2011 IEEE International Ultrasonics Symposium

(IUS 2011)

including Short Courses and Exhibition

Caribe Royale All-Suite Hotel & Convention Center

Orlando, Florida, USA

October 18-21, 2011

Sponsored by the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society (UFFC-S)

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Welcome from the General Co-Chairs

Ken-ya Hashimoto
Chiba University

Clemens Ruppel
EPCOS AG,

The 2011 IEEE International Ultrasonics Symposium will be held in Orlando at the Caribe Royale from October 18 - 21, 2011. In March 2011, based on extensive uncertainty resulting from the M-9 earthquake that devastated part of Japan, the IEEE UFFC AdCom approved the grave decision to move venue from the original choice (Kobe, Japan) to a backup venue in the USA. The decision to shift the venue was supported by the central Conference Management function within the entire IEEE and many of the local Japanese representatives associated with planning the meeting. The IEEE UFFC society is committed to returning the conference to Japan in 2014, approval of UltraCom and AdCom is pending though.

When you think of Orlando, the first thing that probably comes to mind is Disney. The Walt Disney World® Theme Parks offer vacationers a magical and memorable experience. THE CARIBE™ provides complimentary scheduled shuttle service to the parks, and evening shuttles to the Downtown Disney® area–both located 1.5 miles from the hotel. But there are more theme parks like Universal Studios, and Seaworld.

Aside from the amusement parks and themed attractions, Orlando plays host to a wealth of significant cultural and artistic events. Enjoy the selected works of prominent masters as well as local artisans at one of the many galleries, museums and theaters located within the city. Delight your senses with a tour through a southern style garden at the Harry P. Leu Gardens.

For a pre or post symposium tour we recommend Kennedy Space Center. The launching pad of America's space program, the Kennedy Space Center invites guests to experience the wonders of space firsthand at their state-of-the-art facility near Orlando. Featuring a captivating array of informative exhibits and multimedia presentations, the Center will delight visitors of all ages as it leads them on a journey from the very first space mission to next scheduled shuttle excursion.

Florida and especially Orlando has a lot of attractions for everybody at every age.

Please come to Orlando and attend the 2011 IEEE International Ultrasonics Symposium, 18-21 October, 2011!

Ken-ya Hashimoto and Clemens Ruppel

Welcome from the Technical Program Chair

Yook-Kong Yong,
Rutgers University

Ultrasonics is on the Move! We look forward to an increasing impact of Ultrasonics in numerous emerging technical disciplines. The research community, the industry, and the universities are challenged to invent and develop improved and innovative concepts to efficiently address and solve the many new problems associated with a growing number of novel applications.

We welcome you to the 2011 IEEE International Ultrasonics Symposium which will be held in Orlando, Florida, USA, October 18-21, 2011 to bring together experts in theory and techniques of Medical Ultrasonics, Sensors, NDE & Industrial Applications, Physical Acoustics, Surface Acoustic Waves, and Transducers & Transducer Materials from all over the world.

The IEEE International Ultrasonics Symposium has a tradition of fostering direct, personal contact among the attendees thanks to its unique format with educational short courses, a plenary opening session, open forum presentations, focused sessions, and five sets of parallel sessions. A special student paper competition will be held. The Technical Program Committee will choose twenty-one student paper finalists to join the final competition at the Symposium. Seven winners will be chosen to receive a Best Student Paper award.

Yook-Kong Yong

Symposium Organizing Committee

Finance Co-Chairs

Daniel Stevens, Vectron International

Short Course Chair

Pai-Chi Li, National Taiwan University

Proceedings Chair

Robert Weigel, Friedrich-Alexander University of Erlangen-Nuremberg

Exhibition Chair

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Helmut Ermert, Ruhr University
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Jan Kuypers, Sand 9

Local Arrangements Co-Chairs

Ben Abbott, Triquint

Kimon Anemogiannis

Shen Jen, CPI

Guest Program Chair

Mei Yuin (Hanna) Foo

Symposium Management

YesEvents
Mira Digital Publishing
Gerotron

Exhibitors

Exhibition Schedule:

Wednesday, October 19, 2011: 8:00 a.m. – 5:00 p.m.
Thursday, October 20, 2011: 8:00 a.m. – 5:00 p.m.
Friday, October 21, 2011: 8:00 a.m. – 12:00 noon

List of Exhibitors at the 2011 IEEE International Ultrasonics Symposium, as of July 20, 2011:

1	ACERTARA Acoustic Laboratories	USA
2	AMSystems	USA
3	ALPINION US	USA
4	Electronics Innovation Ltd	USA
5	IEEE-UFFC & Gerotron Communications	
6	IMASONIC	France
7	Lecoeur Electronique	France
8	MEGGITT Sensing Systems	Switzerland
9	ONDA	USA
10	Polytec	USA
11	PRECISION ACOUSTICS	UK
12	Shanghai APEX Electronics Technology	China
13	SONIC CONCEPTS	USA
14	TEXAS INSTRUMENTS / Medical Imaging Group	USA
15	ULTRASONIX	Canada
16	Verasonics	USA
17	WEIDLINGER ASSOCIATES – PZFlex	USA
18	Winprobe	USA

Plenary Session

8:00 a.m. – 9:30 a.m., Wednesday, October 19, 2011
Carribean Ballroom

Welcome:
Conference organizers and others
UFFC-S President

Awards and Recognitions:

IEEE Awards:
IEEE Fellow Award 2011

IEEE UFFC Society Awards:
Achievement Award 2011
Distinguished Service Award 2011
Outstanding Paper Award 2010
2011-2012 Distinguished Lecturer Award

Ultrasonics Award:
Rayleigh Award 2011

Plenary Speaker:
Title of Presentation: Single Crystals for Medical Applications
Author: Bruce Chai
Crystal Photonics

Abstract: Single crystal is really not the desirable form of materials for any medical application unless there is really no other form of material that can offer the same or comparable performance at lower cost. The reason is simple. Crystals are expensive to make and it has limited physical dimensions. Still, single crystals are being used in both therapeutical and diagnostic applications.

The most common use of single crystals for therapeutical purpose is solid-state lasers. It is based on its unique property to deliver high peak power, short pulses under either Q-switched or mode-locked conditions. Single crystals used for this purpose include Nd-YAG, Er-YAG, CTH-YAG, Ruby, T-sapphire and Alexandrite. All these crystals are produced by CZ melt pulling technique under high temperatures near and over 2,000°C. The primary usage is for surgery, ophthalmology as well as for skin treatment. Even though the total number of laser systems is large, the total quantity (or net volume) of crystal materials used in these instruments is relatively small.

Single crystals used for diagnostic purpose are based either on its piezoelectric properties or scintillating properties. Ultra-sound scanner is one of the most common equipment in all hospitals PZT ceramics were the primary materials used as transducers in these scanners in the past. In recent years, it is gradually replaced by the lead-based single crystals such as PZN-PT and PMN-PT primarily for the high-end scanners. Both of these crystals were grown by vertical Bridgman techniques in sealed Pt-capsules. Again, the total number of ultrasonic scanners can be very large, but the amount (or net volume) of material used in each scanner is quite small.

The only medical application that uses fairly large quantity of single crystals is in medical imaging process based on the scintillating properties for gamma-ray radiation detection. X-ray has such a low energy (< 100 KeV) so that thin film (sub-mm in thickness) of scintillating ceramics is more than enough to capture the radiation. Gamma-ray has much higher radiation energy (> 500 KeV), it is necessary to use thick (cm in thickness) and high density materials in order to have sufficient stopping power. Moreover, once the gamma-ray is captured and scintillating emission is generated, it is needed to transmit the light to the photo-detectors. On cm scale in thickness, the best material to have the least scatter and highest transparency is single crystals. Today, SPECT uses large size (over 40 x 50 cm^2 in area) NaI(Tl) single crystal screen, while PET uses more than ten thousand cm long pixilated detectors to form a detector ring for each scanner. While BGO has been the crystal for PET scanners in the past, the new generation ToF scanners have all but replacing BGO detectors with LSO or LYSO detectors.

Single crystals will continue to be used in medical application but in constant threat to be replaced by other cheaper form materials. It is a very uncomfortable position to be in this business. For the specific examples mentioned here, it appears that they may stay in business for some time since there is really no known new materials on the horizon to replace them yet.

Biography of the Author:

Bruce Chai
Crystal Photonics

Dr. Bruce Chai is currently the President and CEO of Crystal Photonics. He is also the founder of the company.

Dr. Chai was born in 1947 in Shanghai and then moved to Taiwan with his parents. He got his B.S. degree in 1969 from National Taiwan University major in Geology. He then went to Yale University in 1970 for graduate studies and got his Ph.D. degree in 1975 major in Geology and Geophysics.

After a brief period as Post Doctor at Yale, he was recruited by Allied Chemical Corporation (now Honeywell Corporation) and joined the company in 1977. At the company, he is responsible for the research on single crystals for optics, acoustics and other applications. He was recruited again by CREOL (Center for Research in Electro-Optics and Lasers) of University of Central Florida (UCF) in 1988 and joined UCF as Professor of Physics, Electric Engineering and Mechanical Engineering in 1989.

In 1995, Professor Chai found Crystal Photonics, Inc. The Company is an OEM specialized in manufacture of optical single crystals for sensors, detectors, lasers and electro-optical applications. Currently, the company's primary product is the customized gamma-ray scintillating detector for high-end PET (Positron Emission Tomography) and PET/CT scanners. He also set up a plant in China for crystal fabrication and detector assembling.

Professor Chai is a Fellow of the Optical Society of America, a foreign member of the Russia Academy of Engineering and a honorary Professor of Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences and also Fujian Institute of Structural Matters, Chinese Academy of Sciences. Over his career, Professor Chai has published more than 200 papers and has awarded over 35 U.S. patents.

Closing Ceremony

18:30 – 19:30, Friday, October 21, 2011, Carribean Ballroom

IUS 2011 will hold a Closing Ceremony on Friday, October 21, 2011, 18:30-19:30 in the Carribean Ballroom. The Closing Ceremony will mark the official close of the contributed Technical Program of IUS 2011. We invite all participants of the Ultrasonics Symposium to join us and enjoy some refreshments which are sponsored by PZFlex (www.pzflex.com/). The highlight of the Closing Ceremony will be a presentation by Prof. Hunt from Georgia Tech on Application of SAW Devices for Bio and Medical Sensing.

The Closing Ceremony presents an opportunity for the IUS 2011 Organizing Committee to thank all the attendees for their contributions to making IUS 2011 a success. We will also introduce the IUS2012 Organizing Committee so that they can tell you all about next year's IUS 2012 in Dresden, Germany.

For updates on the agenda please check the symposium website (http://ewh.ieee.org/conf/ius_2011/).

Conference Venue

Caribe Royale All-Suite Hotel & Convention Center

The Caribe Royale is located on more than 53 lush, tropical acres. Guests will discover 1,218 spacious, well-appointed one-bedroom suites, 120 luxurious two-bedroom lakeside villas, expansive state-of-the-art meeting and event facilities, unmatched hospitality and service, and a wealth of desirable dining options and hotel amenities that will appeal to both families and business professionals alike. And it all can be found just minutes from the area's world famous theme parks and attractions.

Caribe Royal Orlando
8101 World Center Drive
Orlando, FL 32821, USA
Tel. +1 407-238-8000
Fax. +1 407-238-8050
http://www.thecaribeorlando.com

Conference Registration

Registration Type	By Sept 18, 2011	After Sept 18, 2011
IEEE Member	$600	$750
Non-IEEE Member	$800	$950
Student (Show Student ID at Conference)	$175	$275
Retiree	$175	$275
One-Day Registration*	$350	$425
Life IEEE Member**	$90	$90
Exhibitor ***	free	free
Visitor for Exhibition	$25	$25
Guests/Additional Exhibitors	$100	$100
A Registrant May Add: - Additional DVD Proceedings: **** - Short Courses: Regular Student/Retiree	 $75 each $200 each $75 each	 $75 each $300 each $125 each

Notes:

- * One-Day Registration includes sessions for the day of registration only. The Wednesday Reception and the Thursday Dinner are optional at $45.00 and $60.00, respectively. DVD proceedings are not included.
- ** Life Member is defined by IEEE as at least 65-year old and the age plus years of IEEE membership should be equal or greater than 100. Life members should show their IEEE Life Member card or evidence of Life Membership when getting registration materials. The Wednesday Reception and the Thursday Banquet are optional at $45.00 and $60.00, respectively. (See the registration form).
- *** One Exhibitor per booth gets a full free registration for the symposium. Additional exhibitors (up to 4 per booth) have to be registered, either as a full registrant or as an additional exhibitor.
- A Full Registration will also include The Wednesday Reception and Thursday Banquet (October 19-20, 2011).
- Guest/Additional Exhibitors Registration includes the Wednesday Reception and three guest meetings. Guests are NOT allowed to attend any technical sessions except for the Wednesday morning plenary session.
- For those who register for Short Courses Only, they will NOT get a badge or any conference materials such as books and meal/show tickets, and will NOT be allowed to register for guests or to attend any technical sessions.
- As indicated in the table above, students are required to show their valid identifications (IDs) to the registration desks to qualify for the student rates and get any registration materials.
- **IMPORTANT NOTICE:** Because arrangement for the Wednesday Reception and Thursday Banquet must be fixed one month before the Symposium, late on-site registration may result in disable to join the occasion. Thus advance registration is strongly recommended.
- **** A Full Registration (IEEE Member, Non-IEEE Member, Student, Retiree, or Life IEEE Member) will include one DVD conference proceedings. If you need additional DVD proceedings, you may order them when you register. A printed version of the Proceedings will only be available by ordering directly from the IEEE after the Symposium.

Introduction:

The deadline for early conference registration with discount registration fees is September 18, 2011 (midnight, Pacific Standard Time). After September 18, 2011, attendees with credit cards (Visa, Master, or American Express) can continue to register on-line at higher fees until October 1, 2011 after which on-line registration ends. Also, registrations via fax or mail will not be accepted after October 1, 2011 (9:00 a.m., Eastern Standard Time), and these attendees are requested to register on-site.

Registration Cancellation and Refund Policy:

There will be a $25.00 USD service charge to process refunds for those who have pre-registered but who are unable, for whatever reason, to attend the conference, or those who would like to make changes to the registration resulting in a refund. A letter requesting the refund should state the registrant's name and to whom the refund check should be made payable. No refunds will be given for requests RECEIVED after September 27, 2011 (9:00 am, Eastern Standard Time). FAX the letter to 2011 IEEE International Ultrasonics Symposium at

1-410-559-2217

Online Registration Link:

https://www.yesevents.com/ius/

Visa Application

Visa requirements: The US has updated its visa policies to increase security, so it may take you 3-6 months to apply for and receive your visa. For details that apply specifically to your country, please go immediately to your nearest US Consulate or Embassy. Review your visa status now to determine if you need a US visa or visa renewal and to find out how to schedule an interview appointment, pay fees, and other vital instructions. If you need a personal letter of invitation to attend the Conference, contact the Conference Coordinators by email at: IUSInfo@yesevents.com. Please provide the following information: complete name, mailing address, and any other details that your country of residence requires for your visa application. Only an original copy (not faxed or email version) of the letter of invitation may be accepted with your visa application. The Symposium cannot contact or intervene with any U.S. Embassy or Consulate office abroad on your behalf, so please begin your visa application process as soon as you determine that you want to attend the 2011 International Ultrasonics Symposium. All nationals and citizens of countries included in the Visa Waiver Program (VWP) who plan to travel to the U.S. for temporary business or pleasure for 90 days or less are not required by law to obtain a Visa prior to initiating travel to the United States, but must meet eligibility requirements to travel without a visa on VWP and, therefore, some travelers from VWP countries are not eligible to use the program. VWP travelers are required to have a valid authorization through the Electronic System for Travel Authorization (ESTA) prior to travel, are screened at the port of entry into the United States, and are enrolled in the Department of Homeland Security's US-VISIT program. This authorization can be obtained online through the **Electronic System for Travel Authorization** (ESTA), an Internet application administered by the U.S. Department of Homeland Security. For additional information about the ESTA please visit http://www.cbp.gov/esta. Travelers from countries not in the VWP are still required to obtain a Visa prior to entry into the United States.

Local Transportation

From Orland International Airport
Taxis, rental cars, buses, and shuttles are available for transportation between the Orlando International Airport (MCO) to International drive. Please refer to the link below for detailed information.

http://www.orlandoairports.net/transport/local_transport.htm

For Travelers arriving by Car
For individuals arriving by car, The Caribe Royale's website provides additional directions.

http://www.thecaribeorlando.com/area-directions

Local Shuttle Buses
After arriving at the conference hotel, the hotel provides a complimentary shuttle bus to near-by destinations. From the nearby Orlando Premium Outlet Mall, the I-Drive shuttle service is also available for transportation to additional local destinations for a low fee. I-Drive Shuttle passes for one to 14 days may be purchased in advance at the hotel. A single fare may be purchased for $1.25 when boarding the trolley. Please provide exact change.

Nearby Food and Shopping

The area near the Caribe Royal offers many options for dining and shopping. The hotel is home to nine restaurants and cafes, with additional dining options within walking distance.

http://www.thecaribeorlando.com/caribe-royale/dining/

The hotel's complimentary shuttle service, and the I-Drive Shuttle (see local transportation) provide transportation to other dining options and popular shopping destinations.

Orlando Weather

Typical Orlando Weather
The rainy season for Orlando is normally over by early October and temperatures begin to drop. Daily temperatures typically vary from a low of 19°C to a high of 23°C (75F to 84F). Precipitation for the month of October is generally light with fewer than 5 days having greater than 3mm (0.1in) of rainfall.

Wednesday Reception & Thursday Banquet

The Reception On Wednesday October 19th and the Banquet on Thursday October 20th are for all full registration guests and others who paid separately for this event will be welcome with their ticket. The Reception and the Banquet will be held in the Grand Sierra A-D and will start at 19:00 p.m. and 21:00 p.m., respectively. If you would like a vegetarian menu please let the registration desk know.

Guest Program

Excursions to local attractions are available daily. Popular attractions include The Walt Disney World Magic Kingdom, Epcot Center, Animal Kingdom, Sea World, Universal Studios and others. No reservations are required. Admission tickets may be purchased upon arrival to the theme parks, or purchased at any of the four Guest Service Desks in the hotel. A complimentary shuttle provides transportation, between the hotel and these destinations (See Local Transportation above).

For a detailed list of excursion choices, refer to the link below.

http://www.thecaribeorlando.com/things-to-do/

A tour of the Kennedy Space Center is also available. You may register for the tour prior to or during the conference, provided there are seats available on the bus. Tours are available each day. Registration may be done on line or by phone. See the link below for further details.

http://www.kennedyspacecentertours.net/?event=offer.detail&offerId=5831

The tour includes transportation between International drive and Kennedy Space Center in Cape Canaveral, and admission to the visitor center complex. The more convenient pick-up/drop-off location for the bus is the Crossroads Plaza.

Crossroads of Lake Buena Vista
12521 St. Rd 535
Orlando, FL 32821, USA

The Crossroads of Lake Buena Vista is about 2.3 miles from the conference hotel. The hotel's complimentary shuttle is able to provide transportation to the Crossroads plaza. Seating on the shuttle is limited so please plan to arrive early. The bus departs The Double Tree at 8:30 am, and returns at about 7:00 pm. Other pick-up/drop-off locations are available. See the like below for more information.

http://www.kennedyspacecentertours.net/?event=page.pickup&offerId=5831

Other tours may become available. The hotel management is attempting to arrange for additional destinations.

Speaker Ready Room

The schedule of the Speaker Ready Room (Regents Board Room) is as follows:

Tuesday (Oct. 18): 2:00 p.m. – 5:00 p.m. (for short courses)
Wednesday – Friday (Oct. 19-21): 7:30 a.m. – 5:00 p.m.

Please follow closely the instructions on the "Oral Presentation Guide" at the conference website to prepare your presentation and to avoid any technical difficulties.

Oral Presentation Guide

The Oral Presentation Guide on the conference website provides detailed instructions, tips to avoid technical difficulties, and good practices for your presentations. It is accessible via the link "Oral Presentation Guide" at the conference website http://ewh.ieee.org/conf/ius_2011. It is the responsibility of authors to follow the guide closely.

Poster Presentation Guide

The Poster Presentation Guide on the conference website provides information needed to prepare your presentation. It also gives a detailed description of poster labels and their use in finding the location of poster boards. The layout of the poster boards is shown on the floor plan near the end of this booklet. Please check the link "Poster Presentation Guide" at the conference website http://ewh.ieee.org/conf/ius_2011 for details.

Session Chairs / Session Summary Forms

Duties of Session Chairs of both oral and poster sessions can be viewed on the conference website via the link "Session Chairs". Session Summary Forms will be available at the Registration Desk. Session Chairs should fill out a form after each session and return it to the Registration Desk.

Technical Program Committee

The Technical Program Committee consists of the following 149 members:

Group 1: Medical Ultrasonics

Vice Chair of TPC:
Jan D'hooge
Catholic University of Leuven
Leuven, Belgium

Members:

1. **Olivier Basset:** *CREATIS, Université Lyon I, France*
2. **Ayache Bouakaz:** *INSERM, Université Tours, France*
3. **Lori Bridal :** *Univ. Pierre and Marie Curie, France*
4. **Charles Cain:** *University of Michigan, USA*
5. **Jean-Yves Chapelon:** *INSERM, France*
6. **Greg Clement:** *Harvard Medical School, USA*
7. **Paul Dayton:** *UNC Chapel Hill and NC State University, USA*
8. **Emad Ebbini:** *University of Minnesota, USA*
9. **Stanislav Emelinov:** *University of Texas at Austin, USA*
10. **David Evans:** *University of Leicester, UK*
11. **Kathy Ferrara:** *University of California Davis, USA*
12. **Stuart Foster:** *University of Toronto, Canada*

13. **James Greenleaf:** *Mayo Clinic College of Medicine, USA*
14. **Anne Hall:** *General Electric Medical Systems, USA*
15. **Christopher Hall:** *Philips Research North America, USA*
16. **Peter Hoskins:** *The University of Edinburgh, UK*
17. **John Hossack:** *University of Virginia, USA*
18. **Kullervo Hynynen:** *University of Toronto, Canada*
19. **Jorgen Jensen:** *Technical University of Denmark, Denmark*
20. **Nico de Jong:** *Erasmus Medical Centre and University of Twente, The Netherlands*
21. **Hiroshi Kanai:** *Tohoku University, Japan*
22. **Jeff Ketterling:** *Riverside Research Institute, USA*
23. **Michael Kolios:** *Ryerson University, Canada*
24. **Elisa Konofagou:** *Columbia University, USA*
25. **Chris de Korte:** *Catholic Univ. of Nijmegen, The Netherlands*
26. **Nobuki Kudo:** *Hokkaido University, Japan*
27. **Pai-Chi Li:** *National Taiwan University, Taipei, Taiwan R.O.C.*
28. **Jian-yu Lu:** *University of Toledo, USA*
29. **Leonardo Masotti:** *Università degli Studi di Firenze, Italy*
30. **Tom Matula:** *University of Washington, USA*
31. **James G. Miller:** *Washington University in Saint Louis, USA*
32. **Kathy Nightingale:** *Duke University, USA*
33. **Svetoslav Nikolov:** *BK Medical, Denmark*
34. **William O'Brien:** *University of Illinois, Urbana-Champaign, USA*
35. **Georg Schmitz:** *Ruhr-Universität Bochum, Germany*
36. **Ralf Seip:** *Philips Research North America, USA*
37. **Mickael Tanter:** *INSERM, France*
38. **Tom Thomas:** *Boston Scientific, Inc., USA*
39. **Kai Thomenius:** *General Electric's Corporate R&D, USA*
40. **Hans Torp:** *Norwegian University of Science and Technology, Norway*
41. **Piero Tortoli:** *Università degli Studi di Firenze, Italy*
42. **Ton van der Steen:** *Erasmus Medical Centre, Rotterdam, The Netherlands*
43. **Kendall Waters:** *Silicon Valley Medical Instruments, USA*
44. **Keith Wear:** *US Food and Drug Administration, USA*
45. **Wilko Wilkening:** *Siemens Medical Solution, USA*

Group 2: Sensors, NDE, and Industrial Application

Vice Chair of TPC:
Jafar Saniie
Illinois Institute of Technology
Chicago, Illinois, U.S.A.

