reconstruction of Time Distributions of Single Photon Detections and Correlated Events
S. Vinogradov[1,2,3]
[1]Lebedev Physical Institute, Russia; [2]University of Liverpool, UK; [3]Cockcroft Institute of Accelerator Science and Technology, UK

SP2-4 (11:15) 3D Digital SiPM for Precise Single Photon Timing Resolution
J.-F. Pratte, *Universite de Sherbrooke, Canada*
On behalf of the Groupe de Recherche en Appareillage Médical de Sherbrooke (GRAMS)

SP2-5 (11:35) Radiation Damage Studies of SiPMs at Low Temperatures
T. Tsang, T. Rao, C. Woody, S. Stall, M. Chiu, *BNL, USA*

SP2-6 (11:50) Single Photon Detection by Gaseous Counters: Status and Perspectives
S. Dalla Torre, *INFN, Italy*

SP2-7 (12:10) Development of Cherenkov Detectors for PET

V. Sharyy[1], E. Ramos[1], O. Kochebina[1], C. Canot[1], M. Alokhina[1,2], X. Mancardi[1], P. Abbon[1], D. Desforge[1], C. Flouzat[1], J.-P. Mols[1], S. Jan[1], P. Starzinski[1], P. Verrecchia[1], G. Tauzin[1], D. Yvon[1]
[1]CEA, France; [2]Taras Shevchenko National University of Kyiv, Ukraine

SP3 Large area photodetectors

Friday, Nov. 4 14:00-16:00, Londres

Session Chairs: **Lorenzo Fabris**, Oak Ridge National Laboratory, United States
Fabrice Retiere, TRIUMF, Canada

SP3-1 (14:00) Fast Timing for Dark Matter Search in LXe with Pulse Shape Discrimination
K. L. Giboni, H. Kusano, *Shanghai Jiao Tong University, China*; A. Banjongkan, P. Namwongsa, S. Rujirawat, *Suranaree University of Technology, Thailand*

SP3-2 (14:15) Understanding SiPM Instrumentation and Why SiPMs May Not Replace PMTs
L. Fabris[1], G. De Geronimo[2], R. DeVoe[3], S. Li[2], V. Radeka[2], F. Retiere[4], G. Visser[5], L. Yang[6]
[1]Oak Ridge National Laboratory, USA; [2]Brookhaven National Laboratory, USA; [3]Stanford University, USA; [4]TRIUMF, Canada; [5]Indiana University Bloomington, USA; [6]University of Illinois Urbana-Champaign, USA

SP3-3 (14:40) Large Area VUV-Sensitive MPPCs for Liquid Xenon Detector in MEG II Experiment
S. Ogawa, *The University of Tokyo, Japan*
On behalf of the MEG II Collaboration

SP3-4 (15:00) Silicon Photomultipliers in Astroparticle Experiments
N. Otte, *Georgia Institute of Technology, USA*

SP3-5 (15:20) The DarkSide Photodetection Program
A. Razeto, *Laboratori Nazionali del Gran Sasso, Italy*
On behalf of the DarkSide Collaboration

SP3-6 (15:40) Large Area Low Power Photodetector Based on 3D Digital SiPM
S. A. Charlebois, *Université de Sherbrooke, Canada*
On behalf of the Groupe de Recherche en Appareillage Médical de Sherbrooke (GRAMS)

SP4 Projects Perspectives for Young Researchers

Friday, Nov. 4 16:30-16:30, Londres

Session Chairs: **George K. Loudos**, Department of Biomedical Technology, Technological Educational Institute of Athens, Greece
Charalampos Tsoumpas, University of Leeds, United Kingdom
Maria Georgiou, Department of Nuclear Medicine, Medical School, University of Thessaly, Greece, Greece

(WKSP) Academia meets industry forum

AI1 Academia Industry Matching Forum I

Tuesday, Nov. 1 08:00-10:00, Varsovie

Session Chairs: **Jean-Marie H. Le Goff**, CERN - European Organization for Nuclear Research, Switzerland
Maxim P. Titov, CEA Saclay, IRFU/SPP,

AI1-1 (08:00) Modular High Energy X-Ray Imagers
P. Seller, M. D. Wilson, D. D. Duarte, L. L. Jones, M. Prydderch, S. L. Thomas, M. C. Veale, I. Sedgwick, S. Richards, R. Turchetta, B. Marsh, *STFC-Rutherford Appleton Laboratory, United Kingdom*; G. Royle, *University College London, United Kingdom*

AI1-2 (08:30) Development of a MR-Compatible DOI-TOF Detector Module for PET Imaging Systems
T. Xu[1,2], Q. Wei[3], G. Gong[1,2], Z. Deng[1,2], S. Wang[1,2], Y. Liu[1,2], T. Ma[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China; [3]University of Science and Technology Beijing, China

AI1-3 (09:00) easyPET: a Novel Concept for an Affordable Tomographic System
V. Arosio[1], M. Caccia[1], F. I. Castro[2], P. M. M. Correia[2], C. Mattone[1,3], L. M. Moutinho[2], R. Santoro[1], A. L. M. Silva[2], J. F. C. A. Veloso[2]
[1]Università degli Studi dell'Insubria, Italy; [2]Univerdisade de Aveiro, Campus Universitario de Santiago, Portugal; [3]CAEN S.p.a., Italy

AI1-4 (09:30) MMPDS: First Commercially Available System for Muon Scattering Tomography
K. N. Borozdin, *Decision Sciences International Corporation, United States*
On behalf of the Decision Sciences

AI2 Academia Industry Matching Forum II

Tuesday, Nov. 1 10:30-12:30, Varsovie

Session Chairs: **Jean-Marie H. Le Goff**, CERN - European Organization for Nuclear Research, Switzerland
Maxim P. Titov, CEA Saclay, IRFU/SPP,

AI2-1 (10:30) A Modulated X-Ray Generator for Possible Industrial Applications
T. Tamagawa, *RIKEN, Japan*
On behalf of the CCNS-MXS collaboration

AI2-2 (11:00) RHIP, a Radio-Controlled High-Voltage Insulated Picoammeter
S. Dalla Torre, B. Gobbo, S. Levorato, G. Menon, F. Tessarotto
INFN Trieste, Italy

AI2-3 (11:30) Technology Frontier for Fast Advanced Scintillator Timing
K. Ziemons, *FH Aachen University of Applied Sciences, Germany*
On behalf of the COST Action FAST Collaboration

AI2-4 (12:00) Ultrafast Radiotherapy Device
G. M. Grittani, T. Levato, C. M. Lazzarini, G. Korn
ELI-Beamlines, Czech Republic