Members:

1. **Robert C. Addison:** *Rockwell Science Center, USA*
2. **Walter Arnold:** *Fraunhofer Institute for Nondestructive Testing, Germany*
3. **Michal Bezdek:** *Endress+Hauser Flowtec AG, Switzerland*
4. **Ramazan Demirli:** *Villanova University, USA*
5. **James Friend:** *Monash University, Australia*
6. **Eric S. Furgason:** *Purdue University, USA*
7. **David Greve:** *Carnegie Mellon University, USA*
8. **Edward Haeggstrom:** *University of Helsinki, Finland*
9. **Mitsutaka Hikita:** *Kogakuin University, Japan*
10. **Jacqueline Hines:** *Applied Sensor Research and Development Corporation, USA*
11. **Patrick Johnston:** *NASA Langley Research Center, USA*
12. **Fabien J. Josse:** *Marquette University, USA*
13. **Lawrence W. Kessler:** *Sonoscan Inc., USA*
14. **Pierre T. Khuri-Yakub:** *Stanford University, USA*
15. **Mario Kupnik:** *Stanford University, USA*
16. **Jun-ichi Kushibiki**: *Tohoku University, Japan*

17. **Roman Maev:** *University of Windsor, Canada*
18. **Kentaro Nakamura:** *Tokyo Institute of Technology, Japan*
19. **Massimo Pappalardo:** *University di Roma TRE, Italy*
20. **Tony Sinclair:** *University of Toronto, Canada*
21. **Bernhard Tittman:** *Pennsylvania State University, USA*
22. **Jiromaru Tsujino:** *Kanagawa University, Japan*
23. **John F. Vetelino:** *University of Maine, USA*
24. **Paul Wilcox:** *University of Bristol, UK*
25. **William M. D. Wright**: *University College Cork, Ireland*
26. **Donald E. Yuhas**: *Industrial Measurement Systems, Inc., USA*

Group 3: Physical Acoustics

Vice Chair of TPC:
Vincent Laude
Institut FEMTO-ST
Besançon, France

Members:

1. **Manabu Aoyagi:** *Muroran Institute of Technology, Japan*
2. **Art Ballato:** *U.S. Army, USA*
3. **Jan Brown:** *JB Consulting, USA*
4. **Fred Hickernell:** *Retired from Motorola, USA*
5. **Takefumi Kanda:** *Okayama University, Japan*
6. **Eun Sok Kim:** *University of Southern California, USA*
7. **Yonkee Kim:** U.S. Army, USA
8. **Minoru Kuribayashi Kurosawa:** *Tokyo Institute of Technology, Japan*
9. **Amit Lal:** *Cornell University, USA*
10. **John Larson:** *Avago Technologies, USA*
11. **George Mansfeld:** *Russian Academy of Sciences, Russi*a
12. **Roy H. Olsson III:** *Sandia National Laboratories, USA*
13. **Mihir Patel:** *Schlumberger-Doll Research, USA*
14. **Edgar Schmidhammer:** *TDK-EPC, Germany*
15. **Susan Schneider:** *Marquette University, USA*
16. **Bikash Sinha:** *Schlumberger-Doll Research, USA*
17. **Ji Wang:** *Ningbo University, China*
18. **Tsung-Tsong Wu:** *National Taiwan University, Taiwan R.O.C.*
19. **Yook-Kong Yong:** *Rutgers University, USA*
20. **Jiun Der Yu:** *Epson Research and Development, USA*

Group 4: Microacoustics - SAW, FBAR, MEMS

Vice Chair of TPC:
Karl Wagner
TDK-EPC
Munich, Germany

Members:

1. **Ben Abbott:** *Triquint, USA*
2. **Robert Aigner:** *Triquint, USA*
3. **Ivan Avramov:** *Institute of Solid State Physics, Bulgaria*
4. **Sylvain Ballandras:** *FEMTO-ST, France*
5. **Kushal Bhattacharjee:** *RF Micro Devices, USA*
6. **Sunil Bhave:** *Cornell University, USA*
7. **Sergey Biryukov:** *IFW Dresden, Germany*
8. **Paul Bradley:** *Avago Tech, USA*
9. **Jidong Dai:** *RF Monolithics, USA*
10. **Omar Elmazria:** *Universié de Nancy--CNRS, France*

11. **Gernot Fattinger:** *Triquint, USA*
12. **Gerhard Fischerauer:** *University of Bayreuth, Germany*
13. **James Friend:** *Monash University, Australia*
14. **Ken-ya Hashimoto:** *Chiba University, Japan*
15. **Shitang He:** *IACAS, China*
16. **Chunyun Jian:** *Ericsson, Canada*
17. **Michio Kadota:** *Murata, Japan*
18. **Jyrki Kaitila:** *Avago Tech, Germany*
19. **Ilia Katardjiev:** *Uppsala University, Sweden*
20. **Kimmo Kokkonen:** *Aalto University, Finland*
21. **Jan Kuypers:** *Sands 9, Inc., USA*
22. **Ken Lakin:** *Consultant, USA*
23. **Don Malocha:** *University of Central Florida, USA*
24. **Natalya Naumenko:** *Technological University Moscow, Russia*
25. **Hiroyuki Odagawa:** *Kumamoto National College of Technology, Japan*
26. **Takeo Oita:** *Retired from NDK, Japan*
27. **Tuomas Pensala:** *VTT, Finland*
28. **Mauricio Pereira da Cunha:** *University of Maine, USA*
29. **Maximilian Pitschi:** *TDK-EPC AG, Germany*
30. **Viktor Plessky:** *GVR Trade SA, Switzerland*
31. **Leonard Reindl:** *Albert-Ludwigs-University Freiburg, Germany*
32. **Richard Ruby:** *Avago Tech, USA*
33. **Clemens Ruppel:** *TDK-EPC, Germ*any
34. **Takahiro Sato:** *Panasonic Electronic Devices, Japan*
35. **Marc Solal:** *Triquint, USA*
36. **Masanori Ueda:** *Taiyo Yuden, Japan*
37. **Robert Weigel:** *Friedrich-Alexander University of Erlangen Nuremberg, Germany*
38. **Sergei Zhgoon:** *Moscow Power Engineering Institute, Russia*

Group 5: Transducers and Transducer Materials

Vice Chair of TPC:
Paul Reynolds
Weidlinger Associates, USA

Members:

1. **Sandy Cochran:** *University of Dundee, UK*
2. **Christopher Daft:** *Samplify Systems, USA*
3. **Levent Degertekin:** *Georgia Institute of Technology, USA*
4. **Charles Emery:** *Mirabilis Medica, USA*
5. **John Fraser:** *Philips Medical Systems, USA*
6. **Steven Freear:** *University of Leeds, UK*
7. **Jean-Francois Gelly:** *GE Healthcare, France*
8. **Reinhard Lerch:** *Friedrich-Alexander-Universität Erlangen-Nuremberg, Germany*
9. **Geoff Lockwood:** *Queen's University, Canada*
10. **Richard O'Leary:** *University of Strathclyde, UK*
11. **Omer Oralkan:** *Stanford University, USA*
12. **Yongrae Roh:** *Kyungpook National University, Korea*
13. **Ahmad Safari:** *Rutgers University, USA*
14. **Mark Schafer:** *Sonic Tech Inc., USA*
15. **Scott Smith:** *GE Global Research, USA*
16. **Stephen Smith:** *Duke University, USA*
17. **Wallace Smith:** *Office of Naval Research, USA*
18. **Yasuhito Takeuchi:** *Kagoshima University, Japan*
19. **Jian Yuan:** *Boston Scientific, USA*
20. **Qiming Zhang:** *Pennsylvania State University, USA*
21. **Qifa Zhou:** *University of Southern California, USA*

Short Courses

There will be 10 short courses offered on Tuesday, October 18, 2011. These are listed below. More information on the course and on the authors can be found on the symposium web site at http://ewh.ieee.org/conf/ius_2011.

8:00 a.m. - 12:00 noon:

Short Course 1A (Boca Rooms IV):
Ultrasound contrast agents: Theory and experiment
Nico de Jong, Erasmus MC, Rotterdam, The Netherlands

Short Course 2A (Boca Rooms V):
Ultrasonic Motors: vibration generation, friction drive and energy harvesting
Minoru Kuribayashi Kurosawa, Department of Information Processing, Tokyo Institute of Technology, Japan

Short Course 3A (Boca Rooms VI):
Medical Ultrasound Transducers
Douglas G. Wildes and **L. Scott Smith**, GE Global Research, Niskayuna, NY, USA

Short Course 4A (Boca Rooms VII):
Phonoic crystals
Vincent Laude, Institut FEMTO-ST, Université de Franche-Comté and CNRS, France
Tsung-Tsong Wu, Institute of Applied Mechanics, National Taiwan University, Taiwan, R.O.C.

Short Course 5A (Boca Rooms VIII):
Elasticity Imaging: Methods and Applications
Kathy Nightingale and **Mark Palmeri**, Department of Biomedical Engineering, Duke University, USA

1:00 p.m. - 5:00 p.m.:

Short Course 1B (Boca Rooms IV):
Acoustic Microfluidics: Microscale Acoustics and Ultrasonics for Driving Fluids
James Friend, MicroNanophysics Research Lab., Dept. of Mechanical and Aerospace Engineering, Monash University, Melbourne Centre for Nanofabrication, Melbourne, Australia

Short Course 2B (Boca Rooms V):
Ultrasonic Signal Processing for Detection, Estimation and Compression
Jafar Saniie, Department of Electrical and Computer Engineering at Illinois Institute of Technology, IL, USA
Ramazan Demirli, Center for Advanced Communications, Villanova University, Villanova, PA, USA
Erdal Oruklu, Department of Electrical and Computer Engineering, Illinois Institute of Technology, IL, USA

Short Course 3B (Boca Rooms VI):
Processing and Characterization Challenges for Integrated Ferroelectric/Piezoelectric Devices
Glen Fox, Fox Materials Consulting, LLC, Colorado Springs, CO, USA

Short Course 4B (Boca Rooms VII):
Ultrasound Imaging Systems: from Principles to Implementation
Kai E. Thomenius, Diagnostics and Biomedical Technologies, General Electric Global Research, Niskayuna, NY, USA

Short Course 5B (Boca Rooms VIII):
Quantitative Ultrasound, Theory and Practice
William D. O'Brien, Jr., Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, IL, USA
Timothy J. Hall, Medical Physics Department, University of Wisconsin-Madison, WI, USA
Michael L. Oelze, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, IL, USA
Timothy A. Bigelow, Departments of Eletrical and Computer Engineering and Mechanical Engineering, Iowa State University, USA
James A. Zagzebski, Medical Physics Department, University of Wisconsin-Madison, WI, USA

Invited Speakers

There are 18 Invited Talks at this year's Symposium.

Group 1: Medical Ultrasonics

1. "Contrast Ultrasound: Recent Developments and the Battle for Regulatory Approval," Francois Tranquart (Bracco, Switzerland)
2. "Dosimetry and Therapeutics," Gail Ter Haar (Institute of Cancer Research, UK)
3. "Recent Advances in Blood Flow Measurement," Jorgen Arendt Jensen (Technical University of Denmark, Denmark)
4. "New Developments in CMUT Technology," Pierre Khuri-Yakub (Stanford University, USA)
5. "Photo-Acoustics in Biomedicine," Srirang Manohar (University of Twente, The Netherlands)
6. "Optimization of Delivery across the Blood-Brain Barrier," Elisa Konofagou (Columbia University, USA)

Group 2: Sensors, NDE & Industrial Applications

1. "Acoustic Tomography: Promise versus Reality," Neb Dunic (Wayne State University, USA)
2. "Ultrasonic Welding Using Complex and High Frequency Vibration systems," Jiromaru Tsujino (Kanagawa University, Japan)

Group 3: Physical Acoustics

1. "Ultrasonic Fields for Cell Levitation and Manipulation," Martyn Hill (University of Southampton, UK)
2. "Guided Acoustic Waves Propagating at Surfaces, Interfaces and Edges," Andreas P. Mayer (HS Offenburg, Germany)
3. "Micro and Nano Fabricated Phononic Crystals: Technology and Applications," Roy H. Olsson III (Sandia National Laboratories, USA)

Group 4: Microacoustics – SAW, FBAR, MEMS

1. "Electrostrictive Thin Films: an Alternative to Piezoelectricity," Emmanuel Defay (CEA-LETI, France)
2. "Status of Temperature Compensated SAWs in Japan," Ken-ya Hashimoto (Chiba University, Japan)
3. "Wireless Physical SAW Sensors for Automotive Applications," Victor Kalinin (Transense Technologies, UK)
4. "Applying BAW Methods to Reduce Losses in RF SAW Resonators," Marc Solal (Triquint, USA)

Group 5: Transducers and Transducer Materials

1. "Ultrasonic Inspection of Nuclear Reactor Primary Components," Jean-Francois Saillant (Areva, France)
2. "Low Power Embedded Processors for Ultrasonics Signal Chain," Murtaza Ali (Texas Instruments, USA)
3. "Growth of Relaxor Based Single Crystal by Continuous Growing Method," Kazuhiko Echizenya (JFE Mineral, Japan)

Invited Clinical Speakers (Session 1E)

The 2011 International Ultrasonics Symposium will have a special clinical session to show how medical ultrasonic technologies are used in clinical practices. This special session, which will take place on Thursday at 10:30 in the Boca Room II-IV, consists of the following three invited presentations.

1. "IVUS and IVUS Elasticity Related Imaging," Yoshifumi Saijo (Tohoku University, Japan)

2. "OCT, NIR/IVUS and Other Optical Techniques," Evelyn Regar (Erasmus Medical Center, The Netherlands)

3. "Plaque Characterization by IVUS Tissue Characterization, NIR, FFR and Other Emerging Techniques," Akiko Maehara (Cardiovascular Research Foundation, USA)

Student Paper Competition

This is the 11th year of the Student Paper Competition. 19 Student Paper Competition finalists have been selected by the Technical Program Committee. These finalists will present a Poster of their work (in addition to their scheduled Oral presentation, if any) during the Poster Session on the Wednesday afternoon. Please refer to the Poster Presentation Guide to see what is required. A team of judges will discuss the work with the student in attendance and will select the winners of the Competition. The winners will be announced on Thursday evening. The winners of the student paper competition will receive a cash prize and a certificate.

Group 1: Medical Ultrasonics

1. "In-Vivo Pulsed Magneto-Motive Ultrasound Imaging of Tumor Bearing Small Animals," [1]**Mohammad Mehrmohammadi,** [1]Seungsoo Kim, [1]Min Qu, [1]Ryan Truby, [2]Pieter Kruizinga, [1]Stanislav Emelianov ([1]University of Texas at Austin, USA, [2]Erasmus MC., The Netherlands)

2. "Generalized Bayesian Speckle Tracking Applied to Strain and ARFI Displacements," **Brett Byram**, Gregg Trahey, Mark Palmeri (Duke University, USA)

3. "Improving Shear Wave Speed Estimation Precision in Homogeneous Media by Tracking Shear Wave Propagation in 3D Using a Real-Time Volumetric Imaging Transducer," **Michael Wang**, Brett Byram, Mark Palmeri, Ned Rouze, Kathryn Nightingale (Duke University, USA)

4. "Optical Characterization of Individual Liposome Loaded Microbubbles," [1]**Ying Luan**, [1]Telli Faez, [2]Erik Gelderblom, [1]Ilya Skachkov, [3]Bart Geers, [3]Ine Lentacker, [1]Antonius van der Steen, [2]Michel Versluis, [1]Nico de Jong ([1]Erasmus Medical Center, The Netherlands, [2]University of Twente, The Netherlands, [3]University of Gent , Belgium)

5. "In Vivo Monitoring of Nanoparticle Delivery Using Spectroscopic Photoacoustic Imaging," **Seungsoo Kim**, Geoffrey Luke, Yun-Sheng Chen, Stanislav Emelianov (University of Texas at Austin, USA)

6. "Intravascular Ultrasound Chirp Imaging of Atherosclerotic Plaque Pathology and Neovascularization," [1]**David Maresca,** [1]Krista Jansen, [1]Guillaume Renaud, [1]Wijnand den Dekker, [1]Gijs van Soest [2]Xiang Li, [2]Qifa Zhou, [2]Jonathan Cannata, [1]Antonius F.W. van der Steen ([1]Erasmus MC, The Netherlands, [2]University of Southern California, USA)

7. "Real-Time Handheld Optical Resolution Photoacoustic Microscopy," **Parsin Hajireza,** Wei Shi, Roger Zemp (University of Alberta, Canada)

Group 2: Sensors, NDE & Industrial Applications

1. "Precise Transportation of Single Cell by Phase-shift Standing Surface Acoustic Wave," **Long Meng**, Feiyan Cai, Qiaofeng Jin, Lili Niu, Hairong Zheng (Shenzhen Institutes of Advanced Technology, China)

2. "Guided Wave Temperature Compensation with the Scale-Invariant Correlation Coefficient," **Joel B. Harley**, Jos M.F. Moura (Carnegie Mellon University , USA)

3. "Acoustic and Optical Investigation of Microbubble Contrast Agents Designed for Oil Exploration at High Pressures," **Aleksandr Zhushma**, Natalia Lebedeva, Michael Rubinstein, Paul Dayton, Sergei Sheiko (University of North Carolina at Chapel Hill, USA)

Group 3: Physical Acoustics

1. "Confined Acoustic Phonons in Ultra-Thin Silicon Membranes," [1]**John Cuffe,** [1]Emigdio Chavez [1]Jordi Gomis Bresco, [1]Pierre-Olivier Chapuis, [1]Francesc Alzina, [2]Andrey Shchepetov, [2]Mika Prunnila, [2]Jouni Ahopelto, [3]Olivier Ristow, [3]Mike Hettich, [3]Thomas Dekosry, [3]Clivia M. Sotomayor Torres ([1]Catalan Institute of Nanotechnology, Spain, [2]VTT Technical Research Centre of Finland, Finland, [3]University of Konstanz, Germany)

2. "Experimental Evidence of Locally Resonant Sonic Band Gap in 2D Stubbed Plates," [1]**Mourad Oudich**, [2]Matteo Senesi, [1]Badreddine Assouar, [2]Massimo Ruzzene, [3]Jia-Hong Sun, [1]Brice Vincent, [4]Zhilin Hou ([1]Nancy University, France, [2]Georgia Institute of Technology, USA, [3]National Taiwan University, Taiwan R.O.C., [4]South China University of Technology , China)

3. "Experimental Study on High Efficiency Ultrasonic Motors Using Lubricant," **Wei Qiu**, Yosuke Mizuno, Daisuke Koyama, Kentaro Nakamura (Tokyo Institute of Technology, Japan)

Group 4: Microacoustics – SAW, FBAR, MEMS

1. "A Modular SAW Filter Design Approach for Multiband Filtering," [1]**Xiaoming Lu**, [2]Jeffery Galipeau, [1]Koenraad Mouthaan ([1]NUS, Singapore, [2]TriQuint Semiconductor Florida, USA)

2. "Impact of High-Temperature Dielectric and Piezoelectric Behavior on LGT Acoustic Wave Properties up to 900^{o}C," **Peter Davulis**, Mauricio Pereira da Cunha (University of Maine, USA)

3. "C-axis Parallel Oriented AlN Film Resonator Fabricated by Ion-Beam Assisted RF Magnetron Sputtering," **Masashi Suzuki**, Takahiko Yanagitani (Nagoya Institute of Technology, Japan)

Group 5: Transducers & Transducer Materials

1. "An All-optical Thin-film High-frequency Ultrasound Transducer," **Clay Sheaff**, Shai Ashkenazi (University of Minnesota-Twin Cities, USA)

2. "Radiation Impedance of an Array of Circular Capacitive Micromachined Ultrasonic Transducers in Collapsed State," **Alper Ozgurluk,** Abdullah Atalar, Hayrettin Koymen, Selim Olcum (Bilkent University, Turkey)

3. "Cell Characterization Using High Frequency Ultrasound," **Saurabh Bakshi**, John Williams, Xiaoning Jiang, Elizabeth Loboa (North Carolina State University, USA)

Student Travel Support

Some of the students will receive travel support to attend the conference. These students were selected based on need, whether they received support last year, and their group affiliation. Students that receive this support must register normally and will receive the monies at the conference. **They must show proof of their student status and of their membership in the IEEE and UFFC to receive their monies.**

10:30 am - 12:00 pm — Oral --- Wednesday, October 19, 2011

	Session 1A. Ultrasound Drug Or Gene Delivery and Enhancement *Chair:* **Christopher Hall** *Philips Research* **Boca Rooms II-IV**	***Session 2A. Cardiac Visco-Elasticity and Strain Imaging*** *Chair:* **Jan D'hooge** *Katholieke Universiteit Leuven* **Boca Rooms VI-VIII**	***Session 3A. Scattering and Attenuation*** *Chair:* **Ernest Feleppa** *Lizzi Center for Biomedical Engineering* **Caribbean Ballroom VII**	***Session 4A. Physical and Biological Acoutic Sensing*** *Chair:* **John Vetelino** *University of Maine* **Caribbean Ballroom I**	***Session 5A. TCF Reduction*** *Chair:* **Ben Abbott** *Triquint* **Caribbean Ballroom II**	***Session 6A. CMUTs I Applications*** *Chair:* **Omer Oralkan** *Stanford University* **Caribbean Ballroom VI**
10:30 am	***1A-1*** **Ultrasound drug targeting to tumors with thermosensitive nanoparticles** Mark Ernsting[1], Arthur Worthington[2], Jonathan May[1], Tatsuaki Tagami[1], **Michael Kolios[2]**, Shyh-Dar Li[1] *[1]Drug Delivery and Formulation, Ontario Institute for Cancer Research, Toronto, Ontario, Canada, [2]Physics, Ryerson University, Toronto, Ontario, Canada*	***2A-1*** **In Vivo Open and Closed Chest Measurements of Myocardial Viscoelasticity through a Heart Cycle Using Lamb wave Dispersion Ultrasound Vibrometry (LDUV)** **Ivan Nenadic[1]**, Matthew Urban[1], Cristina Pislaru[1], Miguel Bernal[1], James Greenleaf[1] *[1]Mayo Clinic, Rochester, MN, USA*	***3A-1*** **Ultrasound Backscatter Spectral Analysis Provides Image Feedback for Histotripsy Tissue Fractionation** **Kuang-Wei Lin[1]**, Tzu-Yin Wang[1], Ronald E. Kumon[1], Cheri X. Deng[1], Zhen Xu[1], Timothy L. Hall[1], J. Brian Fowlkes[1,2], Charles A. Cain[1,3] *[1]Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA, [2]Department of Radiology, University of Michigan, Ann Arbor, MI, USA, [3]Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, USA*	***4A-1*** **Integrated ultrasound sensor for microwave heating and radiometry in medical applications** **Yngve Birkelund[1]**, Frank Melandsø[1] *[1]Physics and Technology, University of Tromso, Tromso, NO, Norway*	***5A-1*** **Suppression of Transverse-mode Spurious Responses for Zero Temperature Coefficient of Frequency SAW Resonator on a SiO_2/Al/$LiNbO_3$ Structure** **Hidekazu Nakanishi[1,2]**, Hiroyuki Nakamura[1], Tetsuya Tsurunari[1], Joji Fujiwara[1], Yosuke Hamaoka[1], Ken-ya Hashimoto[2] *[1]Panasonic Electronic Devices Co., Ltd., Kadoma City, Osaka, Japan, [2]Graduate School of Engineering, Chiba University, Chiba City, Chiba, Japan*	***6A-1*** **Interdigitated CMUT Arrays for Low Intensity Focused Ultrasound Drug Delivery** **Paul Cristman[1]**, Omer Oralkan[1], Mike Mandella[2], Olav Solgaard[1], Christopher Contag[2], B. (Pierre) T. Khuri-Yakub[1] *[1]E. L. Ginzton Laboratory, Stanford University, USA, [2]Pediatrics Department School of Medicine, Stanford University, USA*
10:45 am	***1A-2*** **Investigation of Image-guided Sonothrombolysis in a Porcine Acute Ischemic Stroke Model** **William Shi[1]**, Thomas Porter[2], Francois Vignon[1], Jeffry Powers[3], Shunji Gao[2], Jinjin Liu[2], Feng Xie[2], Lucas Drvol[2], John Lof[2], Carr Everbach[4] *[1]Philips Research North America, Briarcliff Manor, New York, USA, [2]University of Nebraska Medical Center, Omaha, Nebraska, USA, [3]Philips Healthcare, Bothell, Washington, USA, [4]Swarthmore College, Swarthmore, Pennsylvania, USA*	***2A-2*** **Intracardiac Shear-wave Velocimetry using Acoustic Radiation Force (ARF) excitations: In Vivo Results** **Peter Hollender[1]**, Patrick Wolf[1], Gregg Trahey[1,2] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA, [2]Radiology, Duke University, USA*	***3A-2*** **Three-dimensional Quantitative High-frequency Characterization of Freshly-excised Human Lymph Nodes** **Jonathan Mamou[1]**, Emi Saegusa-Beecroft[2], Alain Coron[3,4], Michael L. Oelze[5], Tadashi Yamaguchi[6], Junji Machi[2], Masaki Hata[2], Eugene Yanagihara[2], Pascal Laugier[3,4], Ernest J. Feleppa[1] *[1]F. L. Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA, [2]University of Hawaii and Kuakini Medical Center, Honolulu, HI, USA, [3]Laboratoire d'Imagerie Paramétrique UMR 7623, CNRS, Paris, France, [4]Laboratoire d'Imagerie Paramétrique UMR 7623, UPMC, Paris, France, [5]Department of Electrical and Computer Engineering, Bioacoustics Research Laboratory, University of Illinois, Champaign, IL, USA, [6]Research Center for Frontier Medical Engineering, Chiba University, Chiba, Japan*	***4A-2*** **Acoustic sensor for rapid detection of bacteria in water** **Aba Priev[1]**, Lev Ostrovsky[2], Yechezkel Barenholz[1] *[1]Biochemistry Department, Hebrew University-Hadassah Medical School, Jerusalem, Israel, Israel, [2]Zel Technologies, University of Colorado, Boulder, Colorado, USA*	***5A-2*** **Application of Fluorine Doped SiO_2 Films for Temperature Compensated SAW Devices** **Satoru Matsuda[1,2]**, Motoaki Hara[1], Michio Miura[1], Takashi Matsuda[1], Masanori Ueda[1], Yoshio Satoh[1], Ken-ya Hashimoto[2] *[1]Taiyo Yuden Co.,Ltd., Hyogo, Japan, [2]Graduate School of Engineering, Chiba University, Japan*	***6A-2*** **Comparing the Performance of CMUT and Piezoelectric Transducer Elements for Two-Dimensional Medical Imaging** **Ira Wygant[1]** *[1]National Semiconductor, USA*

11:00 am	***1A-3*** **Chemo-thermal approach for efficient ultrasonic tumor treatment with phase change nano droplet** **Ken-ichi Kawabata**[1], Rei Asami[1], Shin-ichiro Umemura[2] *[1]Central Research Laboratory, Hitachi, Ltd., Japan, [2]Graduate School of Bioengineering, Tohoku University, Japan*	***2A-3*** **Direct In Vivo Myocardial Infarct Visualization Using 3D Ultrasound and Passive Strain Contrast** **Brett Byram**[1], David Bradway[1], Marko Jakovljevic[1], Doug Giannantonio[1], Dongwoon Hyun[1], Anna Lisa Crowley[2], Han Kim[2], Lowie Van Assche[2], Michele Parker[2], Raymond Kim[2], Robert Judd[2], Gregg Trahey[1] *[1]Duke University, USA, [2]Duke University Medical Center, USA*	***3A-3*** **computer-aided ultrasound (caus) to determine liver fat content applied in an animal model and in patients** **Gert Weijers**[1], Geert Wanten[2], Johan Thijssen[3], Marinette van der Graaf[3,4], Chris de Korte[3] *[1]Clinical Physics Laboratory, Radboud University Nijmegen Medical Centre, Nijmegen, Gelderland, Netherlands, [2]Gastroenterology, Radboud University Nijmegen Medical Centre, Netherlands, [3]Clinical Physics Laboratory, Radboud Uni versity Nijmegen Medical Centre, Netherlands, [4]Radiology, Radboud University Nijmegen Medical Centre, Netherlands*	***4A-3*** **Numerical analysis of causal and noncausal lossy impulse responses in the far field for a circular piston** **Christopher Johnson**[1], Robert McGough[1] *[1]Electrical and Computer Engineering, Michigan State University, East Lansing, MI, USA*	***5A-3*** **Recent Development of Temperature Compensated SAW Devices** **Ken-ya Hashimoto**[1], Michio Kadota[2], Takeshi Nakao[3], Masanori Ueda[4], Michio Miura[4], Hiroyuki Nakamura[5], Hidekazu Nakanishi[5], Kenji Suzuki[6] *[1]Graduate School of Engineering, Chiba University, Chiba, Chiba, Japan, [2]Murata MFG Co. Ltd., Nagaokakyo, Kyoto, Japan, [3]Murata MFG Co. Ltd., Nagaokakyo, Japan, [4]Taiyo Yuden Co. Ltd., Akashi, Hyogo, Japan, [5]Panasonic Electronic Devices Co., Ltd., Kadoma, Osaka, Japan, [6]NGK Insulators Ltd., Nagoya, Japan*	***6A-3*** **Ultrasonic Sensing Using Thermal Mechanical Noise Recorded on Monolithic CMUT-on-CMOS Arrays** **Shane Lani**[1], Sarp Satir[1], Gokce Gurun[1], Karim G. Sabra[1], F. Levent Degertekin[1] *[1]Georgia Institute of Technology, USA*
11:15 am	***1A-4*** **Antitumor effects of combining antiangiogenic therapy with the antivascular effects of ultrasound stimulated microbubbles** **Margarita Todorova**[1,2], Omid Mortazavi[1], Xuan Huo[1], Kullervo Hynynen[1,2], David Goertz[1,2] *[1]Imaging Research, Sunnybrook Research Institute, Toronto, Canada, [2]Medical Biophysics, University of Toronto, Canada*	***2A-4*** **Mapping Myocardial Structure using Shear Wave Imaging- Comparison with Diffusion Tensor Imaging** **Wei-Ning Lee**[1,2], Benoit Larrat[1,2], Mathieu Pernot[1,2], Mickael Tanter[1,2] *[1]Institut Langevin, ESPCI ParisTech, France, [2]CNRS, UMR 7587; INSERM, U979, Paris, France*	***3A-4*** **The impact of different estimator algorithms when obtaining effective diameter estimates from populations of scatterers of different sizes** **Roberto J. Lavarello**[1], Michael L. Oelze[2] *[1]Seccion Electricidad y Electronica, Pontificia Universidad Catolica del Peru, Peru, [2]Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA*	***4A-4*** **DESIGN OF ACOUSTIC LENSES FOR ULTRASONIC HUMAN-COMPUTER INTERACTION** **Tobias Dahl**[1], Joao Ealo[2], Konstantinos Papakonstantinou[1] *[1]Elliptic Laboratories, Norway, [2]School of Mechanical Engineering, University of Valle, Colombia*		***6A-4*** **CMUT Array Element Operating in Deep Collapse Mode of Operation** **Selim Olcum**[1], Yalcin Yamaner[2], Ayhan Bozkurt[2], Hayrettin Koymen[1], Abdullah Atalar[1] *[1]Electrical & Electronics Eng., Bilkent University, Ankara, Turkey, [2]Sabanci University, Istanbul, Turkey*
11:30 am	***1A-5*** **Targeted delivery of neural stem cells using MRI-guided focused ultrasound** **Alison Burgess**[1], Carlos Ayala-Grosso[2,3], Milan Ganguly[1], Jessica Jordao[2,4], Isabelle Aubert[2,4], Kullervo Hynynen[1,5] *[1]Imaging Research, Sunnybrook Research Institute, Canada, [2]Brain Sciences, Sunnybrook Research Institute, Canada, [3]5. Laboratorio de Patologia Celular y Molecular. Centro de Medicina Experimental, Instituto Venezolano de Investigaciones Cientificas, Venezuela, [4]Laboratory Medicine and Pathobiology, University of Toronto, Canada, [5]Medical Biophysics, University of Toronto, Canada*	***2A-5*** **Non-invasive Electromechanical Imaging of Atrial, Supraventricular and Ventricular Cardiac Conduction Disorders in Canines and Humans** **Jean Provost**[1], Alok Gambhir[2], Stephane Thiebaut[3], Vu Thanh-Hieu Nguyen[3], John Vest[2], Hasan Garan[2], Elisa Konofagou[3,4] *[1]Biomedical Engineering, Columbia University, New York, New York, USA, [2]Medicine, Columbia University, USA, [3]Biomedical Engineering, Columbia University, USA, [4]Radiology, Columbia University, USA*	***3A-5*** **Performance of various spectral estimation methods on acoustic Backscatter Coefficient estimation under data size limitations** **Ivan M. Rosado-Mendez**[1], Kibo Nam[1], Timothy J. Hall[1], James A. Zagzebski[1] *[1]Department of Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA*	***4A-5*** **Quantitative Analysis of Liquids and Emulsions by means of High-Frequency Ultrasound (15-35 MHz)** **Michael Vogt**[1] *[1]Dept. of Electrical Engineering and Information Technology, Ruhr-University Bochum, Bochum, D, Germany*	***5A-4*** **Performances of Monolithic Micro-Oven Heated SAW and STW resonators** **Pierre Dufilie**[1], Joe Adler[1], Andrew Sawyer[1] *[1]Phonon Corp., Simsbury, CT, USA*	***6A-5*** **Gap Feedback Linearization of Capacitive Micromachined Ultrasonic Transducers for Harmonic Imaging** **Sarp Satir**[1], F. Levent Degertekin[2] *[1]School of Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA*
11:45 am	***1A-6*** **Release and monitoring of composite droplets in rats liver and brain with imaging pulses** **Olivier Couture**[1], Alice Bretagne[2], Alan Urban[2], Patrick Tabeling[1], Mickael Tanter[3] *[1]CNRS / ESPCI, France, [2]ESPCI, France, [3]INSERM, France*	***2A-6*** **In vivo passive elastic properties of normal and infarcted myocardium using shear wave imaging** **Mathieu Pernot**[1], Wei-Ning Lee[1], Mathieu Couade[1], Emmanuel Messas[2], Philippe Mateo[3], Bertrand Crozatier[3], Clement Papadacci[1], Alain Bel[2], Mickael Tanter[1] *[1]Institut Langevin, ESPCI, Paris, France, [2]Hopital Europeen Georges Pompidou, Paris, France, [3]INSERM U769, Chatenay-Malabry, France*	***3A-6*** **Ultrasonic Attenuation Imaging Using Spectral Cross-Correlation and Reference Phantom** **Kayvan Samimi**[1], Tomy Varghese[2] *[1]Electrical Engineering, Medical Physics, University of Wisconsin-Madison, Madison, WISCONSIN, USA, [2]Medical Physics, University of Wisconsin-Madison, Madison, WISCONSIN, USA*	***4A-6*** **Acoustic and Optical Investigation of Microbubble Contrast Agents Designed for Oil Exploration at High Pressures** **Aleksandr Zhushma**[1], Natalia Lebedeva[1], Michael Rubinstein[1], Paul Dayton[2], Sergei Sheiko[1] *[1]Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, [2]Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*	***5A-5*** **Design of Surface Acoustic Wave Filters using Layer Diamond Structures with Zero Temperature Coefficient of Delay** **Ruyen Ro**[1], Ru-Yue Lee[1], Cha-Chi Sung[2], Sean Wean[3], Yen-Hsun Liao[4] *[1]Electrical Engineering, I-Shou University, Kaohsiung, Taiwan, [2]Engineering Science and Ocean Engineering, National Taiwan University, Taipei, Taiwan, [3]Electronics Engineering and Computer Science, Tung-Fang Institute of Technology, Kaohsiung, Taiwan, [4]Electronics Engineering, National Kaohsiung University of Applied Sciences, Taiwan*	***6A-6*** **CMUTs with interlaced high- and low-frequency elements for combined imaging and therapy** **Peiyu Zhang**[1], Wei Zheng[1], Walied Moussa[2], Roger Zemp[1] *[1]Electric and Computer Engineering, University of Alberta, Canada, [2]Mechanical Engineering, University of Alberta, Canada*

2:00 pm - 3:30 pm — Oral --- Wednesday, October 19, 2011

	Session 1B. HIFU Application and Monitoring *Chair:* **Ralf Seip** *Philips Research*	*Session 2B. Cardiac Beam Forming* *Chair:* **Kai Thomenius** *GE's corporate R&D*	*Session 3B. Contrast Agents I* *Chair:* **Katherine Ferrara** *Univ. of California Davis*	*Session 4B. Acoustic Tweezers I* *Chair:* **John L. Larson** *Avago Technologies*	*Session 5B. Microacoustic Sensors (6J)* *Chair:* **Omar Elmazria** *Nancy University*	*Session 6B. Medical Imaging Transducers* *Chair:* **Scott Smith** *GE*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
2:00 pm	***1B-1*** **High-Throughput Coagulation by Heating with Laterally Enlarged Focus, Enhanced by Mircobubble Clouds Created by Electronically Scanned Trigger Pulses** **Shin-ichiro Umemura**[1], Jumpei Okada[2], Keisuke Takada[3], Tatsuya Moriyama[3], Eiko Iwasaki[4], Shin Yosizawa[5] *[1]Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan, [2]Electrical and Communication Engineering, Tohoku University, Miyagi, Japan, [3]Electrical and Computer Engineering, Tohoku University, Miyagi, Japan, [4]Biomedical Engineering, Tohoku University, Miyagi, Japan, [5]Electrical and Communication Engineering, Tohoku University, Sendai, Miyagi, Japan*	***2B-1*** **High Frame Rate Echocardiography Using Diverging Beams** **Hideyuki Hasegawa**[1,2], Hiroshi Kanai[1,2] *[1]Graduate School of Biomedical Engineering, Tohoku University, Japan, [2]Graduate School of Engineering, Tohoku University, Japan*	***3B-1*** **Flow Cytometery to Characterize Ultrasound Contrast Agents** **Tom Matula**[1], Juan Tu[2], Jarred Swalwell[3], Weicheng CUI[2], Weizhong Chen[2] *[1]Center for Industrial and Medical Ultrasound, University of Washington, Seattle, WA, USA, [2]Nanjing University, China, People's Republic of, [3]University of Washington, USA*	***4B-1*** **Ultrasonic Fields for Cell Levitation and Manipulation** **Martyn Hill**[1] *[1]Engineering Sciences, University of Southampton, Southampton, Hants, United Kingdom*	***5B-1*** **Piezoelectric Thin Films : A Technology Platform For Thin Film Ultrasound Transducer Arrays** **Mareike Klee**[1], Ruediger Mauczok[1], Chris van Heesch[1], Marco de Wild[1], Henk Boots[1], Wilco Keur[1], Biju Kumar[2], Georg Schmitz[3], Michal Mleczko[3] *[1]Philips Research, Eindhoven, 5656 AE Eindhoven, Netherlands, [2]Philips Lighting, Netherlands, [3]Institute of Medical Engineering University of Bochum, Germany*	***6B-1*** **80 MHz intravascular ultrasound (IVUS) transducer** **Xiang Li**[1], Wei Wu[2], Youngsoo Chung[2], Wan Y Shih[3], Wei-Heng Shih[2], Qifa Zhou[1], K. Kirk Shung[1] *[1]NIH Ultrasonic Transducer Resource Center and Biomedical Engineering, University of Southern California, Los Angeles, CA, USA, [2]Department of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA, [3]School of Biomedical Engineering, Science, and Health Systems, Drexel University, Philadelphia, PA, USA*
2:15 pm	***1B-2*** **High amplitude ultrasound pulse generation using time-reversal through a multiple scattering medium.** **Bastien Arnal**[1], Mathieu Pernot[1], Mathias Fink[1], Mickael Tanter[1] *[1]Institut Langevin, ESPCI ParisTech, CNRS UMR 7587, INSERM ERL U979, Université Paris VII, Paris, France*	***2B-2*** **Motion compensated Synthetic Transmit Beam technique for real-time echocardiography** **Bastien Denarie**[1], Hans Torp[1], Geir Haugen[2], Anders Sørnes[2], Tore Bjåstad[2] *[1]MI Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]GE Vingmed Ultrasound AS, Horten, Norway*	***3B-2*** **Parallel Output, Liquid Flooded Flow-Focusing Microfluidic Device for Generating Monodisperse Microbubbles within a Catheter** **Johnny L Chen**[1], Ali H Dhanaliwala[1,2], Shiying Wang[1], John A Hossack[1,2] *[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA, [2]R. M. Berne Cardiovascular Research Center, University of Virginia, USA*		***5B-2*** **Sensing Acoustic Properties of Materials Using Piezoelectric Lateral-Mode Resonators** **Jonathan Gonzales**[1], Reza Abdolvand[2] *[1]Electrical Engineering, Oklahoma State University, Tulsa, OK, USA, [2]Electrical Engineering, Oklahoma State University, USA*	***6B-2*** **40 MHz piezo-composite linear array for medical imaging and integration in a high resolution system** **Claire Bantignies**[1], Pascal Mauchamp[1], Franck Levassort[2], Tony Mateo[2], Jean-Marc Gregoire[2], Remi Dufait[1], Frederic Ossant[2] *[1]VERMON, TOURS, France, [2]UMRS Imagerie&Cerveau, INSERM U930, CNRS ERL 3106, Francois-Rabelais University, TOURS, France*

2:30 pm	***1B-3*** **Thermal ablation by high-intensity-focused ultrasound using a toroidal transducer for the treatment of colorectal liver metastases during an open procedure. First clinical results.** **David Melodelima**[1], Aurélien Dupre[2], Alessandro Gandini[2], Jean-Yves Chapelon[1], Michel Rivoire[2] *[1]U1032, INSERM, Lyon, France, [2]Centre Leon Berard, France*	***2B-3*** **Multi-transmit beam forming for fast cardiac imaging** **Ling Tong**[1], Hang Gao[1], Hon Fai Choi[1], Jan D'hooge[1] *[1]Dept. of Cardiovascular Diseases, Catholic University of Leuven, Leuven, Belgium*	***3B-3*** **Optimal Microbubble Production Rate from a Flow-Focusing Microfluidic Device as a Function of Orifice Size, Gas Pressure, and Liquid Flow Rate** **Shiying Wang**[1], Ali H Dhanaliwala[1,2], Johnny L Chen[1], Alexander L Klibanov[1,3], John A Hossack[1,2] *[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA, [2]R. M. Berne Cardiovascular Research Center, University of Virginia, USA, [3]Dept.of Medicine - Cardiovascular Division, University of Virginia, USA*	***4B-2*** **A Sonic Screwdriver: Acoustic Angular Momentum Transfer for Ultrasonic Manipulation** **Christine Demore**[1], Zhengyi Yang[1], Alex Volovick[1,2], Han Wang[1], Sandy Cochran[1], Mike MacDonald[1], Gabriel Spalding[3] *[1]Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom, [2]InSightec Ltd., Tirat Carmel, Israel, [3]Department of Physics, Illinois Wesleyan University, Bloomington, IL, USA*	***5B-3*** **An Acoustic Microfluidic Platform for Size and Density-Based Cell Separation** **Myeong Chan Jo**[1], Rasim Guldiken[1] *[1]Mechanical Engineering, University of South Florida, USA*	***6B-3*** **Low Power Embedded Processors for Ultrasonics Signal Chain** **Murtaza Ali**[1] *[1]Systems and Applications R&D Center, Texas Instruments, Dallas, TX, USA*
2:45 pm	***1B-4*** **An ultrasonic device with Parabolic Convex Reflector for the Conformal Thermal Ablation of the Ciliary Body** **Thomas Charrel**[1,2], Florent Aptel[1,3], Alain Birer[1], Francoise Chavrier[1], Jean-Yves Chapelon[1], Fabrice Romano[2], Cyril Lafon[1] *[1]INSERM U1032, Lyon, Rhone, France, [2]EyeTechCare, Rillieux-la-Pape, Rhone, France, [3]Edouard Herriot Hospital, Lyon, Rhone, France*	***2B-4*** **Comparison of parallel beam forming with plane wave imaging for cardiac applications: a simulation study** **Ling Tong**[1], Hang Gao[1], Hon Fai Choi[1], Jan D'hooge[1] *[1]Dept. of Cardiovascular Diseases, Catholic University of Leuven, Leuven, Belgium*	***3B-4*** **Intravascular ultrasound contrast imaging at 20 MHz using radial modulation: a promising approach for coronary vasa vasorum imaging** **Francois T.H. Yu**[1], Flordeliza Villanueva[1], Xucai Chen[1] *[1]Cardiovascular Institute, University of Pittsburgh, Pittsburgh, PA, USA*	***4B-3*** **Two-Dimensional Cell Trapping by Ultrasound Microbeam** **Jungwoo Lee**[1], Changyang Lee[2], Hyung Ham Kim[2], Anette Jakob[3], Robert Lemor[3], Shia-Yen Teh[4], Abraham Lee[4], Koping Shung[2] *[1]University of Southern California, Los Angeles, CA, USA, [2]University of Southern California, USA, [3]Fraunhofer IBMT for Biomedical Engineering, Germany, [4]University of California at Irvine, USA*	***5B-4*** **Experimental Study of the Biomimetic Artificial Basilar Membrane Fabricated by Piezoelectric Micromachined Beams** **Sangwon Kim**[1], Hongsoo Choi[1] *[1]Department of Robotics Engineering, Daegu Gyeongbuk Institute of Science and Technology, Daegu, Korea, Korea, Republic of*	
3:00 pm	***1B-5*** **Simultaneous temperature and cavitation activity mapping with a transcranial MR-guided focused ultrasound system** **Costas Arvanitis**[1], Nathan McDannold[2] *[1]Radiology, Harvard Medical School, Boston, Massachsetts, USA, [2]Radiology, Harvard Medical School, Boston, Massachusetts, USA*	***2B-5*** **Parallel Transmit Beam Forming using Orthogonal Frequency-Division Multiplexing for Harmonic Imaging** **L. Demi**[1], M. D. Verweij[1], K. W. A. van Dongen[1] *[1]Laboratory of Acoustical Imaging and Sound Control, Delft University of Technology, Delft, Zuid Holland, Netherlands*	***3B-5*** **Dynamic manipulation of subharmonic response of ultrasound contrast agent microbubbles** **Telli Faez**[1], Guillaume Renaud[1], Nico de Jong[1] *[1]Erasmus MC, Netherlands*	***4B-4*** **Multi-wavelength Ultrasonic Standing Wave Device for Non-invasive Cell Manipulation and Characterisation** Yongqiang Qiu[1], David A. Hughes[2], **Christine Demore**[1], Srikanta Sharma[1], Kees Weijer[2], Sandy Cochran[1] *[1]Institute for Medical Science and Technology, University of Dundee, United Kingdom, [2]Division of Cell and Developmental Biology, College of Life Sciences, University of Dundee, United Kingdom*	***5B-5*** **Wireless Physical SAW Sensors for Automotive Applications** **Victor Kalinin**[1] *[1]Transense Technologies plc, Bicester, Oxfordshire, United Kingdom*	***6B-4*** **2D Ring Array Transducers for Real-Time 3D Imaging of Atrial Septal Defect Repair** **Edward Light**[1], Stephen Smith[1] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA*
3:15 pm	***1B-6*** **Cavitation Inception and Growth by Dual-Frequency Excitation in High-Intensity Focused Ultrasound Treatment** **Shin Yoshizawa**[1], Jun Yasuda[1], Shin-ichiro Umemura[1] *[1]Tohoku University, Japan*	***2B-6*** **Spatiotemporal Interpolation by Normalized Convolution for 4D Transesophageal Echocardiography** **Alexander Haak**[1], Marijn van Stralen[2], Gerard van Burken[1], Stefan Klein[1], Josien Pluim[2], Nico de Jong[1,3], Antonius F. W. van der Steen[1,3], Johannes G. Bosch[1] *[1]Erasmus MC, Netherlands, [2]UMC, Netherlands, [3]Interuniversity Cardiology Institute of the Netherlands, Netherlands*	***3B-6*** **Noninvasive estimation of dynamic pressures *in vitro* and *in vivo* using the subharmonic response from microbubbles** **Jaydev Dave**[1,2], Valgerdur Halldorsdottir[1,2], John Eisenbrey[1], Ji-Bin Liu[1], Maureen McDonald[3], Kris Dickie[4], Corina Leung[4], Flemming Forsberg[1] *[1]Radiology, Thomas Jefferson University, Philadelphia, PA, USA, [2]School of Biomedical Engineering, Science and Health Systems, Drexel University, Philadelphia, PA, USA, [3]Radiologic Sciences, Thomas Jefferson University, Philadelphia, PA, USA, [4]Ultrasonix Medical Corporation, Richmond, BC, Canada*	***4B-5*** **Manipulation of microparticles in two dimensions using counter-propagating ultrasonic waves** **Charles Courtney**[1], Chun-Kiat Ong[1], Bruce Drinkwater[1], Paul Wilcox[1] *[1]Mechanical Engineering, University of Bristol, United Kingdom*		***6B-5*** **Elastomeric photonic crystals for optoacoustic detection of high frequency ultrasound** Daniela Cruz[1], Ammar Khan[2], **Takashi Buma**[3] *[1]California State University Long Beach, USA, [2]University of Minnesota, USA, [3]University of Delaware, USA*

4:30 pm - 6:00 pm — Oral --- Wednesday, October 19, 2011

	Session 1C. 3D Imaging & Fast Simulation Tools *Chair:* **Jian-yu Lu** *Univ. of Toledo*	Session 2C. Advanced Flow Estimation Algorithms and Functional Imaging *Chair:* **Svetoslav Nikolov** *BK Medical*	Session 3C. Photoacoustics: Applications *Chair:* **Michael Kolios** *Ryerson University*	Session 4C. Bulk Wave Effects and Devices I *Chair:* **Jan Brown** *JB Consulting*	Session 5C. Transverse Modes in SAW (6F) *Chair:* **Karl Wagner** *TDK-EPC*	Session 6C. Transducer Modeling *Chair:* **Paul Reynolds** *Weidlinger Associates Inc*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
4:30 pm	***1C-1*** **Three-dimensional Spinal Bone Imaging with Medical Ultrasound for Epidural Anesthesia Guidance** **F. William Mauldin, Jr.**[1,2], Kevin Owen[1,2], John Hossack[1] *[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA, [2]Rivanna Medical, Crozet, VA, USA*	***2C-1*** **Recent advances in blood vector velocity imaging** **Jørgen Arendt Jensen**[1] *[1]Center for fast Ultrasound Imaging, Dept. of Elec. Eng, Bldg. 349, Technical University of Denmark, Lyngby, Denmark*	***3C-1*** **Simultaneous photoacoustic and high-frequency ultrasound *in vivo* imaging of the mouse embryonic vasculature** **Orlando Aristizábal**[1], Jonathan Mamou[2], Erwan Filoux[2], Jeffrey A. Ketterling[2], Daniel H. Turnbull[1], Parag V. Chitnis[2] *[1]Skirball Institute, NYU School of Medicine, New York, NY, USA, [2]Riverside Research, New York, NY, USA*	***4C-1*** **Measurement of Dispersion Properties of Active and Surrounding Regions in BAW Resonator** **Kimmo Kokkonen**[1], Johanna Meltaus[2], Tuomas Pensala[2], Matti Kaivola[1] *[1]Aalto University, Finland, [2]VTT Technical Research Centre of Finland, Finland*	***5C-1*** **A method to reduce losses in buried electrodes RF SAW resonators** **Marc Solal**[1], Julien Gratier[2], Kevin Gamble[1], Ben Abbott[1], Taeho Kook[1], Alan Chen[1], Kurt Steiner[1] *[1]TriQuint Semiconductor, Apopka, FL, USA, [2]TriQuint Semiconductor, Chelmsford, MA, USA*	***6C-1*** **Simulating Quartz Resonators at High Temperature and Pressure: Limitations Regarding Lack of Experimental Data for Temperature Derivatives of Third-Order Elastic Coefficients** **Austin D. Beerwinkle**[1], Raman P. Singh[1], Goutham R. Kirikera[2] *[1]Mechanical and Aerospace Engineering, Oklahoma State University, Tulsa, OK, USA, [2]Geophysical Research Company, LLC, Tulsa, OK, USA*
4:45 pm	***1C-2*** **Evaluation of 3D Point Spread Function of a Semi-Ellipsoidal Ultrasound Computer Tomography System** **Nicole Ruiter**[1], Robin Dapp[1], Michael Zapf[1], Hartmut Gemmeke[1] *[1]Institute for Data Processing and Electronics, Karlsruhe Institute of Technology, Karlsruhe, Baden-Wuerttemberg, Germany*		***3C-2*** **Integrated 3-D vascular ultrasound, strain and spectroscopic photoacoustic imaging for noninvasive characterization of atherosclerotic arteries** **Iulia Graf**[1], Arman Satari[1], Richard Smalling[2], Stanislav Emelianov[1] *[1]Biomedical Engineering, University of Texas at Austin, Austin, Texas, USA, [2]Department of Internal Medicine, University of Texas Medical School at Houston, Houston, Texas, USA*	***4C-2*** **Polarizaion-inverted multilayered pure shear mode AlN film resonator** **Masashi Suzuki**[1], Takahiko Yanagitani[1] *[1]Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan*		***6C-2*** **Empirical Model for Dielectric Charging in Double-SOI-Wafer-Bonded CMUTs: Theory and Experiment** **Wei Zheng**[1], Douglas Barlage[1], Peiyu Zhang[1], Glen Fitzpatrick[2], Walied Moussa[3], Roger Zemp[1] *[1]Electrical and Computer Engineering, University of Alberta, Edmonton, Alberta, Canada, [2]Micralyne Inc., Edmonton, Alberta, Canada, [3]Mechanical Engineering, University of Alberta, Edmonton, Alberta, Canada*

5:00 pm	***1C-3*** **High Frequency Doppler Flow Triggering for 75 MHz Ultra-High Frame Rate 3D Ultrasonic Zebrafish Echocardiography** **Ting-Yu Liu**[1], Po-Yang Lee[1], Cho-Chiang Shih[1], Chih-Chung Huang[1] *[1]Department of Electrical Engineering, Fu Jen Catholic University, Taiwan*	***2C-2*** **Ultrafast imaging of blood flow dynamics in myocardium** **Bruno-Felix Osmanski**[1], Mathieu Pernot[1], Gabriel Montaldo[1], Mickael Tanter[1] *[1]Institut Langevin, France*	***3C-3*** **Photoacoustic microscopy with a pulsed multi-color source based on stimulated Raman scattering** Mengyang Liu[1], **Takashi Buma**[1] *[1]University of Delaware, USA*	***4C-3*** **High temperature piezoelectricity in Mn doped ZnO film** **Kosuke Imamura**[1], Shinji Takayanagi[1], Takahiko Yanagitani[2], Mami Matsukawa[1], Yoshiaki Watanabe[1] *[1]Doshisha University, Japan, [2]Nagoya Institute of Technology, Japan*	***5C-2*** **Extension of Scalar Potential Formalism for Transverse Mode Analysis of Surface Acoustic Wave Resonators** **Ken-ya Hashimoto**[1], Tatsuya Omori[1], Chang-Jun Ahn[1] *[1]Graduate School of Engineering, Chiba University, Chiba, Japan*	***6C-3*** **Enhancement of the Inverse Method enabling the Material Parameter Identification for Piezoceramics** **Stefan Rupitsch**[1], Jürgen Ilg[1], Reinhard Lerch[1] *[1]Chair of Sensor Technology, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany*
5:15 pm	***1C-4*** **4D Simulation of nonlinear pressure field propagation on GPU with the Angular Spectrum Method** **François Varray**[1,2], Christian Cachard[1], Piero Tortoli[2], Olivier Basset[1] *[1]Université de Lyon, CREATIS ; CNRS UMR5220 ; INSERM U1044 ; INSA-Lyon ; Université Lyon 1, France, [2]MSD Lab, University of Firenze, Italy*	***2C-3*** **Peak Velocity Measurement Through Doppler Spectrum: Experimental Verification** **Stefano Ricci**[1], Luca Bassi[1], Piero Tortoli[1] *[1]Electronics & Telecommunications Dept., Florence University, Firenze, Italy*	***3C-4*** **Optoacoustic signal amplitude and frequency spectrum analysis laser heated bovine liver ex vivo** **Michelle P. Patterson**[1,2], Christopher B. Riley[3], Michael C. Kolios[4], William M. Whelan[5] *[1]physics, university of prince edward island, charlottetown, pei, Canada, [2]Biomedical Sciences, university of prince edward island, charlottetown, pei, Canada, [3]Animal and Veterinary Sciences, Adelaide university, Australia, [4]Ryerson University, Canada, [5]university of prince edward island, Canada*	***4C-4*** **Force-Frequency Effect on the Q-Factor of Thickness-Shear Mode Quartz and Langasite Resonators at High Temperatures** **Mihir Patel**[1], Bikash Sinha[1] *[1]Schlumberger-Doll Research, Cambridge, MA, USA*	***5C-3*** **Transversal mode orthogonality in SAW waveguides with transversally varying slowness anisotropy within the scalar field approximation** **Markus Mayer**[1], Thomas Ebner[1], Karl Wagner[1], Ken-Ya Hashimoto[2] *[1]SAW RD, TDK-EPC, Munich, Germany, [2]Department of Electrical and Electronic Engineering, Chiba University, Chiba, Japan*	***6C-4*** **Radiation pattern deterioration for phase steered capacitive micromachined ultrasonic transducer arrays due to cross coupling.** **Erlend Leirset**[1], Arne Rønnekleiv[1], Astrid Aksnes[1] *[1]Department of Electronics and Telecommunications, Norwegian University of Science and Technology, TRONDHEIM, TRONDHEIM, Norway*
5:30 pm	***1C-5*** **Multi-modal cardiac image fusion and visualization on the GPU** **Gabriel Kiss**[1,2], Jon Petter Åsen[1,3], Piet Claus[4], Jan D'hooge[1,4], Hans Torp[1] *[1]MI Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]St. Olavs Hospital, Trondheim, Norway, [3]Department of Informatics, University of Oslo, Oslo, Norway, [4]Cardiovascular Imaging & Dynamics, Dept. of Cardiovascular Diseases, K.U.Leuven, Leuven, Belgium*	***2C-4*** **Detection of Atherosclerosis from Vessel Wall Vibrations using Non-linear Features** **Leili Salehi**[1], Parisa Gifani[2], Georg Schmitz[1] *[1]Electronics and Information Technology, Ruhr Universität Bochum, Bochum, Germany, [2]Electrical Engineering, Iran University of Science and Technology, Tehran, Iran*	***3C-5*** **Clinical feasibility of duplex photoacoustic and ultrasound pulse-echo imaging using photoacoustic transmit pulses** Michael Jaeger[1,2], David David Birtill[1], Andreas Gertsch[1], Elizabeth O'Flynn[2,3], **Jeffrey Bamber**[1,2] *[1]Joint Department of Physics, Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom, [2]CRUK-EPSRC Cancer Imaging Centre, Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom, [3]Radiology Department, Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom*	***4C-5*** **Drive Level Dependency in Langasite Resonators** **Yook-Kong Yong**[1] *[1]Civil and Environmental Engineering, Rutgers University, Piscataway, NJ, USA*	***5C-4*** **Miniaturized SAW Designs using High Aspect Ratio Electrodes** Hoi Yan Fong[1], Akifumi Kamijima[2], **Stephane Chamaly**[1] *[1]EPCOS Pte Ltd - TDK Corporation, Singapore, Singapore, [2]TDK Corporation, Hong Kong, Hong Kong*	***6C-5*** **Experimental and Finite Element Model Directivity Comparison Between PZT and PMN-PT Kerfless Arrays** **Phil Garland**[1], Andre Bezanson[1], Rob Adamson[1], Jeremy Brown[1] *[1]School of Biomedical Engineering, Dalhousie University, Canada*
5:45 pm	***1C-6*** **Real-time simulation of ultrasound images using the GPU** **Sjur Urdson Gjerald**[1], Reidar Brekken[1,2], Torbjørn Hergum[1], Jan D'hooge[1,3] *[1]MI Lab and Dept. of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Dept. of Medical Technology, SINTEF, Trondheim, Norway, [3]Lab. on Cardiovascular Imaging & Dynamics, Dept. of Cardiovascular Diseases, Katholieke Universiteit, Leuven, Belgium*	***2C-5*** **Determination of the depth dependent Fourier spectra of catheter reflections for automatic catheter detection** **Anke Poelstra**[1], Heinrich Martin Overhoff[1] *[1]University of Applied Sciences Gelsenkirchen, Gelsenkirchen, Germany*	***3C-6*** **Intravascular photoacoustic imaging in the presence of luminal blood** **Bo Wang**[1], Andrei Karpiouk[1], Jimmy Su[1], James Amirian[2], Richard Smalling[2], Stanislav Emelianov[1] *[1]University of Texas at Austin, USA, [2]University of Texas Health Science Center at Houston, USA*	***4C-6*** **The Nonlinear Thickness-shear Vibrations of a Crystal Plate Under a Strong Electric Field** **Ji Wang**[1], Rongxing Wu[1], Jianke Du[1], Dejin Huang[1], Wei Yan[2] *[1]School of Mech Eng & Mechanics, Ningbo University, Ningbo, Zhejiang, China, People's Republic of, [2]School of Civil & Arch Eng, Ningbo University, Ningbo, Zhejiang, China, People's Republic of*	***5C-5*** **Design of SAW/BAW Ladder type filters with constant group delay** **Hualei Wang**[1,2], Jing Chen[1], Yu Shi[2], Tatsuya Omori[1], Changjun Ahn[1], Ken-ya Hashimoto[1] *[1]Chiba University, Japan, [2]University of Electronic Science and Technology of China, China, People's Republic of*	***6C-6*** **Iterative Inverse Extrapolation for Transducer Characterization** **E.J. Alles**[1], M.D. Verweij[1], K.W.A. van Dongen[1] *[1]Laboratory of Acoustical Imaging and Sound Control, Faculty of Applied Sciences, Delft University of Technology, Delft, Zuid-Holland, Netherlands*

9:30 am - 1:00 pm	Poster --- Wednesday, October 19, 2011			Caribbean Ballroom III-V
Session P1Aa. Beam Formation: Computational Aspects And Artifact Reduction *Chair:* **Jian-yu Lu** *Univ. of Toledo*	***P1Aa-8*** **A New Extended Range Ultrasonic Synthetic Aperture Tissue Harmonic Imaging System** **Moo-Ho Bae**[1], Sung-Bae Park[1], Han-Woo Lee[2], Sang-Gyu Nam[2], Mok-Kun Jeong[3] *[1]Hallym Univ., Korea, Republic of, [2]Samsung Medison Co., LTD., Korea, Republic of, [3]Daejin Univ., Korea, Republic of*	***P1Ab-6*** **3D Velocity Estimation using a 2D Matrix Array** **Michael Johannes Pihl**[1], Jørgen Arendt Jensen[1] *[1]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Bldg. 349, Technical University of Denmark, DK-2800 Lyngby, Denmark*	***P1Ac-3*** **A Low-Cost High Frame-Rate Piezoelectric Scanning Mechanism for High-Frequency Ultrasound Systems** **Andre Bezanson**[1], Robert Adamson[1], Jeremy Brown[1] *[1]Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada*	***P1Ac-11*** **Novel limiter using bipolar power transistor for high frequency ultrasonic transducer applications** **Hojong Choi**[1], Hao-Chung Yang[1], Sien-Ting Lau[1], Qifa Zhou[1], K. Kirk Shung[1] *[1]NIH Transducer Resource Center and Biomedical Engineering, University of Southern California, Los Angeles, California, USA*
P1Aa-1 **Synthetic Aperture Beamformation using a GPU** **Jens Munk Hansen**[1], Dana Schaa[2], Jørgen Arendt Jensen[1] *[1]Dept. of Elec. Eng., Technical University of Denmark, DK-2800 Lyngby, Denmark, [2]Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, USA*	***P1Aa-9*** **Extraction of an Overlapped Second Harmonic Chirp Component using the Fractional Fourier Transform** **Muhammad Arif**[1], Sevan Harput[2], Peter Smith[2], David Cowell[2], Steven Freear[2] *[1]Ultrasound Research Group, School of Electronic and Electrical Engineering, University of Leeds, United Kingdom, [2]University of Leeds, United Kingdom*	***P1Ab-7*** **Quantification of Mitral Regurgitation Using PW Doppler and Parallel Beamforming** **Tonje D. Fredriksen**[1], Hans Torp[1], Torbjørn Hergum[1] *[1]MI Lab, Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway*	***P1Ac-4*** **A Low Cost Receive Beamformer for a High Frequency Annular Array** **Holly Lay**[1,2], Geoffrey Lockwood[1] *[1]Queen's University, Canada, [2]Sonavation Inc., USA*	***P1Ac-12*** **Detection of Deeply-Implanted Impedance-Switching Devices Using Ultrasound Doppler** **Jean Martial Mari**[1], Cyril Lafon[2], Jean Yves Chapelon[2] *[1]LabTAU, Unit1032, INSERM, Lyon, France, [2]LabTAU, Unit 1032, INSERM, Lyon, France*
P1Aa-2 **Conjugate Gradient and Regularized Inverse Problem-based Solutions Applied to Ultrasound Image Reconstruction** Leonardo Zanin[1], Marcelo Zibetti[1], **Fabio Schneider**[1] *[1]CPGEI, UTFPR, Curitiba, Parana, Brazil*	***Session P1Ab. Blood Flow Imaging*** *Chair:* **Lasse Lovstakken** *Nowegian Univ. of Science & Technology*	***P1Ab-8*** **Simultaneous quantification of flow and tissue velocities based on multi-angle plane-wave imaging with extended velocity range** **Ingvild Ekroll**[1], Abigail Swillens[2], Patrick Segers[2], Hans Torp[1], Lasse Lovstakken[1] *[1]MI Lab and Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway, [2]Gent University, Belgium*	***P1Ac-5*** **Implementation of non standard methods with the Ultrasound Advanced Open Platform (ULA-OP)** Enrico Boni[1], Luca Bassi[1], Francesco Guidi[1], Alessandro Ramalli[1], Stefano Ricci[1], **Piero Tortoli**[1] *[1]Electronics & Telecomm., Università di Firenze, Firenze, Italy*	***P1Ac-13*** **A Transmit/Receive 256-Channel Ultrasound Phased Array Driving System Design and Strategy for Transrib Thermal Therapy** Guan-Lu Huang[1], Hao-Yu Chung[1], **Hao-Li Liu**[1] *[1]Department of Electrical Engineering, Chang-Gung University, Taiwan*
P1Aa-3 **Scalable Intersample Interpolation Architecture for High-channel-count Beamformers** **Borislav G. Tomov**[1], Svetoslav I. Nikolov[2], Jørgen Arendt Jensen[1] *[1]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, DK-2800 Lyngby, Denmark, [2]R&D Applications & Technologies, BK Medical, DK-2730 Herlev, Denmark*	***P1Ab-1*** **High Frame Rate Vector Flow Imaging of Stenotic Carotid Bifurcation: Computational Modeling and Analysis** **Donald L. S. Chan**[1], Billy Y. S. Yiu[1], Alfred C. H. Yu[1] *[1]Medical Engineering Program, The University of Hong Kong, Hong Kong*	***P1Ab-9*** **Numerical simulation of time for red blood cell aggregation under pulsatile flow with depletion model** **Ying Li**[1], Tae-Hoon Bok[1], Dong-Guk Paeng[1,2] *[1]Ocean System engineering, Jeju National Univeristy, Korea, Republic of, [2]Interdisciplinary Postgraduate Program in Biomedical Engineering, Jeju, Korea, Republic of*	***P1Ac-6*** **Portable 4D Ultrasound Medical Diagnostic Imaging System** **Yi-Ting Shen**[1], Stergios Stergiopoulos[1,2], Pang Shek[1] *[1]Defence R&D Canada Toronto, Toronto, Ontario, Canada, [2]Department of Electrical and Computer Engineering, University of Toronto, Toronto, Ontario, Canada*	***P1Ac-14*** **Feasibility of 2D CMUT Arrays with Orthogonal Transmit and Receive Strips for Low-Channel-Count 3D Imaging** **Wei Zheng**[1], Peiyu Zhang[1], Walied Moussa[2], Roger Zemp[1] *[1]Electrical and Computer Engineering, University of Alberta, Edmonton, Alberta, Canada, [2]Mechanical Engineering, University of Alberta, Edmonton, Alberta, Canada*

P1Aa-4 **Mitigation of Off-axis Specular Reflection Artifacts in Diagnostic Bone Imaging with Medical Ultrasound Using Mechanically Scanned Piston Transducers**

F. William Mauldin, Jr.[1,2], Kevin Owen[1,2], John Hossack[1]
[1]*Biomedical Engineering, University of Virginia, Charlottesville, VA, USA,* [2]*Rivanna Medical, Crozet, VA, USA*

P1Aa-5 **A Novel Imaging Method of Coded THI using Multi Chirp Signals**

Masayuki Tanabe[1], Takuya Yamamura[2], Kan Okubo[2], Norio Tagawa[2]
[1]*Graduate School of Science and Technology, Kumamoto University, Kurokami, Kumamoto, Japan,* [2]*Graduate School of System Design, Tokyo Metropolitan University, Hino, Tokyo, Japan*

P1Aa-6 **Improved Image Quality Using Phase Aberration Correction and Dual Apodization with Cross-correlation**

Junseob Shin[1], Jesse Yen[1]
[1]*Biomedical Engineering, University of Southern California, Los Angeles, CA, USA*

P1Aa-7 **A Multitaper Approach to Speckle Reduction for Medical Ultrasound Imaging**

Are Charles Jensen[1], Carl-Inge Nilsen[1], Andreas Austeng[1], Sven Peter Näsholm[1], Sverre Holm[1]
[1]*Department of Informatics, University of Oslo, Oslo, Norway*

P1Ab-2 **Fast, Robust Estimation and a Novel Visualization Method for Vector Doppler Imaging with Planewave Transmissions**

John Flynn[1], Ron Daigle[1], Lauren Pflugrath[1], Peter Kaczkowski[2], Ken Linkhart[1]
[1]*Verasonics, Inc. Redmond, WA, USA,* [2]*Applied Physics Laboratory, University of Washington, Seattle, WA, USA*

P1Ab-3 **Model-based correction of angle-dependencies in navigated 3-D flow imaging during neurosurgical interventions**

Daniel Høyer Iversen[1], Frank Lindseth[2,3], Hans Torp[1], Lasse Løvstakken[1,4]
[1]*MI Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway,* [2]*SINTEF Medical Technology, Trondheim, Norway,* [3]*Department of Computer and Information Science, Norwegian University of Science and Technology, Trondheim, Norway,* [4]*Trondheim University Hospital, Norway*

P1Ab-4 **Clutter Suppression for Harmonic Doppler Detection in Swept-Scan High-Frequency System**

Che-Chou Shen[1], Wu hsin-hsien[1], Chih-Kuang Yeh[2]
[1]*Department of Electrical Engineering, National Taiwan University of Science and Technology, Taiwan,* [2]*Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan*

P1Ab-5 **Clutter filtering issues in speckle tracking for two-dimensional blood velocity estimation – a potential solution based on compounded imaging**

Solveig S. Alnes[1], Abigail Swillens[2], Patrick Segers[2], Hans Torp[1], Lasse Lovstakken[1,3]
[1]*MI Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway,* [2]*IBiTech-BioMMeda, Ghent University, Ghent, Belgium,* [3]*St. Olavs Hospital, Trondheim, Norway*

P1Ab-10 **Effect of flow gradient, ROI size and random scatterer movement during speckle size estimation based blood flow measurement**

Tiantian Xu[1], Gregory Bashford[1]
[1]*Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, NE, USA*

Session P1Ac. System Design

Chair: **Andrzej Nowicki**
Polish Academy of Sciences

P1Ac-1 **A Digital-Feedback Pre-distortion Technique for Integrated High-Voltage Ultrasound Transmitting Power Amplifiers**

Zheng Gao[1], Zao Chen[1], Ping Gui[1], Xiaochen Xu[2], Max Nielsen[2], Ismail Oguzman[2], Karthik Vasanth[2], Jikai Chen[3]
[1]*Department of Electrical Engineering, Southern Methodist University, Dallas, Texas, USA,* [2]*Texas Instruments Inc., Dallas, Texas, USA,* [3]*Department of Electrical Engineering, University of Florida, Gainesville, Florida, USA*

P1Ac-2 **Harmonic Cancellation in Switched Mode Linear Frequency Modulated (LFM) Excitation of Ultrasound Arrays**

David Cowell[1], Peter Smith[1], Steven Freear[1]
[1]*Ultrasound Group, School of Electronic Engineering, University of Leeds, Leeds, United Kingdom*

P1Ac-7 **Real-Time GPU-Based Adaptive Beamformer for High Quality Ultrasound Imaging**

Junying Chen[1], Billy Y. S. Yiu[2], Hayden K. H. So[1], Alfred C. H. Yu[2]
[1]*Dept. of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong,* [2]*Medical Engineering Program, The University of Hong Kong, Hong Kong*

P1Ac-8 **A 1.5mm Diameter Single-Chip CMOS Front-End System with Transmit-Receive Capability for CMUT-on-CMOS Forward-Looking IVUS**

Gokce Gurun[1], **F. Levent Degertekin**[1], Paul Hasler[1]
[1]*Georgia Institute of Technology, Atlanta, GA, USA*

P1Ac-9 **A Happy Marriage of Ultrasonography and Near Infrared Spectroscopy in Coronary Imaging**

Zhihua He[1], Steve Sum[1], Cory Doucet[1], Brian Gilan[1], Antonius F.W. van der Steen[2,3], James Muller[1]
[1]*InfaRedx Inc, Burlington, MA, USA,* [2]*Biomedical Engineering, Thorax centre ErasmusMC, Netherlands,* [3]*Interuniversity Cardiology Institute of the Netherlands, Netherlands*

P1Ac-10 **Bone scanner for examination of deeply located trabecular bones**

Jerzy Litniewski[1], Lucyna Cieslik[1], Marcin Lewandowski[1], Ryszard Tymkiewicz[1], Boguslaw Zienkiewicz[1], Andrzej Nowicki[1]
[1]*Ultrasound, Institute of Fundamental Technological Research, Warsaw, Warsaw, Poland*

Session P1B. Sensing and Signal Processing

Chair: **Erdal Oruklu**
Illionois Institute of Technology, USA

P1B-1 **Wideband Time-Reversal Processing for Ultrasound NDE Imaging**

Cindy Bernard[1], **Ramazan Demirli**[2], Cornel Ioana[1]
[1]*Signal and Image Processing Lab, National Polytechnique Institute of Grenoble, France,* [2]*Center for Advanced Communications, Villanova University, Villanova, PA, USA*

P1B-2 **Analysis of Fractional Fourier Transform for Ultrasonic NDE Applications**

Yufeng Lu[1], Erdal Oruklu[2], **Jafar Saniie**[2]
[1]*ECE Department, Bradley University, Peoria, Illinois, USA,* [2]*ECE Department, Illinois Institute of Technology, Chicago, IL, USA*

WEDNESDAY POSTER

9:30 am - 1:00 pm	Poster --- Wednesday, October 19, 2011			Caribbean Ballroom III-V
P1B-3 **Comparison of Cascade and Concurrent Signal Denoising Methods** **Michal Kubinyi**[1], Ondrej Kreibich[1], Radislav Smid[1] *[1]Department of Measurement, Czech Technical University in Prague, Faculty of Electrical Engineering, Prague, Czech Republic, Czech Republic*	***P1C-5*** **Coherent Acoustic Waves Excitation and Detection on Subterahertz Frequencies** **Natalia Polzikova**[1], Georgy Mansfeld[1], Alexander Raevskii[1] *[1]IRE RAS, Russian Federation*	***P1D-7*** **Optimized STW Devices with Buried Electrodes Based on a Mixed FEM/BEM Numerical Model** **Pascal Ventura**[1], Pierre Dufilié[2] *[1]PV R&D Consulting, Nice, France, [2]Phonon Corporation, Simsbury, CT, USA*	***P1E-3*** **CMUTs for air coupled ultrasound with improved bandwidth** Mario Kupnik[1], **Min-Chieh Ho**[2], Srikant Vaithilingam[2], Butrus T. Khuri-Yakub[2] *[1]Brandenburg University of Technology (BTU), Cottbus, Germany, [2]Stanford University, CA, USA*	***PS-2*** **Generalized Bayesian Speckle Tracking Applied to Strain and ARFI Displacements** **Brett Byram**[1], Gregg Trahey[1], Mark Palmeri[1] *[1]Duke University, USA*
P1B-4 **Numerical and analytical modeling of optical fibers for ultrasound detection** **Istvan A Veres**[1,2], Gordon Flockhart[3], Gareth Pierce[3], Brian Culshaw[3], Thomas Berer[1,2], Hubert Grün[2], Peter Burgholzer[1,2] *[1]Christian Doppler Laboratory for Photoacoustic Imaging and Laser Ultrasonics, Linz, Austria, [2]Research Center for Non Destructive Testing GmbH, Linz, Austria, [3]Department of Electronic & Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom*	***Session P1D.*** ***SAW Devices and Design*** *Chair:* **Tatsuya Omori** *Chiba University*	***P1D-8*** **SAW Resonator-Based Wafer Processing Control** **Pierre Dufilie**[1], Merle Yoder[1], Jim Jacobs[1] *[1]Phonon Corp., Simsbury, CT, USA*	***P1E-4*** **Modeling and Characterization of Thin Film Coatings for High Frequency CMUT Annular Arrays** **Jaime Zahorian**[1], Sarp Satir[2], Gokce Gurun[2], F. Levent Degertekin[2] *[1]ECE, Georgia Tech, USA, [2]Georgia Tech, USA*	***PS-3*** **Improving Shear Wave Speed Estimation Precision in Homogeneous Media by Tracking Shear Wave Propagation in 3D using a Real-time Volumetric Imaging Transducer** **Michael Wang**[1], Brett Byram[1], Mark Palmeri[1], Ned Rouze[1], Kathryn Nightingale[1] *[1]Biomedical Engineering, Duke University, USA*
P1B-5 **Application of a Programmable Multi-channel Ultrasonic System for In-Line Quality Monitoring of Spot Welds** **Anthony Lui**[1], Anthony C. Karloff[1], Andriy M. Chertov[1], Roman Gr. Maev[1], Enrico Boni[2], Piero Tortoli[2] *[1]Institute for Diagnostic Imaging Research, Windsor, Ontario, Canada, [2]University of Florence, Firenze, Italy*	***P1D-1*** **An Adaptive Thresholding Method for SAW RFID With Large Code Capacity** **Along Kang**[1,2], Tao Han[2] *[1]Department of Instrument Science and Engineering, Shanghai Jiaotong University, China, People's Republic of, [2]Shanghai Jiaotong University, China, People's Republic of*	***P1D-9*** **Fabrication of high frequency SAW resonators using AlN/Diamond/Si technology** **G.F. Iriarte**[1], J.G. Rodriguez Madrid[1], R. Ro[2], R. Lee[2], O.A. Williams[3], D. Araujo[4], Pilar Villar[4], F. Calle[1] *[1]ISOM - Universidad Politécnica de Madrid, Spain, [2]I-Shou University, Taiwan, [3]Fraunhofer IAF (Germany) and Cardiff University (UK), United Kingdom, [4]Universidad de Cadiz, Spain*	***P1E-5*** **Performance Optimization of a High Frequency cMUT Probe for Medical Imaging** **Alessandro Stuart Savoia**[1], Giosue Caliano[1], Massimo Pappalardo[1] *[1]Dipartimento di Ingegneria Elettronica, Università degli Studi Roma Tre, Rome, Italy, Italy*	***PS-4*** **Optical Characterization of Individual Liposome Loaded Microbubbles** **Ying Luan**[1], Telli Faez[1], Erik Gelderblom[2], Ilya Skachkov[1], Bart Geers[3], Ine Lentacker[3], Antonius van der Steen[1], Michel Versluis[2], Nico de Jong[1,2] *[1]Erasmus Medical Center, Netherlands, [2]University of Twente, Netherlands, [3]University of Gent, Belgium*
Session P1C. ***Acoustic Wave Sensing and Transduction*** *Chair:* **Yook-Kong Yong** *Rutgers, the State University of New Jersey*	***P1D-2*** **Suppression Mechanism of Transverse-Mode Spurious Responses in SAW Resonators on a SiO_2/Al/$LiNbO_3$ Structure** **Hiroyuki Nakamura**[1], Hidekazu Nakanishi[1,2], Rei Goto[1], Ken-ya Hashimoto[2] *[1]Panasonic Electronic Devices Co., Ltd., Japan, [2]Chiba University, Japan*	***P1D-10*** **Temperature effect on the characteristics of Love wave along multi guide layers of SiO2/SU-8** **Jiaoli Hou**[1], Weng Wang[1], Minghua Liu[1], Shitang He[1] *[1]Institute of Acoustics, Chinese Academy of Sciences, China, People's Republic of*	***P1E-6*** **Dual mode cMUTs fabricated with LPCVD sacrificial release process** **Certon Dominique**[1], Senegond Nicolas[1], Gross Dominique[1], Ferin Guillaume[2], Legros Mathieu[2], Boulme Audren[1], Roman Benoit[1], Teston Franck[1] *[1]INSERM U930, François Rabelais University, TOURS, France, Metropolitan, [2]VERMON, TOURS, France, Metropolitan*	***PS-5*** **In vivo monitoring of nanoparticle delivery using spectroscopic photoacoustic imaging** **Seungsoo Kim**[1], Geoffrey Luke[2], Yun-Sheng Chen[2], Stanislav Emelianov[1,2] *[1]Biomedical Engineering, University of Texas at Austin, Austin, TX, USA, [2]Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, USA*

P1C-1 **Cavitation Sensor with hydrothermally synthesized lead zirconate titanate poly-crystalline film deposited on Ti cylindrical hollow pipe**

Shinichi Takeuchi[1], Michihisa Shiiba[1], Mutsuo Ishikawa[1], Norimichi Kawashima[1], Takeyoshi Uchida[2], Tsuneo Kikuchi[2], Minoru Kurosawa[3]
[1]Department of Clinical Engineering, Toin University of Yokohama, Yokohama, Kanagawa, Japan, [2]National Metrogy Institute of Japan, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan, [3]Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan

P1C-2 **Improved theory for near-resonance bubble rectified diffusion with applications**

Yuning Zhang[1], Shengcai Li[1]
[1]School of Engineering, Warwick University, United Kingdom

P1C-3 **The Acoustic Resonator Combined with Electrical Discharges**

Rudolf Balek[1]
[1]Department of Physics, Czech Technical University in Prague, Faculty of Electrical Engineering, Prague 6, Czech Republic

P1C-4 **Measurements of the viscosity of liquids in function of pressure and temperature using SH surface acoustic waves**

Piotr Kielczynski[1], Marek Szalewski[1], Andrzej Balcerzak[1], Aleksander Rostocki[2]
[1]Polish Academy of Sciences, Poland, [2]Warsaw University of Technology, Poland

P1D-3 **Spurious mode suppression in multiple layer HfO_2/Simax acoustical mirror structure for ILAW on 15&[deg]-YX $LiNbO_3$**

Sergei Zhgoon[1], Alexander Shvetsov[1], Kushal Bhattacharjee[2]
[1]MPEI, Moscow, Russian Federation, [2]RF MD, USA

P1D-4 **Effect of Anisotropy on the Reflection of SAW from Grooves and Strips**

Alexander Darinskii[1], Manfred Weihnacht[2,3], **Hagen Schmidt**[3]
[1]Institute of Crystallography RAS, Moscow, Russian Federation, [2]InnoXacs, Dippoldiswalde, Germany, [3]IFW Dresden, Dresden, Germany

P1D-5 **Low propagation loss in the one-port resonator fabricated on single crystal diamond**

Satoshi Fujii[1], Tatsuya Odawara[2], Tatsuya Omori[2], Ken-ya Hashimoto[2], Hironori Torii[3], Hitoshi Umezawa[4], Shinichi Shikata[4]
[1]Academic industrial collaboration and Intellectual Property, Chiba University, Chiba, Chiba, Japan, [2]Electrical and Electronic Engineering, Chiba University, Japan, [3]Technology Support & Development, MES AFTY Corporation, Hachioji, Tokyo, Japan, [4]Diamond Research Lab., AIST, Tsukuba, Ibaraki, Japan

P1D-6 **Band Pass Type of Tunable Filters composed of Ultra Wide Band SAW Resonators by adjusting Capacitors connected SAW Resonators**

Michio Kadota[1], Tetsuya Kimura[2], Yasuyuki Ida[2]
[1]Kadota Laboratory, Murata Mfg. Co., ltd., Yasu, Shiga, Japan, [2]Kadota Laboratory, Murata Mfg. Co., Ltd., Yasu, Shiga, Japan

P1D-11 **Implementation of Error-Correcting Encoded SAW RFID Tags**

Jingchu He[1], Tao Han[1], **Yongan Shui**[2]
[1]Shanghai Jiaotong University, China, People's Republic of, [2]Nanjing University, China, People's Republic of

Session P1E. CMUTs

Chair: **Levent Degertekin**
Georgia Institute of Technology

P1E-1 **An Accurate Model For Fluid Loading On Circular CMUTs**

Bichoy Azmy[1], Mourad El-Gamal[2], Adel El-Hennawy[1], Hani Ragai[1]
[1]Department of Electronics & Communication Engineering, Ain Shams University, Cairo, Egypt, [2]Department of Electrical & Computer Engineering, McGill University, Montreal, Quebec, Canada

P1E-7 **Dynamic and Acoustic Modelization of Capacitive Micromachined Ultrasonic Transducers**

Marc Berthillier[1], Patrice Le Moal[1], Joseph Lardiès[1]
[1]Mécanique Appliquée, Femto-ST, Besançon, France

P1E-8 **Large area 1D CMUT phased arrays for multi-modality ultrasound imaging**

Nikhil Apte[1], Srikant Vaithilingam[2], Ali Fatih Sarioglu[2], Mario Kupnik[3], Butrus T. Khuri-Yakub[2]
[1]Mechanical Engineering, Stanford University, USA, [2]Electrical Engineering, Stanford University, USA, [3]Brandenburg University of Technology, Germany

Session PS. Student Paper Competition

Chair:

PS-1 **In-vivo pulsed magneto-motive ultrasound imaging of tumor bearing small animals**

Mohammad Mehrmohammadi[1], Seungsoo Kim[1], Min Qu[1], Ryan Truby[1], Pieter Kruizinga[2], Stanislav Emelianov[1]
[1]Biomedical Engineering, University of Texas at Austin, Austin, TX, USA, [2]Thoraxcenter, Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands

PS-6 **Intravascular Ultrasound Chirp Imaging of atherosclerotic plaque pathology and neovascularization**

David Maresca[1], Krista Jansen[1], Guillaume Renaud[1], Wijnand den Dekker[2], Gijs van Soest[1], Xiang Li[3], Qifa Zhou[3], Jonathan Cannata[3], Antonius F.W. van der Steen[1,4]
[1]Biomedical Engineering, Thorax Centre, Erasmus MC, Rotterdam, Netherlands, [2]Experimental Cardiology, Erasmus MC, Rotterdam, Netherlands, [3]Resource Center for Medical Ultrasonic Transducer Technology, University of Southern California, Los Angeles, USA, [4]Interuniversity Cardiology Institute of the Netherlands, Netherlands

PS-7 **Real-time Handheld Optical Resolution Photoacoustic Microscopy**

Parsin Hajireza[1], Wei Shi[1], Roger Zemp[1]
[1]Electrical & Computer Engineering, University of Alberta, Edmonton, Alberta, Canada

PS-8 **Precise Transportation of Single Cell by Phase-shift Standing Surface Acoustic Wave**

Long Meng[1], Feiyan Cai[1], Qiaofeng Jin[1], Lili Niu[1], Hairong Zheng[1]
[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of

PS-9 **Guided wave temperature compensation with the scale-invariant correlation coefficient**

Joel B. Harley[1], José M.F. Moura[1]
[1]Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

9:30 am - 1:00 pm	Poster --- Wednesday, October 19, 2011			Caribbean Ballroom III-V
PS-10 **Acoustic and Optical Investigation of Microbubble Contrast Agents Designed for Oil Exploration at High Pressures** **Aleksandr Zhushma**[1], Natalia Lebedeva[1], Michael Rubinstein[1], Paul Dayton[2], Sergei Sheiko[1] *[1]Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, [2]Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*	***PS-18*** **Radiation Impedance of an Array of Circular Capacitive Micromachined Ultrasonic Transducers in Collapsed State** **Alper Ozgurluk**[1], Abdullah Atalar[1], Hayrettin Koymen[1], Selim Olcum[1] *[1]Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey*			
PS-11 **Confined Acoustic Phonons in Ultra-Thin Silicon Membranes** **John Cuffe**[1,2], Emigdio Chavez[1,3], Jordi Gomis Bresco[1], Pierre-Olivier Chapuis[1], Francesc Alzina[1], Andrey Shchepetov[4], Mika Prunnila[4], Jouni Ahopelto[4], Olivier Ristow[5], Mike Hettich[5], Thomas Dekorsy[5], Clivia M. Sotomayor Torres[1,6] *[1]Catalan Institute of Nanotechnology (CIN2-CSIC), Bellaterra, Barcelona, Spain, [2]Dept. of Physics, University College Cork, Tyndall National Institute, Cork, Ireland, [3]Dept. of Physics, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, [4]VTT Technical Research Centre of Finland, Espoo, Finland, [5]Dept. of Physics, University of Konstanz, Konstanz, Germany, [6]Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain*	***PS-19*** **Cell Characterization Using High Frequency Ultrasound** **Saurabh Bakshi**[1], John Williams[2], Xiaoning Jiang[1], Elizabeth Loboa[2] *[1]Mechanical & Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, [2]Biomedical Engineering, North Carolina State University, Raleigh, NC, USA*			
PS-12 **Experimental evidence of locally resonant sonic band gap in 2D stubbed plates** **Mourad Oudich**[1], Matteo Senesi[2], Badreddine Assouar[1,3], Massimo Ruzzene[2], Jia-Hong Sun[4], Brice Vincent[5], Zhilin Hou[6], Tsung-Tsong Wu[4] *[1]Institut Jean Lamour, Nancy University - CNRS, Vandoeuvre-les-Nancy, France, [2]D Guggenheim School of Aerospace Engineering, Georgia Institute of Technology, USA, [3]International Joint Laboratory (UMI 2958), Georgia Institute of Technology - CNRS, ATLANTA, USA, [4]National Taiwan University, Taiwan, [5]Nancy University - CNRS, France, [6]South China University of Technology, China, People's Republic of*				
PS-13 **Experimental study on high efficiency ultrasonic motors using lubricant** **Wei Qiu**[1], Yosuke Mizuno[1], Daisuke Koyama[1], Kentaro Nakamura[1] *[1]Precision and Intelligence Laboratory, Tokyo Institute of Technology, Yokohama, Japan*				

PS-14 **A modular SAW filter design approach for multiband filtering** **Xiaoming LU**[1], Jeffery Galipeau[2], Koenraad Mouthaan[1] *[1]NUS, Singapore, [2]TriQuint Semiconductor Florida, USA*				
PS-15 **Impact of High-Temperature Dielectric and Piezoelectric Behavior on LGT Acoustic Wave Properties up to 900°C** **Peter Davulis**[1], Mauricio Pereira da Cunha[1] *[1]Electrical and Computer Engineering Dept., University of Maine, Orono, ME, USA*				
PS-16 **c-axis parallel oriented AlN film resonator fabricated by ion-beam assisted RF magnetron sputtering** **Masashi Suzuki**[1], Takahiko Yanagitani[1] *[1]Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan*				
PS-17 **An All-optical Thin-film High-frequency Ultrasound Transducer** **Clay Sheaff**[1], Shai Ashkenazi[1] *[1]Biomedical Engineering, University of Minnesota-Twin Cities, Minneapolis, MN, USA*				

1:00 pm - 4:30 pm	Poster --- Wednesday, October 19, 2011			Caribbean Ballroom III-V
Session P2Aa. ***a - Bio-effects*** *Chair:* **Charles Cain** *Univ. of Michigan*	***P2Ab-5*** **Submicron Decafluorobutane Phase-Change Contrast Agents for Activation with Low Acoustic Intensities Formulated with a Compression-Condensation Method** **Paul S. Sheeran**[1], Samantha Luois[2], Paul A. Dayton[1], Terry O. Matsunaga[2] *[1]Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, NC, USA, [2]University of Arizona, Tucson, AZ, USA*	***P2Ac-2*** **Shear wave elastography of in vivo pig kidney: Impact of urinary and vascular pressure on elasticity and viscosity measurements.** **jean-luc gennisson**[1], nicolas grenier[2], mickael tanter[1] *[1]Langevin Institute, France, [2]Hopital Pellegrin INSERM, France*	***P2Ad-3*** **Characteristics of the Spatial Coherence Function from Backscattered Ultrasound with Phase Aberration and Reverberation Clutter** **Gianmarco Pinton**[1], Gregg Trahey[2], Jeremy Dahl[2] *[1]Institut Langevin, ESPCI, Paris, France, [2]Department of Biomedical Engineering, Duke University, Durham, NC, USA*	***P2Ae-2*** **One-dimensional propagation model of pressure wave in human artery: comparative study of theory and experiment** **Masashi Saito**[1], Yuki Ikenaga[1], Mami Matsukawa[1], Yoshiaki Watanabe[1], Takaaki Asada[1,2], Pierre-Yves Lagree[3] *[1]Doshisha University, Japan, [2]Murata Manufacturing Co., Ltd., Japan, [3]Universite Pierre et Marie Curie, France*
P2Aa-1 **Biosafety Investigation of Acoustic Cavitation on Cells in the Immune System: Analysis on Human T-Lymphocytes** Wenjing Zhong[1], Wai-Hung Sit[2], Jing Zhang[2], Jennifer M. F. Wan[2], **Alfred C. H. Yu**[1] *[1]Medical Engineering Program, The University of Hong Kong, Hong Kong, [2]School of Biological Sciences, The University of Hong Kong, Hong Kong*	***P2Ab-6*** **Quantitative Analysis of Subharmonic Imaging using Microbubbles in Contrast Imaging** **Suhyun Park**[1], Scott Dianis[1], Kai E Thomenius[1], Carl L Chalek[1], K Wayne Rigby[1], Larry Mo[1], Feng Lin[2], Lihong Pan[3], Anne L Hall[3], Flemming Forsberg[4] *[1]GE Global Research, Niskayuna, NY, USA, [2]GE Healthcare, WuXi, JiangSu, China, People's Republic of, [3]GE Healthcare, Wauwatosa, WI, USA, [4]Department of Radiology, Thomas Jefferson University, Philadelphia, PA, USA*	***P2Ac-3*** **Multi-Push (MP) ARF Assessment of Elastic Properties in a Tissue Mimicking Phantom** **Mallory Scola**[1], Caterina Gallippi[1] *[1]Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*	***P2Ad-4*** **Pulse-Echo Ultrasound Imaging Employing Compressive Sensing** **Martin Schiffner**[1], Georg Schmitz[1] *[1]Institute of Medical Engineering, Bochum, Germany*	***P2Ae-3*** **3D Tissue Doppler imaging with ultra high frame rate** **Birger Brekke**[1], Hans Torp[1], Tore Bjåstad[2], Asbjørn Støylen[1], Svein A. Aase[2] *[1]MI Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]GE Vingmed Ultrasound, Horten, Norway*
P2Aa-2 **Developing a New Sonoporation Treatment Model Using Plants: Cellular Mechanism Analysis** **Peng Qin**[1], Lin Xu[2], Wenjing Zhong[1], Alfred C. H. Yu[1] *[1]Medical Engineering Program, The University of Hong Kong, Hong Kong, [2]Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, Shanghai, China, People's Republic of*	***P2Ab-7*** **Influence of shell parameters on response of polymer-shelled microbubbles to high-frequency ultrasound** **Parag V. Chitnis**[1], Jonathan Mamou[1], Sujeeth Koppolu[1], Jeffrey A. Ketterling[1] *[1]F. L. Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA*	***P2Ac-4*** **Evaluation of Shear Properties in Muscle Tissue via Novel Superficial Elastography Technique** **Jeffrey Ballyns**[1], Paul Otto[1], Jennifer Hammond[2], Jay Shah[2], Tadesse Gerber[2], Lynn Gerber[1,2], Siddhartha Sikdar[1] *[1]George Mason University, USA, [2]National Institutes of Health, USA*	***P2Ad-5*** **Volumetric Intracardiac Imaging Using a Fully Integrated CMUT Ring Array: Recent Developements** **Azadeh Moini**[1], Amin Nikoozadeh[1], Omer Oralkan[1], Jung Woo Choe[1], Fatih Sarioglu[1], Douglas N. Stephens[2], Alan de la Rama[3], Peter Chen[3], Aaron Dentinger[4], Douglas Wildes[4], Lowell S. Smith[4], Kai Thomenius[4], Kalyanam Shivkumar[5], Aman Mahajar[5], Matthew O'Donnell[6], David J. Sahn[7], Pierre T. Khuri-Yakub[1] *[1]Stanford University, USA, [2]University of California, Davis, USA, [3]St. Jude Medical, USA, [4]General Electric Global Research, USA, [5]University of California, Los Angeles, USA, [6]University of Washington, USA, [7]Oregon Health and Science University, USA*	***P2Ae-4*** **3D Ultrafast Elastography Imaging of the Carotid Artery using Sparse Arrays** **Sanghamithra Korukonda**[1], Marvin Doyley[1] *[1]Department of Electrical and Computer Engineering, University of Rochester, USA*
Session P2Ab. ***b - Contrast Agents I*** *Chair:* **Piero Tortoli** *Univ. of Firenze*	***P2Ab-8*** **Modulational Instability and Localized Modes of Ultrasound Contrast Microbubbles Surface Oscillations** **Serge Dos Santos**[1], Víctor Sánchez-Morcillo[2], André-Pierre Abellard[3], Ayache Bouakaz[3] *[1]U930 "Imagerie et Cerveau" INSERM-CNRS, Centre – Val de Loire Université, BLOIS, France, [2]Departamento de Fisica Aplicada, GANDIA, Spain, [3]INSERM U930 - CNRS ERL 3106, TOURS, France*	***P2Ac-5*** **Vibro-acoustography beamforming and imaging with a 1.75D array transducer** **Matthew Urban**[1], Carl Chalek[2], Kai Thomenius[2], Mostafa Fatemi[1], Azra Alizad[1] *[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA, [2]General Electric Global Research, Niskayuna, NY, USA*	***P2Ad-6*** **Transmural Myocardial Strain Distribution Measured at High Spatial and Temporal Resolution** **Thuy Nguyen**[1,2], Andreas Espinoza[3], Espen W. Remme[3], Jan D'hooge[2], Lars Hoff[4] *[1]Falculty of Engineering and Maritime, Vestfold University College, Vestfold, Norway, [2]Lab. on Cardiovascular Imaging & Dynamics, Dept. of Cardiovascular Diseases, Catholic University of Leuven, Leuven, Belgium, [3]Intervention Center, Oslo University Hospital, Rikshospitalet, Oslo, Norway*	***P2Ae-5*** **Ultrasound-based Speckle Tracking for 3D Strain estimation of the Arterial wall – An experimental validation study in a tissue mimicking phantom** **Matilda Larsson**[1,2], Florence Kremer[2], Brecht Heyde[2], Lars-Åke Brodin[1], Jan D'hooge[2,3] *[1]Department of Medical Engineering, School of Technology and Health, Royal Institute of Technology, Huddinge, Sweden, [2]Lab on Cardiovascular Imaging & Dynamics, Department of Cardiovascular Diseases, Catholic University of Leuven, Leuven, Belgium, [3]Medical Imaging Lab, Dept. of Circulation and Medical Imaging, Norwegian Institute of Science and Technology, Trondheim, Norway*

P2Ab-1 Subharmonic Aided Pressure Estimation in Patients with Suspected Portal Hypertension

John Eisenbrey[1], Jaydev Dave[1,2], Valgerdur Halldorsdottir[1,2], Daniel Merton[1], Jose Gonzalez[3,4], Cynthia Miller[3], Priscilla Machado[1], Suhyun Park[5], Scott Dianis[5], Carl Chalek[5], Kai Thomenius[5], Daniel Brown[1], Victor Navarro[3], Flemming Forsberg[1]
[1]*Department of Radiology, Thomas Jefferson University, Philadelphia, PA, USA,* [2]*School of Biomedical Engineering and Health Systems, Drexel University, USA,* [3]*Department of Gastroenterology & Hepatology, Thomas Jefferson University, USA,* [4]*Hospital Clinico Universitario de Valladolid, Spain,* [5]*GE Global Research, Niskayuna, NY, USA*

P2Ab-2 Dual grayscale and subharmonic ultrasound imaging on modified ultrasound scanner in 2 and 3D

John Eisenbrey[1], Jaydev Dave[1], Valgerdur Halldorsdottir[1], Suhyun Park[2], Scott Dianis[2], Daniel Merton[1], Priscilla Machado[1], Ji-Bin Liu[1], Jose Gonzalez[3], Cynthia Miller[3], Kai Thomenius[2], Daniel Brown[1], Victor Navarro[3], Flemming Forsberg[1]
[1]*Department of Radiology, Thomas Jefferson University, Philadelphia, PA, USA,* [2]*GE Global Research, Niskayuna, NY, USA,* [3]*Department of Gastroenterology & Hepatology, Thomas Jefferson University, USA*

P2Ab-3 In vitro comparative study of the performance of pulse sequences for ultrasound contrast imaging of the carotid artery

Guillaume RENAUD[1], Johan G. Bosch[1], Antonius F.W. van der Steen[1], Nico de Jong[1]
[1]*Biomedical Engineering - ThoraxCenter, Erasmus MC, Rotterdam, Netherlands*

P2Ab-4 Chirp reversal power modulation contrast imaging

Anthony Novell[1], Ayache Bouakaz[1]
[1]*Inserm U930, CNRS ERL 3106, université François Rabelais de Tours, France*

P2Ab-9 Non-uniform oscillations of deflating bubbles - a pilot study

Jacopo Viti[1,2], Riccardo Mori[1], Francesco Guidi[1], Nico De Jong[2], Piero Tortoli[1]
[1]*Electronics and Telecomm., Universita' di Firenze, Firenze, FI, Italy,* [2]*Biomedical Engineering, ThoraxCenter, Erasmus MC Rotterdam, Rotterdam, Netherlands*

P2Ab-10 Comparison of the acoustic response of liquid-PFOB and solid-core nanoparticles between 20 and 40 MHz

Sara Jafari[1], Odile Diou[2], Nicolas Tsapis[2], Elias Fattal[2], S.Lori Bridal[1]
[1]*Laboratoire d'Imagerie Paramétrique, UMR 7623 Université Pierre et Marie Curie and CNRS, France,* [2]*Physicochimie-Pharmcotechnie-Biopharmacie, UMR CNRS 8612 and Univ Paris-Sud, France*

Session P2Ac.
c - Shear Wave Elastography I

Chair: **Mark Palmeri**
Duke University

P2Ac-1 *In Vivo* Detection of Bleeding Rate in a Dog Model of Hemophilia and at Human Femoral Arteriotomy by ARFI Ultrasound

Mallory Scola[1], Russell Behler[2], Timothy Nichols[3,4], Melissa Caughey[4], Elizabeth Merricks[3], Robin Raymer[3], Paris Margaritis[5], Katherine High[5,6], Caterina Gallippi[1]
[1]*Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,* [2]*GE Healthcare, Milwaukee, WI, USA,* [3]*Department of Pathology and Laboratory Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,* [4]*Department of Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,* [5]*Division of Hematology, Children's Hospital of Philadelphia, Philadelphia, PA, USA,* [6]*Howard Hughes Medical Institute, Children's Hospital of Philadelphia, Philadelphia, PA, USA*

P2Ad-1 Measurement of Tendon Velocities using Vector Tissue Doppler Imaging and Curved M-Mode in Patients with Cerebral Palsy

Avinash Eranki[1], Paul Otto[1], Lindey Curatalo[2], Laura Prosser[2], Katharine Alter[2], Diane Damiano[2], Siddhartha Sikdar[1]
[1]*George Mason University, USA,* [2]*National Institutes of Health, USA*

P2Ad-2 Detectability index describes the information conveyed by a sonographic image

Nghia Nguyen[1], Craig Abbey[2], Michael Insana[3]
[1]*Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA,* [2]*Psychological and Brain Sciences, University of California, Santa Barbara, Santa Barbara, California, USA,* [3]*Bioengineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA*

Session P2Ad.
d - Image Processing & Measurements

Chair: **Peter Hoskins**
Univ. of Edinburgh

P2Ad-3 Gallbladder Quantification in Ultrasound using GVF Snakes

Ravi Samala[1], Srikrishnan V[1], Michael Washburn[2], **Navneeth Subramanian**[1]
[1]*GE Global Research, Bangalore, Karnataka, India,* [2]*GE Healthcare, Milwaukee, Wisconsin, USA*

P2Ad-8 Ultrasound Current Source Density Imaging Using a Clinical Intracardiac Catheter

Qian Li[1], Yexian Qin[1], Zhaohui Wang[1], Pier Ingram[1], Russell Witte[1]
[1]*Radiology, University of Arizona, Tucson, AZ, USA*

Session P2Ae.
e - Cardiovascular Elastography

Chair: **Hiroshi Kanai**
Tohoku University

P2Ae-1 Optical Flow-based B-Mode Elastography: An Application in Hypertensive Rat Models¡¦ Carotid

Roch Listz Maurice[1]
[1]*Centre de Recherche, Centre Hospitalier de l'Université de Montréal (CRCHUM), Montreal, Quebec, Canada*

P2Ae-6 In Vitro Experimental System for Ultrasonic Estimation of Myocardial Elasticity

Tomohiko Tanaka[1], Kunio Hashiba[2]
[1]*Central Research Laboratory, Hitachi Ltd., Kokubunji, Tokyo, Japan,* [2]*Central Research Laboratory, Hitachi Ltd., Japan*

P2Ae-7 Minimal-path contours combined with speckle tracking to estimate 2D displacements of the carotid artery wall in B-mode imaging

Guillaume Zahnd[1], Maciej Orkisz[1], André Serusclat[2], Didier Vray[1]
[1]*Université de Lyon, CREATIS; CNRS UMR 5220; Inserm U1044; INSA-Lyon, France,* [2]*Louis Pradel Hospital, Radiology Department, Lyon, France*

P2Ae-8 Affine phase based motion estimation applied to echocardiography

Florian Douziech[1,2], Hervé Liebgott[1], **Adrian Basarab**[2]
[1]*CREATIS CNRS UMR 5220 – INSERM U1044, Université de Lyon, France,* [2]*IRIT UMR CNRS 5505, Université de Toulouse, France*

P2Ae-9 3D cardiac strain imaging using plane wave excitation and feature tracking

Lin-Yi Tseng[1], Lung-Chun Lin[1], Pai-Chi Li[1]
[1]*Natoinal Taiwan University, Taiwan*

1:00 pm - 4:30 pm | **Poster --- Wednesday, October 19, 2011** | **Caribbean Ballroom III-V**

Session P2B. Acoustic Imaging

Chair: **Ramazan Demirli**
Villanova University, USA

P2B-1 **Study on non contact acoustic imaging method for non destructive inspection using SLDV and LRAD**

Tsuneyoshi Sugimoto[1], Ryo Akamatsu[1], Noriyuki Utagawa[2], Shuichi Tsujino[2]
[1]Electronics and Information Engineering, Toin University of Yokohama, Yokohama, Japan, [2]Sato kogyo Co. Ltd., Tokyo, Japan

P2B-2 **Basic Study of Water Distribution Measurement in Soil Using SLDV**

Tsuneyoshi Sugimoto[1], **Yutaka Nakagawa**[1], Takashi Shirakawa[1], Motoaki Sano[1], Motoyoshi Ohaba[2], Sakae Shibusawa[2]
[1]Electronics and Information Engineering, Toin University of Yokohama, Yokohama, Japan, [2]Faculty of Agriculture, Tokyo University of Agriculture and Technology, Tokyo, Japan

P2B-3 **Study on the buried object detection method using optimum frequency range method in extremely shallow underground**

Tsuneyoshi Sugimoto[1], Touma Abe[2]
[1]Electronics and Information Engineering, Toin Univ. of Yokohama, Yokohama, Japan, [2]IHI Inspection & Instrumentation Co.,Ltd., Tokyo, Japan

P2B-8 **Detection of second harmonic components of Lamb waves passed through fatigue tested magnesium plate**

Makoto Fukuda[1], Kazuhiko Imano[1], Hideki Yamagishi[2], Katsuhiro Sasaki[2]
[1]Akita University, Japan, [2]Toyama Industrial Technology Center, Japan

Session P2Ca. a - Optical and Electromagnetic Interations II

Chair: **Kimmo Kokkonen**
Aalto University, Finland

P2Ca-1 **Ultrasonic NDE in a Reactor Core**

Bernhard Tittmann[1,2], David Paks[1]
[1]Engineering Science and Mechanics, Penn State University, University Park, Pennsylvania, USA, [2]IEEE-UFFC AdCom, USA

P2Ca-2 **Normalization of Magnetic Field Effects: Towards Quantitative Magnetomotive Ultrasound Imaging**

Maria Evertsson[1], Magnus Cinthio[2], Sarah Fredriksson[3], Fredrik Olsson[3], Hans W Persson[2], Tomas Jansson[2]
[1]Faculty of engineering, LTH, Lund University, Lund, Sweden, [2]Faculty of engineering, LTH, Lund University, Sweden, [3]Genovis AB, Sweden

P2Cb-1 **Three-dimensional variable-focus liquid lens using acoustic radiation force**

Daisuke Koyama[1], Ryoichi Isago[1], Kentaro Nakamura[1]
[1]Precision and Intelligence Laboratory, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan

P2Cb-2 **Miniaturization of the Traveling Wave Ultrasonic Linear Motor Using Series Connection of Bimorph Transducers**

Shuichi Kondo[1], Daisuke Koyama[1], Kentaro Nakamura[1]
[1]Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan

P2Cb-3 **Analysis of Ultrasonic Motor in Air using Fluid Structure Interaction Based Simulations.**

Manoj Pandey[1], Sarvani Piratla[2], Amit Lal[2]
[1]Electrical and Computer Engineering, Cornell University, Ithaca, NY, USA, [2]Electrical and Computer Engineerin, Cornell University, Ithaca, NY, USA

Session P2D. Novel and Sensor Devices

Chair: **Ingo Bleyl**
TDK-EPC

P2D-5 **The Thin Film Plate Wave Resonator in view of Sensing Applications**

Ventsislav Yantchev[1], Emil Anderas[1], Lilia Arapan[1], Ilia Katardjiev[1]
[1]Solid State Electronics, Uppsala University, Uppsala, Sweden

P2D-6 **c-axis parallel oriented ZnO film SH-SAW sensor for electrical conductivity measurement in liquid**

Yuta Nakahigashi[1], Takahiko Yanagitani[2], Mami Matsukawa[1], Yoshiaki Watanabe[1]
[1]Doshisha University, Japan, [2]Nagoya Institute of Technology, Japan

P2D-7 **High Stable and Sensitive Orthogonal Frequency Coded SAW Tags and Sensors Using Unidirectional IDT and High Coupling Zero TCF Substrates**

Hiroyuki Odagawa[1], Donald Malocha[2], Kazuhiko Yamanouchi[3]
[1]Information, Communication and Electronic Engineering, Kumamoto National College of Technology, Japan, [2]University of Central Florida, USA, [3]Tohoku University, Japan

P2D-8 **Silicon/Periodically Poled Transducer/Silicon resonant devices for the stabili-zation of RF oscillators**

Florent Bassignot[1], **Eric Lebrasseur**[1], Gwenn Ulliac[2], Gilles Martin[1], Emilie Courjon[2], Bruno François[1], Jean-Marc Lesage[3], Sylvain Ballandras[1]
[1]Time & Frequency Dept, Femto-st, CNRS, Besancon, France, [2]Mimento, Femto-st, CNRS, Besancon, France, [3]CELAR, DGA, Rennes, France

P2E-1 **Reactive magnetron sputtering of piezoelectric Cr-doped AlN thin films**

Valery Felmetsger[1]
[1]PVD, OEM Group Inc., Gilbert, AZ, USA

P2E-2 **Metal-Polymer Iterative Multilayer Absorber for Ultrasonic Transducers**

Minoru Toda[1], Mitchell Thompson[2]
[1]Measurement Specialties Inc, Lawrenceville, NJ, USA, [2]Measurement Specialties Inc, Wayne, PA, USA

P2E-3 **Design of Anti Cavitation Hydrophone by Deposition of Hydrothermally Synthesized Lead Zirconate Ttitanate Poly-crystalline Film on Reverse Surface of Titanium Film Front Layer**

Shinichi Takeuchi[1], Mutsuo Ishikawa[1], Norimichi Kawashima[1], Takeyoshi Uchida[2], Masahiro Yoshioka[2], Tsuneo Kikuchi[2], Nagaya Okada[3], Minoru Kurosawa[4]
[1]Department of Clinical Engineering, Toin University of Yokohama, Yokohama, Kanagawa, Japan, [2]National Metrogy Institute of Japan, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan, [3]Honda Electronics Co.,Ltd, Toyohashi, Aichi, Japan, [4]Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan

P2E-4 **High Frequency Single Element Transducer Based on Pad-printed Lead-Free Piezoelectric Thick Films**

Franck Levassort[1], Karsten Hansen[2], Konstantin Astafiev[2], Jean-Marc Grégoire[1], Wanda. W. Wolny[2], Marc Lethiecq[1]
[1]Francois-Rabelais University, UMRS Imagerie & Cerveau, INSERM U930, TOURS, France, [2]MEGGITT A/S, Kvistgaard, Denmark

P2B-4 **3D Direction of Arrival Estimation and Localization Using Ultrasonic Sensors in an Anechoic Chamber** Vitaliy Kunin[1], Weidi Jia[1], Jafar Saniie[1], **Erdal Oruklu[1]** *[1]ECE Department, Illinois Institute of Technology, Chicago, IL, USA*	***P2Ca-3*** **Mechanical Characterization of Ultra-thin Films using Colored Picosecond Acoustics** **Arnaud Devos[1]**, Pierre-Adrien Mante[1], Arnaud Le Louarn[1], Sabrina Sadtler[1] *[1]IEMN CNRS, Lille, France*	***P2D-1*** **Active Mixing in microfluidic systems using Surface acoustic waves** **Raimund Bruenig[1]**, Andreas Winkler[2], Glen Guhr[2], Hagen Schmidt[2] *[1]IFW Dresden, Dresden, Sachsen, Germany, [2]IFW Dresden, Germany*	***P2D-9*** **Passive, Wireless Surface Acoustic Wave Radio Frequency Identification (SAW-RFID) Sensors for Temperature and Strain Measurements** **Fang Li[1]**, Dan Xiang[1], Cliff Searfass[2], Bernhard Tittmann[2] *[1]Intelligent Automation, Inc., USA, [2]Penn State University, USA*	***P2E-5*** **Ultrasonic Properties of Bio-compatible Silicone Rubbers for Matching Transit-Time Piezoelectric Transducers during Blood Flow Estimation in Coronary Vessels** Luis Diez[1], Hector Calás[1], Antonio Ramos[1], **Tomas Gómez Álvarez-Arenas[1]** *[1]Ultrasounds for medical and industrial applications (UMEDIA), Spanish National Research council (CSIC), Madrid, Madrid, Spain*
P2B-5 **Air-coupled thickness measurements of steel plates** **Grunde Waag[1,2]**, Petter Norli[2], Lars Hoff[1] *[1]Vestfold University College, Borre, Norway, [2]Det Norske Veritas, Høvik, Norway*	***P2Ca-4*** **Efficient Multi-Beam Density-Tapered Diffraction of Pulse Light by Multi-Frequency Sound** **Valery Proklov[1]**, Sergey Antonov[2], Alexander Vainer[1] *[1]Lab. 254, Kotelnikov IRE RAS, Fryazino, Moscow region, Russian Federation, [2]Lab. 250, Kotelnikov IRE RAS, Fryazino, Moscow region, Russian Federation*	***P2D-2*** **Label-Free Detection of Prostate-Specific Antigen with FBAR-Based Sensor with Oriented Antibody Immobilization** **Anderson Lin[1]**, Yi-Jia Li[2], Lingtao Wang[1], Shih-Jui Chen[1], Mitchell Gross[2], Eun Sok Kim[1] *[1]Department of Electrical Engineering, University of Southern California, USA, [2]Department of Medicine, University of Southern California, USA*	***P2D-10*** **Compact Antennas for Wireless Langasite SAW Sensors** **Tao-Lun Chin[1,2]**, David Greve[2,3], Irving Oppenheim[1,4] *[1]National Energy Technology Laboratory, USA, [2]Electrical and Computer Engineering, Carnegie Mellon University, USA, [3]National Energy Technology Laboratory, Pittsburgh, PA, USA, [4]Civil and Environmental Engineering, Carnegie Mellon University, USA*	***P2E-6*** **Lead-Free $K_{0.5}Na_{0.5}NbO_3$ and $Bi_{0.5}Na_{0.5}TiO_3$ piezoelectric films for high-frequency ultrasonic transducer applications** Xinwei Yan[1], **Wei Ren[1]**, Lingyan Wang[1], Hongfen Ji[1], Peng Shi[1], Xiaoqing Wu[1], Xi Yao[1], Qifa Zhou[2], Sien-Ting Lau[2], K. Kirk Shung[2] *[1]Electronic Materials Research Laboratory, Xian Jiaotong University, China, People's Republic of, [2]NIH Transducer Resource Center and Department of Biomedical Engineering, University of Southern California, USA*
P2B-6 **A Novel Numerical Simulation of Sound Wave Propagation Using Sub-grid CIP-MOC method** **Yuta Ara[1]**, Kan Okubo[1], Norio Tagawa[1], Takao Tsuchiya[2], Takashi Ishizuka[3] *[1]Tokyo Metropolitan University, Japan, [2]Doshisha University, Japan, [3]Shimizu Corporation, Japan*	***P2Ca-5*** **Microstructure-Induced Phonon Focusing Effects and Opportunities for Improved Material Quantification** **James Blackshire[1]** *[1]AFRL/RXLP, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA*	***P2D-3*** **Development of a new wireless surface acoustic wave based gyroscope** **Wen Wang[1]** *[1]Institute of Acoustics,Chinese Academy of Sciences, Beijing, Beijing, China, People's Republic of*	***P2D-11*** **Theoretical Considerations on Suppression Mechanism of Spurious Transverse Mode Resonances in Wideband SAW Resonator on $LiNbO_3$** **Tatsuya Omori[1]**, Takahiro Suyama[2], Kenta Shimada[2], Chang-Jun Ahn[2], Masatsune Yamaguchi[2], Ken-ya Hashimoto[2] *[1]Electrical & Electronics Engineering, Chiba University, Chiba, Japan, [2]Chiba University, Japan*	***P2E-7*** **Electro-optical properties of Lead Zirconate Titanate composite films used in flexible high temperature ultrasonic transducers** **Jeanne-Louise Shih[1]**, Maurice Cha-Kiu Cheung[1], Cheng-Kuei Jen[2] *[1]McGill University, Canada, [2]Industrial Materials Institute, National Research Council of Canada, Canada*
P2B-7 **Determination of size and shape of small inclusions from sound-field information** **Norbert Gust[1]**, Elfgard Kuehnicke[1], Mario Wolf[1], Sebastian Kümmritz[1] *[1]TU Dresden, Germany*	***Session P2Cb. b - Ultrasonic Motors and Actuators II*** *Chair:* **Takefumi Kanda** *Okayama University, Japan*	***P2D-4*** **SAW magnetic sensors composed of various Ni electrode structures on quartz** **Michio Kadota[1]**, Shigeo Ito[1] *[1]Murata Mfg. Co., Ltd., Japan*	***Session P2E. Transducer Materials*** *Chair:* **Richard O'Leary** *University of Strathclyde*	***P2E-8*** **Air-coupled Piezoelectric Transducer with Active Matching Layers** **Tomas Gómez Álvarez-Arenas[1]** *[1]Spanish National Research Council (CSIC), Madrid, Madrid, Spain*

WEDNESDAY POSTER

1:00 pm - 4:30 pm	Poster --- Wednesday, October 19, 2011			Caribbean Ballroom III-V
P2E-9 **HfO2 High-k Dielectric Layers in Air-Coupled Capacitive Ultrasonic Transducers** Sean Mc Sweeney[1], **William M. D. Wright[1]** *[1]Electrical and Electronic Engineering, University College Cork, Ireland*				
P2E-10 **PIN-PMN-PT Piezoelectric Crystals with Increased Rhombohedral-to-Tetragonal Phase Transition Temperature** **Jun Luo[1]**, Shujun Zhang[2], Wesley Hackenberger[1], Thomas Shrout[2] *[1]TRS Technologies, Inc, USA, [2]Pennsylvania State University, USA*				
P2E-11 **High Frequency (>200 MHz) Focus Transducer with Lead-free KNN-BNT 0-3 Composite Film** Sien Ting Lau[1], Xiang Li[1], Ruimin Chen[1], **Qifa Zhou[1]**, K. Kirk Shung[1], Hongfen Ji[2], Wei Ren[2] *[1]Biomedical Engineering, University of Southern California, USA, [2]Electronic Materials Research Laboratory, Xian Jiaotong University, China, People's Republic of*				

8:00 am - 9:30 am — Oral --- Thursday, October 20, 2011

	Session 1D. Bio-effects and Dosimetry *Chair:* **William O'Brien** *Univ. of Illinois at Urbana-Champaign*	Session 2D. Cardiovascular Imaging *Chair:* **Chris de Korte** *Catholic Univ. of Nijmegen*	Session 3D. Targeted contrast Agents *Chair:* **Paul Dayton** *Univ. North Carolina/NCSU*	Session 4D. Phased Arrays *Chair:* **Paul Wicox** *University of Bristol, UK*	Session 5D. Radio Frequency Phononic Crystals *Chair:* **Tsung-Tsong Wu** *National Taiwan University*	Session 6D. CMUTs II Devices *Chair:* **John Fraser** *Philips Ultrasound*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
8:00 am	***1D-1*** **Dosimetry and Therapeutics** Gail Ter Haar[1] *[1]Institute of Cancer Research, UK*	***2D-1*** **Performance of elastic image registration against speckle tracking for 2D cardiac motion and strain estimation** **Brecht Heyde[1]**, Ruta Jasaityte[1], Stefaan Bouchez[2], Michael Vandenheuvel[2], Piet Claus[1], Patrick Wouters[2], Jan D'hooge[1,3] *[1]Cardiovascular Imaging and Dynamics, Catholic University of Leuven, Leuven, Belgium, [2]Department of Anesthesiology, Ghent University, Ghent, Belgium, [3]Medical Imaging Lab, Norwegian Institute for Science & Technology, Trondheim, Norway*	***3D-1*** **Probing microbubble adhesion using secondary acoustic radiation force** **Tom J.A. Kokhuis[1,2]**, Valeria Garbin[3], Klazina Kooiman[1], Benno A. Naaijkens[2,4], Lynda J.M. Juffermans[2,5], Otto Kamp[2,6], Michel Versluis[7], Antonius F.W. van der Steen[1,2], Nico de Jong[1,2] *[1]Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands, [2]Interuniversity Cardiology Institute of The Netherlands, Utrecht, Netherlands, [3]Department of Chemical and Biomolecular Engineering, University of Pennsylvania, Pennsylvania, USA, [4]Department of Pathology, VU University Medical Center,*	***4D-1*** **Development of Conformable Ultrasound Array NDE Transducer** Vishal Kulkarni[1], Fanping Sun[2], Saurabh Bakshi[1], **Xiaoning Jiang[1]**, Zaffir Chaudhry[3] *[1]North Carolina State University, Raleigh, NC, USA, [2]United Technologies Research Center, East Hartford, CT, USA, [3]United Technologies Research Center, USA*	***5D-1*** **Micro and Nano Fabricated Phononic Crystals: Technology and Applications** **Roy H. Olsson III[1]**, Maryam Ziaei-Moayyed[1], Bongsang Kim[1], Charles Reinke[1], Mehmet F. Su[1], Patrick Hopkins[1], Yasser M. Soliman[1], Drew F. Goettler[1], Zayd C. Leseman[1], Ihab El-Kady[1] *[1]Advanced MEMS Department, Sandia National Laboratories, Albuquerque, New Mexico, USA*	***6D-1*** **Comparison of conventional and collapse-mode CMUTs in 1-D array configuration** **Kwan Kyu Park[1]**, Omer Oralkan[1], Butrus (Pierre) T. Khuri-Yakub[1] *[1]Edward L. Ginzton Laboratory, Stanford University, Stanford, CA, USA*
8:15 am		***2D-2*** **Real-time Motion Tracking for Non-invasive Ultrasound Cardiac Therapy** **Ryan Miller[1]**, Yohan Kim[1], Kuang Wei Lin[1], Gabe Owens[2], Charles Cain[1], Zhen Xu[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, [2]Pediatrics, University of Michigan, USA*	***3D-2*** **Towards a Concentration Independent Readout of Molecular Signals with Micro-ultrasound** Eva Chan[1], John Sun[2], **F. Stuart Foster[1]** *[1]Sunnybrook Health Sciences Centre and University of Toronto, Toronto, Ontario, Canada, [2]VisualSonics Inc, Toronto, Ontario, Canada*	***4D-2*** **Spectrogram remapping based imaging for spiral shaped frequency steerable acoustic transducers** **Emanuele Baravelli[1,2]**, Luca De Marchi[2], Massimo Ruzzene[1], Nicolo' Speciale[2] *[1]Aerospace Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]ARCES/DEIS, University of Bologna, Bologna, Italy*		***6D-2*** **Measurement of the additional loss due to a grooved bottom structure intended for use in the backing structure for Capacitive Micro machined Ultrasonic Transducers (CMUTs)** **Kamal Raj Chapagain[1]**, Arne Rønnekleiv[1] *[1]Department of Electronics and Telecommunications, Norwegian University of Science and Technology, NTNU, Trondheim, Norway*

8:30 am	***1D-2*** **Mechanobiologic Acoustics on Bone Cellular and In Vivo Adaptation** **Yi-Xian Qin**[1], Shu Zhang[1], Suzanne Ferreri[1], Jiqi Zhang[1] *[1]Biomedical Engineering, SUNY Stony Brook, Stony Brook, New York, USA*	***2D-3*** **The measurement of layer-specific circumferential strain improves the detection of myocardial viability** Noa Bachner-Hinenzon[1], Offir Ertracht[2], Assaf Malka[2], Marina Leitman[3], Zvi Vered[3], Ofer Binah[2], **Dan Adam**[1] *[1]Biomedical engineering, Technion - Israel institute of technology, Israel, [2]Department of Physiology, Ruth and Bruce Rappaport Faculty of Medicine, Technion - Israel institute of technology, Israel, [3]Department of Cardiology, Assaf Harofeh Medical Center, Israel*	***3D-3*** **The influence of attachment on the nonlinear behaviour of lipid encapsulated microbubbles at high frequencies** **Brandon Helfield**[1,2], Xuan Huo[1], Stuart Foster[1,2], David Goertz[1,2] *[1]Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada*	***4D-3*** **Ultrasonic Synthetic Aperture Focusing Using the Root-mean-square Velocity** Ruey-Chyuan Shih[1], Young-Fo Chang[1], Chih-Hsiung Chang[2], **Po-Yen Tseng**[1] *[1]Department of Earth and Environmental Sciences, National Chung Cheng University, Minhsiung Township, Chiayi County, Taiwan, [2]General Education Center, National Chaiyi University, Chiayi City, Taiwan*	***5D-2*** **Extended band gaps in a GHz aluminum nitride phononic crystal slab** Marie Gorisse[1], Sarah Benchabane[2], Guilhem Teissier[1], Christophe Billard[1], Alexandre Reinhardt[1], Vincent Laude[2], **Emmanuel Defaÿ**[1] *[1]CEA, Leti, Minatec campus, Grenoble, France, [2]FEMTO-ST, Université de Franche-Comté, CNRS, Besançon, France*	***6D-3*** **Understanding CMUTs with substrate-embedded springs** **Byung Chul Lee**[1], Amin Nikoozadeh[1], Kwan Kyu Park[1], Butrus (Pierre) T. Khuri-Yakub[1] *[1]E. L. Ginzton Laboratory, Stanford University, USA*
8:45 am	***1D-3*** **Heat Shock Protein Expression in Sonoporated Myeloid Leukemia Cells** Wenjing Zhong[1], Pingping Jiang[2], Hualin Wang[2], Jennifer M. F. Wan[2], **Alfred C. H. Yu**[1] *[1]Medical Engineering Program, The University of Hong Kong, Hong Kong, [2]School of Biological Sciences, The University of Hong Kong, Hong Kong*	***2D-4*** **2D myocardial strain in the mouse through spatial compounding: in-vivo feasibility study** **Florence Kremer**[1], Vesselina Ferfercva[1], Hon Fai Choi[1], Jan D'hooge[1,2] *[1]Lab on Cardiovascular Imaging & Dynamics, Department of Cardiovascular Diseases, Catholic University of Leuven, Leuven, Belgium, [2]MI lab, Norwegian Institute for Science & Technology, Trondheim, Norway*	***3D-4*** **Insonation of Targeted Microbubbles Produces Regions of Slow Blood Flow within Tumor Vasculature** **Xiaowen Hu**[1], Azadeh Kheirolomoom[1], Lisa Mahakian[1], Julie Beegle[1], Elizabeth Ingham[1], Charles Caskey[1], Dustin Kruse[1], Katherine Ferrara[1] *[1]Biomedical Engineering, University of California, Davis, CA, USA*	***4D-4*** **3D Reconstruction from Adaptive Matrix Microphone Array Signals using Back Projection Algorithm** **Kyohei Mizutani**[1], Masanori Sugimoto[2], Hiromichi Hashizume[3] *[1]School of Engineering, The University of Tokyo, Bunkyo-ku, Tokyo, Japan, [2]The University of Tokyo, Japan, [3]Information Systems Architecture Science Research Division, Japan*	***5D-3*** **VHF Phononic Band Gap Band Pass Filters using Coupled Resonator Acoustic Waveguides (CRAW)** **Saeed Mohammadi**[1], Abdelkrim Khelif[1,2], Ali A. Eftekhar[3], Ali Adibi[1] *[1]Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]Institut Femto-ST, CNRS, France, [3]Georgia Institute of Technology, Atlanta, GA, USA*	***6D-4*** **Design and Implementation of Capacitive Micromachined Ultrasonic Transducers for High Power** **Yalcin Yamaner**[1], Selim Olcum[2], Ayhan Bozkurt[1], Hayrettin Koymen[2], Abdullah Atalar[2] *[1]Electronics Engineering Department, Sabanci University, Istanbul, Turkey, [2]Electrical and Electronics Engineering Department, Bilkent University, Ankara, Turkey*
9:00 am	***1D-4*** **In Vivo Microbubble Cavitation Imaging** **Francois Vignon**[1], Jinjin Liu[2], William Shi[1], Jeffery Powers[3], Feng Xie[2], Shunji Gao[2], Lucas Drvol[2], John Lof[3], Carr Everbach[4], Thomas Porter[2] *[1]Philips Research North America, Briarcliff Manor, NY, USA, [2]University of Nebraska Medical Center, Omaha, NE, USA, [3]Philips Healthcare, Bothell, WA, USA, [4]Swarthmore College, Swarthmore, PA, USA*	***2D-5*** **3D Time-Resolved In Vivo Strain Imaging and Elastography of the Human Aorta** **R.G.P. Lopata**[1,2], H.H.G. Hansen[3], E.M.H. Bosboom[1,2], G.J.L.M. Jongen[1], G.W.H. Schurink[4], C.L. de Korte[3], F.N. van de Vosse[1,2] *[1]Cardiovascular Biomechanics, dept. of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands, [2]Biomedical Engineering, Maastricht University, Maastricht, Netherlands, [3]Clinical Physics Lab, Children's Hospital, Radboud University Nijmegen Medical Center, Nijmegen, Netherlands, [4]Department of Surgery, Maastricht University Medical Center, Maastricht, Netherlands*	***3D-5*** **3D Radiation Force Enhanced Ultrasonic Molecular Imaging with Clinical System** **Jason E. Streeter**[1], Ryan C. Gessner[1], Paul A. Dayton[1] *[1]Biomedical Engineering, UNC / NC State, Chapel Hill, NC, USA*	***4D-5*** **Synthetic Transmit Aperture 3D Image Reconstruction Using 2D Transmitter Array** **Natsuda Laokulrat**[1], Yasushige Maeda[2], Masanori Sugimoto[1], Hiromichi Hashizume[3] *[1]Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo, Bunkyo-ku, Tokyo, Japan, [2]Department of Informatics, School of Multidisciplinary Sciences, The Graduate University for Advanced Studies, Chiyoda-ku, Tokyo, Japan, [3]Information Systems Architecture Science Research Division, National Institute of Informatics, Chiyoda-ku, Tokyo, Japan*	***5D-4*** **Lithium niobate honeycomb lattice crystals : towards simultaneous photonic and phononic band gaps** **Sarah Benchabane**[1], Said Sadat-Saleh[1], Roland Salut[1], Gwenn Ulliac[1], Maria-Pilar Bernal[1], Vincent Laude[1] *[1]FEMTO-ST, France*	***6D-5*** **Fabrication and model validation for CMUTs operated in permanent contact mode** **Min-Chieh Ho**[1], Srikant Vaithilingam[1], Mario Kupnik[2], Butrus T. Khuri-Yakub[1] *[1]Edward L. Ginzton Laboratory, Stanford University, CA, USA, [2]Brandenburg University of Technology, Cottbus, Germany*
9:15 am	***1D-5*** **Biological Effects of Acoustic Droplet Vaporization in Gas Embolotherapy** **Robinson Seda**[1], J. Brian Fowlkes[2], Joseph Bull[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA, [2]Radiology, University of Michigan, Ann Arbor, MI, USA*	***2D-6*** **Arterial elasticity as a predictor for arteriovenous fistula maturation: Preliminary results** **Anna Sorace**[1], Kenneth Hoyt[2], Michelle Robbin[2], Mark Lockhart[2], Carl Abts[2], Michael Allon[3] *[1]Biomedical Engineering, University of Alabama at Birmingham, Birmingham, AL, USA, [2]Radiology, University of Alabama at Birmingham, Birmingham, AL, USA, [3]Medicine, University of Alabama at Birmingham, Birmingham, AL, USA*	***3D-6*** **A Targeting Therapy Strategy by Aptamer-Conjugated and Drug-Loaded Droplets** **Chung-Hsin Wang**[1], Ya-Shuan Lee[1], Shih-Tsung Kang[1], Chih-Kuang Yeh[1] *[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan*	***4D-6*** **Measuring Phase Characteristics of Ultrasonic Microphones for Accurate Ultrasonic Localization Systems** **Shigeki Nakamura**[1], Masanori Sugimoto[1], Hiromichi Hashizume[2] *[1]Graduate School of Engineering, University of Tokyo, Bunkyo-ku, Tokyo, Japan, [2]National Institute of Informatics, Chiyoda-ku, Tokyo, Japan*	***5D-5*** **High efficiency phononic crystal reflective gratings for surface acoustic waves** **Jia-Hong Sun**[1], Tsung-Tsong Wu[1] *[1]Institute of Applied Mechanics, National Taiwan University, Taipei, Taiwan*	***6D-6*** **Radiation Impedance of an Array of Circular Capacitive Micromachined Ultrasonic Transducers in Collapsed State** **Alper Ozgurluk**[1], Abdullah Atalar[1], Hayrettin Koymen[1], Selim Olcum[1] *[1]Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey*

10:30 am - 12:00 pm — Oral --- Thursday, October 20, 2011

	Session 1E. Clinical Session *Chair:* **Ton van der Steen** *Erasmus Medical Centre*	***Session 2E. Bone*** *Chair:* **Pascal Laugier** *Université Pierre et Marie Curie*	***Session 3E. Novel Ultrasound Systems*** *Chair:* **Wilko Wilkening** *Siemens Medical Solution*	***Session 4E. Imaging and Signal Processing*** *Chair:* **Jafar Saniie** *Illinois Institute of Technology, USA*	***Session 5E. Optical and Electromagnetic Interactions I*** *Chair:* **Vincent Laude** *Centre National de la Recherche Scientifique*	***Session 6E. Applications*** *Chair:* **Qifa Zhou** *USC*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
10:30 am	***1E-1*** **IVUS and IVUS elasticity related imaging** Yoshifumi Saijo[1] *[1]Tohoku University, Japan*	***2E-1*** **Circumferential waves guided by the femur cortical shell can be used to predict femur strength: in vitro evidence** Julien Grondin[1], Quentin Grimal[1], Sandra Guerard[2], Reinhard Barkmann[3], Claus Gluer[3], **Pascal Laugier[1]** *[1]LIP, UPMC-CNRS, France, [2]Arts et Metiers PARISTECH, France, [3]Medizinische Physik, Klinik fur Diagnostische Radiologie, UKSH, Germany*	***3E-1*** **An Architecture and Implementation of Real-time Synthetic Aperture Compounding with SARUS** **Matthias Bo Stuart[1]**, Jørgen Arendt Jensen[1] *[1]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, DK-2800 Lyngby, Denmark*	***4E-1*** **Guided wave temperature compensation with the scale-invariant correlation coefficient** **Joel B. Harley[1]**, José M.F. Moura[1] *[1]Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA*	***5E-1*** **Numerical modeling of thermoelastic laser-generation of ultrasonic waves** **Istvan A Veres[1,2]**, Bernhard Reitinger[1,2], Peter Burgholzer[1,2] *[1]Christian Doppler Laboratory for Photoacoustic Imaging and Laser Ultrasonics, Linz, Austria, [2]Research Center for Non Destructive Testing GmbH, Linz, Austria*	***6E-1*** **Ultrasonic inspection of nuclear reactor primary components** **Jean-Francois Saillant[1]** *[1]AREVA - NDE Solutions, Chalon sur Saone, Bourgogne, France*
10:45 am		***2E-2*** **Nonlinear ultrasound monitoring of fatigue microdamage accumulation in cortical bone** **Sylvain Haupert[1]**, Sandra Guerard[2], Paul A. Johnson[3], David Mitton[2,4], Pascal Laugier[5] *[1]UPMC Univ Paris 6 - CNRS - LIP, PARIS, IDF, France, [2]Arts et Metiers ParisTech - LBM, PARIS, France, [3]Geophysics Group - Los Alamos National Laboratory, LOS ALAMOS, USA, [4]Université de Lyon - Ifsttar - LBMC, BRON, France, [5]UPMC Univ Paris 6 - CNRS - LIP, PARIS, France*	***3E-2*** **A Programmable and Compact Open Platform for Ultrasound Bio-Microscope** **Weibao Qiu[1]**, Yanyan YU[1], Fu Keung TSANG[1], Lei SUN[1] *[1]Department of Health Technology and Informatics, The Hongkong Polytechnic University, Hong Kong*	***4E-2*** **Acoustic Emission Detection and Classification Using Wavelet-Based Power-Law Detector** **Dan Xiang[1]**, Julia Deng[1], Yexian Qin[1] *[1]Intelligent Automation, Inc., USA*	***5E-2*** **Non-perturbing measurement of sound pressure fields by means of laser Doppler vibrometer** **Lizhuo Chen[1,2]**, Stefan Rupitsch[1], Reinhard Lerch[1] *[1]Chair of Sensor Technology, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany, [2]Erlangen Graduate School in Advanced Optical Technologies, Germany*	

11:00 am	***1E-2*** **OCT, NIR/IVUS and other optical techniques** Evelyn Regar[1] *[1]Erasmus Medical Center, the Netherlands*	***2E-3*** **Phase Cancellation and Aperture Size on Broadband Ultrasonic Attenuation for Trabecular Bone Assessment using a 2-D Confocal Synthetic Array** **Jiqi Cheng[1]**, Frederick Serra-Hsu[1], Yuan Tian[1], Wei Lin[1], Yi-Xian Qin[1] *[1]Stony Brook University, USA*	***3E-3*** **Ultrasonic wireless power and data communication for neural stimulation** **Je-Yu Tsai[1]**, Kai-Han Huang[1], Jun-Ru Wang[1], Shen-Iuan Liu[1], Pai-Chi Li[1] *[1]Natoinal Taiwan University, Taiwan*	***4E-3*** **Acoustic Inspection of High-Density-Interconnects for 3D-Integration** **Sebastian Brand[1]**, Matthias Petzold[1], Peter Czurratis[2], Jason D. Reed[3], Chris Gregory[3], Alan Huffman[3], John M. Lennon Jr.[3], Dorota S. Temple[3] *[1]Fraunhofer Institute for Mechanics of Materials, IWM, Halle, Germany, [2]PVA TePla Analytical Systems GmbH, Westhausen, Germany, [3]Center for Materials and Electronic Technologies, RTI International, North Carolina, USA*	***5E-3*** **Brillouin scattering from induced phonons excited by the ZnO piezoelectric thin film with a coaxial resonator** **Takeshi Sugimoto[1]**, Hiroyuki Sano[1], Takahiko Yanagitani[2], Shinji Takayanagi[1], Mami Matsukawa[1] *[1]Doshisha University, Japan, [2]Nagoya Institute of Technology, Japan*	***6E-2*** **Additive Manufacturing of PZT-5H Piezoceramic** **Scott Smith[1]**, Prabhjot Singh[1], Michelle Bezdecny[1], Mark Cheverton[1], Venkat Venkataramani[1], Anthony Brewer[1] *[1]GE Global Research, USA*
11:15 am		***2E-4*** **Determining the attenuation of overlapping fast and slow waves in cancellous bone using Bayesian techniques** **Amber Nelson[1]**, Joseph Hoffman[1], Mark Holland[1], Katsunori Mizuno[2], Yoshiki Nagatani[3], Mami Matsukawa[2], James Miller[1] *[1]Washington University in St. Louis, USA, [2]Doshisha University, Japan, [3]Kobe City College of Technology, Japan*	***3E-4*** **Implementation of a Smart-Phone Based Portable Doppler Flowmeter** **Po-Yang Lee[1]**, Pay-Yu Chen[1], Chih-Chung Huang[1] *[1]Department of Electrical Engineering, Fu Jen Catholic University, Taiwan*	***4E-4*** **Non-linear parametric imaging using an ultrasonic focused transducer.** Guillaume Robin[1], François Vander Meulen[1], Jérôme Fortineau[1], **Guy Feuillard[1]** *[1]Lab. Imagerie et Cerveau, ENIVL-Université de François Rabelais de Tours, Blois, France*	***5E-4*** **Confined Acoustic Phonons in Ultra-Thin Silicon Membranes** **John Cuffe[1,2]**, Emigdio Chavez[1,3], Jordi Gomis Bresco[1], Pierre-Olivier Chapuis[1], Francesc Alzina[1], Andrey Shchepetov[4], Mika Prunnila[4], Jouni Ahopelto[4], Olivier Ristow[5], Mike Hettich[5], Thomas Dekorsy[5], Clivia M. Sotomayor Torres[1,6] *[1]Catalan Institute of Nanotechnology (CIN2-CSIC), Bellaterra, Barcelona, Spain, [2]Dept. of Physics, University College Cork, Tyndall National Institute, Cork, Ireland, [3]Dept. of Physics, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, [4]VTT Technical Research Centre of Finland, Espoo, Finland, [5]Dept. of Physics, University of Konstanz, Konstanz, Germany, [6]Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain*	***6E-3*** **Cell Characterization Using High Frequency Ultrasound** **Saurabh Bakshi[1]**, John Williams[2], Xiaoning Jiang[1], Elizabeth Loboa[2] *[1]Mechanical & Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, [2]Biomedical Engineering, North Carolina State University, Raleigh, NC, USA*
11:30 am	***1E-3*** **Plaque characterization by IVUS, NIR, FFR and other emerging techniques** Akiko Maehara[1] *[1]Cardiovascular Research Foundation, USA*	***2E-5*** **Circumferential guided wave measurement in the femur cortical shell : bone mimicking tube study** **Pierre Nauleau[1]**, Etienne Cochard[2], Jean-Gabriel Minonzio[1], Quentin Grimal[1], Claire Prada[2], Pascal Laugier[1] *[1]Laboratoire d'imagerie paramétrique (UPMC Paris6 - CNRS UMR 7623), Paris, France, [2]Institut Langevin (ESPCI Université Paris7 - CNRS UMR 7587), Paris, France*	***3E-5*** **Development of a Low-profile, Wearable, CMUT based, Medical Ultrasound Imaging Probe** **Anshuman Bhuyan[1]**, Jung Woo Choe[1], Byung Chul Lee[1], Omer Oralkan[1], Butrus T. Khuri-Yakub[1] *[1]Edward L. Ginzton Laboratory, Stanford University, USA*	***4E-5*** **Warped-Wigner-Hough Transformation of Lamb Waves for Automatic Defect Detection** **Alessandro Perelli[1]**, Luca De Marchi[1], Emanuele Baravelli[1,2], Alessandro Marzani[3], Nicolò Speciale[1] *[1]Department of Electronics Computer Science and Systems - DEIS, University of Bologna, Bologna, Italy, [2]School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, USA, [3]Department of Civil, Environmental and Materials Engineering - DICAM, University of Bologna, Bologna, Italy*	***5E-5*** **Evaluation of thin film coating adhesion with an opto-acoustic technique** Sanichiro Yoshida[1], Mohan Basnet[1], Chiaki Miyasaka[2], **Bernhard Tittmann[2]**, Ik-Keun Park[3] *[1]Southeastern Louisiana University, USA, [2]The Pennsylvania State University, USA, [3]Seoul National University of Science and Technology, Korea, Republic of*	***6E-4*** **MEMS-Based Multiple Fourier-Horn Silicon Ultrasonic Atomizer For Inhalation Drug Delivery** **Chen Tsai[1,2]**, Shih-Kai Lin[1], Rong-Wei Mao[1], Shirley Tsai[3] *[1]Electrical Engineering and Computer Science, University of California, Irvine, Irvine, CA, USA, [2]Inst. of Optoelectronics and Photonics, National Taiwan University, Taipei, Taiwan, [3]Chemical Engineering and Materials Science, University of California, Irvine, Irvine, CA, USA*
11:45 am		***2E-6*** **Two wave propagation image for investigating the anisotropic structure of cancellous bone** **Keisuke Yamashita[1]**, Katsunori Mizuno[1], Mami Matsukawa[1] *[1]Doshisha University, Japan*	***3E-6*** **Real-time Volumetric Ultrasound Imaging System for 2-D CMUT Arrays** **Jung Woo Choe[1]**, Omer Oralkan[1], Amin Nikoozadeh[1], Anshuman Bhuyan[1], Byung Chul (B.C.) Lee[1], Mustafa Gencel[1], Butrus (Pierre) T. Khuri-Yakub[1] *[1]Edward L. Ginzton Laboratory, Stanford University, USA*	***4E-6*** **A Computationally Efficient Algorithm for Ultrasonic Signal Decomposition and Flaw Detection** **Alireza Kasaeifard[1]**, Jafar Saniie[1], Erdal Oruklu[1] *[1]ECE Department, Illinois Institute of Technology, Chicago, IL, USA*	***5E-6*** **Inductive magneto-acoustic technique for viscous fluids monitoring** **Nicolas Wilkie-Chancellier[1]**, Stephane Serfaty[2], Pascal Griesmar[2], Yohan Le Diraison[2], Jean-Yves Le Huerou[2] *[1]SATIE (CNRS - UMR 8029), Université de Cergy-Pontoise, Neuville sur Oise, France, Metropolitan, [2]Université de Cergy-Pontoise, France, Metropolitan*	***6E-5*** **Micro-localized cell lysis by low-power focused acoustic transducer** **Lingtao Wang[1]**, Yi-Jia Li[2], Anderson Lin[1], Youngki Choe[1], Mitchell Gross[2], Eun Sok Kim[1] *[1]Electrical Engineering, University of Southern California, USA, [2]Department of Medicine, University of Southern California, USA*

2:00 pm - 3:30 pm — Oral --- Thursday, October 20, 2011

	Session 1F. Synthetic Aperture Beam Forming *Chair:* **Jorgen Jensen** *Technical Univ. of Denmark*	Session 2F. Elastography: New Methods *Chair:* **Kathy Nighingale** *Duke University*	Session 3F. Photoacoustics: Technology Development *Chair:* **Pai-Chi Li** *National Taiwan University*	Session 4F. Novel Acoustic Wave Sensors *Chair:* **Mauricio Pereia Da Cunha** *University of Maine*	Session 5F. Ultrasonic Motors and Actuators I *Chair:* **Minotu Kurosawa** *Tokyo Institute of Technology*	Session 6F. BAW Components and Technology (5B) *Chair:* **Dave Feld** *Avago Technologies*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
2:00 pm	***1F-1*** **Experimental Study of Dual-Ring CMUT Array Optimization for Forward-Looking IVUS** **Coskun Tekes**[1], Sarp Satir[1], Gokce Gurun[1], Jaime Zahorian[1], Michael Hochman[1], Toby Xu[1], F. Levent Degertekin[1], Mustafa Karaman[2] *[1]George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]Electronics Engineering, Isik University, Istanbul, Turkey*	***2F-1*** **Generalized Bayesian Speckle Tracking Applied to Strain and ARFI Displacements** **Brett Byram**[1], Gregg Trahey[1], Mark Palmeri[1] *[1]Duke University, USA*	***3F-1*** **All optical generation and detection of acoustic waves for intravascular ultrasound and photoacoustic imaging** **Bao-Yu Hsieh**[1], Sung-Liang Chen[2], Tao Ling[2], Jay Kuo[2], Pai-Chi Li[1] *[1]Natoinal Taiwan University, Taiwan, [2]University of Michigan, USA*	***4F-1*** **Recent developments of the thin film electro-acoustic technology in view of biosensor applications** **Ilia Katardjiev**[1], Ventsislav Yantchev[1] *[1]Solid State Electronics, Uppsala University, Uppsala, Uppland, Sweden*	***5F-1*** **Experimental study on high efficiency ultrasonic motors using lubricant** **Wei Qiu**[1], Yosuke Mizuno[1], Daisuke Koyama[1], Kentaro Nakamura[1] *[1]Precision and Intelligence Laboratory, Tokyo Institute of Technology, Yokohama, Japan*	***6F-1*** **A Feedback-Loop Oscillator stabilized using laterally-coupled-mode narrow-band HBAR filters** **Eric Lebrasseur**[1], Gilles Martin[1], Dorian Gachon[2], Thomas Baron[1], Alexandre Reinhardt[3], Pierre-Patrick Lassagne[3], Luc Chommeloux[4], Sylvain Ballandras[1] *[1]Time & Frequency Dept, Femto-st, CNRS, Besancon, France, [2]LEAUS, Université de Perpignan, France, [3]LCRF, CEA-LETI, France, [4]SENSeOR, France*
2:15 pm	***1F-2*** **Preliminary In-Vivo evaluation of Synthetic Aperture Sequential Beamforming** **Martin Christian Hemmsen**[1,2], Peter Møller Hansen[3], Theis Lange[4], Jens Munk Hansen[1], Michael Bachmann Nielsen[3], Jørgen Arendt Jensen[1] *[1]Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark, [2]R&D Applications & Technologies, BK Medical, Herlev, Denmark, [3]Dept. of Radiology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, [4]Dept. of Biostatistics, University of Copenhagen, Copenhagen, Denmark*	***2F-2*** **Motion Compensation Method for Quantification of Neovascularization in Carotid Atherosclerotic Plaques with Contrast Enhanced Ultrasound (CEUS)** **Zeynettin Akkus**[1], Johan G. Bosch[1], Guillaume Renaud[1], Gerrit L. ten Kate[2], Stijn van den Oord[2], Arend Schinkel[2], Nico de Jong[1,3], Antonius F.W. van der Steen[1,3] *[1]Thoraxcenter Biomedical Engineering, Erasmus MC, Netherlands, [2]Department of Cardiology, Thoraxcenter, Erasmus MC, Netherlands, [3]Interuniversity Cardiology Institute of the Netherlands, Utrecht, Netherlands*	***3F-2*** **Photoacoustic Coded Excitation using Periodically Perfect Sequences** **Martin F. Beckmann**[1], Martin P. Mienkina[1], Claus-Stefan Friedrich[2], Nils C. Gerhardt[2], Martin R. Hofmann[2], Georg Schmitz[1] *[1]Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany, [2]Photonics and Terahertz-Technology, Ruhr-Universität Bochum, Bochum, Germany*		***5F-2*** **Design and Evaluation of Ultrasonic Motor Located in Cryogenic Temperature Environments** **Daisuke Yamaguchi**[1], Takefumi Kanda[1], Koichi Suzumori[1] *[1]Graduate School of Natural Science and Technology, Okayama University, Okayama, Okayama, Japan*	***6F-2*** **A 48 MHz, Small, Hermetic, Chip-Scale Packaged USB3.0 Oscillator Integrating an FBAR Resonator with CMOS Circuitry** Andrew Nelson[1], **Rich Ruby**[2], Martha Small[2], Steve Ortiz[2], Brian Otis[1] *[1]University of Washington, USA, [2]avago technologies, USA*

2:30 pm	***1F-3*** **A synthetic-focusing strategy for real-time high-frequency annular-array imaging** **Jeffrey A. Ketterling**[1], Erwan Filoux[1] *[1]Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA*	***2F-3*** **Quantitative imaging using Time Reversal Elastography: a feasibility study.** **Javier Brum**[1,2], Stefan Catheline[2], Nicolas Benech[1], Thomas Gallot[2], Carlos Negreira[1] *[1]Laboratorio de Acústica Ultrasonora, Instituto de Física,Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay, [2]Institut des Sciences de la Terre (ISTerre), Université de Grenoble, Saint Martin d'Heres, Isére, France*	***3F-3*** **Quantitative Assessment of Photoacoustic and Ultrasonic Imaging of Prostate Brachytherapy Seeds** **Richard Bouchard**[1,2], Jimmy Su[2], Andrei Karpiouk[2], John Hazle[1], Stanislav Emelianov[1,2] *[1]MD Anderson Cancer Center, USA, [2]University of Texas at Austin, USA*	***4F-2*** **An Equivalent Circuit Model for a Liquid Loaded Lateral Field Excited Acoustic Wave Sensor** **Lester French**[1,2], Michael FitzGerald[3], John Vetelino[1,4] *[1]Laboratory for Surface Science and Technology, University of Maine, Orono, ME, USA, [2]Mainely Sensors, LLC, Orono, ME, USA, [3]Department of Physics & Astronomy, University of Maine, Orono, ME, USA, [4]Department of Electrical & Computer Engineering, University of Maine, Orono, ME, USA*	***5F-3*** **Actuation Force Characteristics of Non-contact Ultrasonic Suspension for Minute Objects** **Shota Chino**[1], Yasuhiro Kato[1], Masaya Takasaki[1], Takeshi Mizuno[1] *[1]Saitama Univ, Japan*	***6F-3*** **c-axis parallel oriented AlN film resonator fabricated by ion-beam assisted RF magnetron sputtering** **Masashi Suzuki**[1], Takahiko Yanagitani[1] *[1]Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan*
2:45 pm	***1F-4*** **Experimental Verification of a Split-aperture Transmit Beamforming Technique for Suppressing Grating Lobes in Large Pitch Phased Arrays** **Zahra Torbatian**[1], Rob Adamson[1], Manohar Bance[1,2], Jeremy Brown[1,2] *[1]Biomedical Engineering, Dalhousie University, Canada, [2]Department of Surgery, Dalhousie University, Canada*	***2F-4*** **Viscoelastic Characterization of an Elliptic Structure in Dynamic Elastography Imaging using a Semi-analytical Shear-wave Scattering Model** **Emmanuel Montagnon**[1], Anis Hadj Henni[1], Cédric Schmitt[1], Guy Cloutier[1] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center, Montreal, Quebec, Canada*	***3F-4*** **Trapping and Dynamic Manipulation of Magnetic Contrast Agent Targeted Cancer Cells in Photoacoustic Imaging: Phantom Study** **Chenwei Wei**[1], Jinjun Xia[1], Ivan M. Pelivanov[1,2], Xiaoge Hu[1], Xiaohu Gao[1], Matthew O&[prime]Donnell[1] *[1]University of Washington, USA, [2]Moscow State University, Russian Federation*	***4F-3*** **Lateral field excited bulk acoustic wave sensors on Langasite working on different operational modes** **Tingfeng Ma**[1], Chao Zhang[2], Zhitian Zhang[2], Wenyan Wang[2], Guanping Feng[2] *[1]Tsinghua University, Beijing, China, People's Republic of, [2]Research Institute of Tsinghua University in Shenzhen, China, People's Republic of*	***5F-4*** **The NeuroGlide Actuator: A Multi-Degree-of-Freedom Ultrasonic Micromotor for Neural Microcatheter Navigation** Cheol-ho Yun[1], Leslie Yeo[2], **James Friend**[2] *[1]MicroNanophysics Research Laboratory, Monash University, Clayton, Victoria, Australia, [2]Mechanical Engineering, Monash University, Clayton, VIC, Australia*	***6F-4*** **Experimental investigation of dual wave optimized reflector stacks in solidly mounted bulk acoustic wave resonators** **Sumy Jose**[1], Ray Hueting[1] *[1]Semiconductor Components, University of Twente, Netherlands*
3:00 pm	***1F-5*** **Ring Array PSF Synthesis by Delay Dithering** **Scott Dianis**[1], Ralph Hoctor[1] *[1]GE Global Research, Niskayuna, New York, USA*	***2F-5*** **Measurements of Viscoelasticity using the MR Elastography and Lamb wave Dispersion Ultrasound Vibrometry (LDUV)** **Ivan Nenadic**[1], Sara Aristizabal[1], Kevin Glaser[1], Scott Mitchell[1], Tye Humphrey[1], James Greenleaf[1] *[1]Mayo Clinic, Rochester, MN, USA*	***3F-5*** **Characterization of Red Blood Cell Aggregation with Photoacoustics: A Theoretical and Experimental Study** **Eno Hysi**[1], Ratan K Saha[1], Michael C Kolios[1] *[1]Physics, Ryerson University, Toronto, Ontario, Canada*	***4F-4*** **Development of Acoustic-Wedge-Mode Humidity Sensor Using a Wedge with Hydroscopic Film** Che-Hua Yang[1], **Po-Hsien Tung**[1] *[1]National Taipei Univ of Technology, Manufacturing Technology, Taipei, Not applicable, Taiwan*	***5F-5*** **Ultrasonic Motors - Past, Present and Future** **Jörg Wallaschek**[1] *[1]Institute of Dynamics and Vibration Research (IDS), Leibniz University Hannover, Hannover, Germany*	***6F-5*** **Synthesis of highly textured w-AlN thin films with a tilted c-axis having good tilt and thickness uniformity** Milena Moreira[1], Johan Bjurstrom[1], Tomas Kubart[1], **Ilia Katardjiev**[1] *[1]Solid State Electronics, Uppsala University, Uppsala, Uppland, Sweden*
3:15 pm	***1F-6*** **Performance of Synthetic Aperture Compounding for in-invo imaging** **Jens Munk Hansen**[1], Mads Møller Pedersen[1], Martin Christian Hemmsen[1,2], Jørgen Arendt Jensen[1] *[1]Dept. of Elec. Eng., Technical University of Denmark, DK-2800 Lyngby, Denmark, [2]R&D Applications & Technologies, BK Medical, DK-2730 Herlev, Denmark*	***2F-6*** **Shear Wave Speed Measurement Using an Unfocused Ultrasound Push Beam** **Shigao Chen**[1], Heng Zhao[1], Pengfei Song[1], Matthew Urban[1], James Greenleaf[1] *[1]Mayo Clinic College of Medicine, USA*	***3F-6*** **Real-time Handheld Optical Resolution Photoacoustic Microscopy** **Parsin Hajireza**[1], Wei Shi[1], Roger Zemp[1] *[1]Electrical & Computer Engineering, University of Alberta, Edmonton, Alberta, Canada*	***4F-5*** **A SH-APM Liquid Viscosity Sensor Based on PZT-5H** **Zhijun Chen**[1], Qianliang Xia[1], Xu Lu[1], Tao Chen[1] *[1]College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, China, People's Republic of*		***6F-6*** **Evaluation of Acoustical Properties for AlN Single Crystal by the Ultrasonic Microspectroscopy Technology** **Yuji Ohashi**[1], Jun-ichi Kushibiki[1], Boris M. Epelbaum[2], Albrecht Winnacker[2], Shunro Nagata[3] *[1]Tohoku University, Japan, [2]University of Erlangen-Nuremberg, Germany, [3]JFE Mineral Company Ltd., Japan*

4:30 pm - 6:00 pm — Oral --- Thursday, October 20, 2011

	Session 1G. Blood Flow Imaging *Chair:* **Hans Torp** *Norwegian Univ. of Science & Technology*	Session 2G. Shear Wave Elastography *Chair:* **James Greenleaf** *Mayo Clinic*	Session 3G. Contrast Agents II *Chair:* **Nico de Jong** *Erasmus Medical Centre*	Session 4G. Acoustic Micro Fluidics *Chair:* **Donal E. Yuhas** *IMS Inc.*	Session 5G. Physics of Phononic Crystals *Chair:* **Roy H. Olsson** *Sandia National Laboratories*	Session 6G. SAW Design, Integration & Tunability *Chair:* **Clemens Ruppel** *TDK-EPC*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
4:30 pm	***1G-1*** **Secondary arterial blood flow patterns with vector flow ultrasound** **Mads Møller Pedersen**[1,2], Michael Johannes Pihl[2], Jens Munk Hansen[2], Peter Møller Hansen[1,2], Per Haugaard[3], Michael Bachmann Nielsen[1], Jørgen Arendt Jensen[2] *[1]Department of Radiology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, [2]Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark, [3]R&D Applications & Technologies, BK Medical, Herlev, Denmark*	***2G-1*** **Improving Shear Wave Speed Estimation Precision in Homogeneous Media by Tracking Shear Wave Propagation in 3D using a Real-time Volumetric Imaging Transducer** **Michael Wang**[1], Brett Byram[1], Mark Palmeri[1], Ned Rouze[1], Kathryn Nightingale[1] *[1]Biomedical Engineering, Duke University, USA*	***3G-1*** **Contrast Ultrasound: Recent developments and the battle for regulatory approval** **François Tranquart**[1] *[1]Bracco Suisse SA, Plan-les-Ouates, Switzerland*	***4G-1*** **Acoustic particle trapping in a microfluidic device using frequency modulated signal** **Jong Seob Jeong**[1], Jung Woo Lee[2], Chang Yang Lee[2], Shia Yen Teh[3], Abraham Lee[3], K. Kirk Shung[2] *[1]Department of Medical Biotechnology, Dongguk University-Seoul, Seoul, Korea, Republic of, [2]Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA, [3]Department of Biomedical Engineering, University of California at Irvine, Irvine, California, USA*	***5G-1*** **Analysis of deaf bands in phononic crystals** Rayisa P. Moiseyenko[1,2], **Vincent Laude**[1], Nico F. Declercq[2] *[1]Institut FEMTO-ST, Centre National de la Recherche Scientifique, Besancon, Franche-Comté, France, [2]Unité Mixte Internationale GT-CNRS, Georgia Tech Lorraine, Metz, Lorraine, France*	***6G-1*** **Electrostrictive thin films: an alternative to piezoelectricity** **Emmanuel Defay**[1] *[1]CEA Leti Minatec, France*
4:45 pm	***1G-2*** **Angle-independent quantification of complex flow patterns in congenital heart disease** **Lasse Lovstakken**[1,2], Siri Ann Nyrnes[1,2], Bjorn Olav Haugen[1,2], Hans Torp[1] *[1]NTNU, Norway, [2]Trondheim University Hospital, Norway*	***2G-2*** **Shear wave construction with laterally moving radiation force excitations** **Matthew Urban**[1], Carolina Amador[1], Alireza Nabavizadeh[1], James Greenleaf[1], Shigao Chen[1] *[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA*		***4G-2*** **Flow-through separation of microparticles of different sizes using ultrasound.** **A. K. M. Ariful Haque Siddique**[1], CheolGi Kim[1], Bongyoung Ahn[2], SeungHyun Cho[2] *[1]Department of Materials Science & Engineering, Chungnam National University, Yuseong-Gu, Daejeon, Korea, Republic of, [2]Center for Safety Measurement, Korea Research Institute of Standards and Science, Yuseong-Gu, Daejeon, Korea, Republic of*	***5G-2*** **Thermal Conductivity Manipulation in Lithographically Patterned Single Crystal Silicon Phononic Crystal Structures** **Bongsang Kim**[1], Janet Nguyen[1], Eric Shaner[1], C. Thomas Harris[1], Ihab El-Kady[1], Roy Olsson III[1] *[1]Sandia National Laboratories, Albuquerque, NM, USA*	

5:00 pm	***1G-3*** **Doppler vortography: a new technique for quantification of intracardiac vorticity** Stéphan Muth[1], **Damien Garcia[1]** *[1]CRCHUM - Research Centre, University of Montreal Hospital, Montreal, QC, Canada*	***2G-3*** **Robust Shear Wave Speed Measurement Using Comb-push Ultrasound Radiation Force** **Heng Zhao[1]**, Pengfei Song[1], Matthew W. Urban[1], James F. Greenleaf[1], Shigao Chen[1] *[1]Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	***3G-2*** **Super-Resolution Ultrasound Imaging (SRUI) using ultrafast mapping of contrast agents** **Olivier Couture[1]**, Benoit Besson[2], Gabriel Montaldo[3], Mathias Fink[1], Mickael Tanter[4] *[1]CNRS / ESPCI, France, [2]CNRS, France, [3]ESPCI, France, [4]INSERM, France*	***4G-3*** **Microscale Acoustofluidics: Microfluidics via Acoustics and Ultrasonics** **James Friend[1,2]** *[1]Mechanical Engineering, Monash University, Clayton, VIC, Australia, [2]Melbourne Centre for Nanofabrication, Clayton, VIC, Australia*	***5G-3*** **Experimental evidence of locally resonant sonic band gap in 2D stubbed plates** **Mourad Oudich[1]**, Matteo Senesi[2], Badreddine Assouar[1,3], Massimo Ruzzene[2], Jia-Hong Sun[4], Brice Vincent[5], Zhilin Hou[6], Tsung-Tsong Wu[4] *[1]Institut Jean Lamour, Nancy University - CNRS, Vandoeuvre-les-Nancy, France, [2]D Guggenheim School of Aerospace Engineering, Georgia Institute of Technology, USA, [3]International Joint Laboratory (UMI 2958), Georgia Institute of Technology - CNRS, ATLANTA, USA, [4]National Taiwan University, Taiwan, [5]Nancy University - CNRS, France, [6]South China University of Technology, China, People's Republic of*	***6G-2*** **Very large bandwidth IF SAW filters using leaky waves on LiNbO3 and LiTaO3** **Mohamed El Hakiki[1]**, Jacques-Antoine Damy[1], Heiko Hartmann[2], Jean-Michel Brice[1] *[1]EPCOS Sophia Design center, Sophia-Antipolis, -, France, [2]EPCOS, Germany*
5:15 pm	***1G-4*** **Directional synthetic aperture flow imaging using a dual stage beamformer approach** **Ye Li[1]**, Jørgen Arendt Jensen[1] *[1]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Bldg. 349, Technical University of Denmark, Lyngby, Denmark*	***2G-4*** **Tracking ARFI Induced Shear Wave Propagation by Using Maximum Likelihood Estimation** **Liexiang Fan[1]**, Bob Luick[1], David Duncan[1], Janelle O'Bannon[1], John Benson[1] *[1]Ultrasound Business Unit, Siemens Healthcare, Issaquah, WA, USA*	***3G-3*** **Improved Prostate Cancer Detection By Contrast-Enhanced Ultrasound Parametric Image Analysis** **Peter Frinking[1]**, Laurent Mercier[1], Marcel Arditi[1], Hessel Wijkstra[2], Olivier Rouvière[3], Jean-Michel Correas[4], François Tranquart[1] *[1]Bracco Suisse SA, Plan-les-Ouates, GE, Switzerland, [2]AMC University Hospital, Amsterdam, Netherlands, [3]Hôpital Edouard Herriot, Lyon, France, [4]Hôpital Necker, Paris, France*		***5G-4*** **Locally resonant structures for low frequency surface acoustic band gap applications** **Abdelkrim Khelif[1]**, Younes Achaoui[2] *[1]CNRS/GeorgiaTech, France, [2]Femto-st Institute, France*	***6G-3*** **Low Loss Wide Band Microwave Filters Using SAW Devices Combined with Microstrip Lines** Hiroyuki Odagawa[1], **Takaoki Taniguchi[1]**, Yoshifumji Shimoshio[1], Yoshitada Iyama[1], Kazuhiko Yamanouchi[2] *[1]Information, Communication and Electronic Engineering, Kumamoto National College of Technology, Koshi, Kumamoto, Japan, [2]Tohoku University, Japan*
5:30 pm	***1G-5*** **Functional micro-ultrasound imaging of rodent cerebral hemodynamics** **Martijn van Raaij[1]**, Liis Lindvere[1], Adrienne Dorr[1], Jianfei He[1], Bhupinder Sahota[1], Bojana Stefanovic[1], F. Stuart Foster[1] *[1]Imaging Research, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada*	***2G-5*** **Assessment of shear anisotropy using Supersonic Shear Imaging with rotating arrays: in vivo evidence of cornea elastic anisotropy.** **Thu-Mai Nguyen[1]**, Jean-François Aubry[1], David Touboul[2], Jeremy Bercoff[3], Mickael Tanter[1] *[1]Institut Langevin Ondes et Images, ESPCI ParisTech, CNRS UMR 7587, Inserm ERL U979, Paris, France, [2]Centre Hospitalo-Universitaire de Bordeaux, Bordeaux, France, [3]Supersonic Imagine, Aix-en-Provence, France*	***3G-4*** **Relaxation time course of microvessels deformed by ultrasound-activated microbubble** Hong Chen[1], Andrew A. Brayman[1], **Thomas J. Matula[1]** *[1]Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA*	***4G-4*** **Rotational surface acoustic wave microfluidic motor** Richie Shilton[1], Nick Glass[1], Peggy Chan[2], **Leslie Yeo[1]**, James Friend[1] *[1]Mechanical Engineering, Monash University, Clayton, VIC, Australia, [2]Chemical Engineering, Monash University, Clayton, VIC, Australia*	***5G-5*** **Visualization of negative refraction of surface acoustic waves by numerical simulations and experiments** **Istvan A Veres[1,2]**, Bernhard Reitinger[1,2], Thomas Berer[1,2], Peter Burgholzer[1,2], Oliver B. Wright[3], Osamu Matsuda[3] *[1]Christian Doppler Laboratory for Photoacoustic Imaging and Laser Ultrasonics, Linz, Austria, [2]Research Center for Non Destructive Testing GmbH, Linz, Austria, [3]Graduate School of Engineering, Hokkaido University, Sapporo, Japan*	***6G-4*** **A modular SAW filter design approach for multiband filtering** **Xiaoming LU[1]**, Jeffery Galipeau[2], Koenraad Mouthaan[1] *[1]NUS, Singapore, [2]TriQuint Semiconductor Florida, USA*
5:45 pm	***1G-6*** **Ultrasensitive functional ultrasound imaging of the brain** **Emilie Mace[1]**, Gabriel Montaldo[1], Ivan Cohen[2], Michel Baulac[2], Mathias Fink[1], Mickael Tanter[1] *[1]Institut Langevin, ESPCI ParisTech, CNRS UMR7587, Inserm U979, Paris, France, [2]Institut du Cerveau et de la Moelle épinière, Inserm UMRS 975, CNRS UMR7225, CHU Pitié Salpêtrière, Paris, France*	***2G-6*** **Development and Evaluation of Pulse Sequences for Freehand ARFI Imaging** **Joshua Doherty[1]**, Douglas Dumont[1], Dongwoon Hyun[1], Jeremy Dahl[1], Gregg Trahey[1,2] *[1]Biomedical Engineering, Duke University, USA, [2]Radiology, Duke University, USA*	***3G-5*** **Volumetric Contrast-Enhanced Ultrasound for Characterizing Tumor Vascularity: Preliminary Studies in an Animal Model** **Kenneth Hoyt[1]**, Anna Sorace[1] *[1]University of Alabama at Birmingham, USA*	***4G-5*** **Precise Transportation of Single Cell by Phase-shift Standing Surface Acoustic Wave** **Long Meng[1]**, Feiyan Cai[1], Qiaofeng Jin[1], Lili Niu[1], Hairong Zheng[1] *[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of*	***5G-6*** **Recent advances in the negative refraction of longitudinal waves in an elastic phononic crystal** **Anne-Christine Hladky[1]**, Charles Croënne[1], K. Raymond Olympio[1], Jérôme Vasseur[1], Bertrand Dubus[1], Bruno Morvan[2] *[1]IEMN, ISEN Department, Lille, Nord, France, [2]LOMC, Le Havre, France*	***6G-5*** **SPUDT Cell with One-Wavelength Period and Quarter-Wavelength Electrodes** Sergey Biryukov[1], Guenter Martin[1], **Hagen Schmidt[1]**, Bert Wall[2] *[1]IFW Dresden, Dresden, Germany, [2]Vectron International GmbH & Co. KG, Teltow, Germany*

9:30 am - 1:00 pm | Poster --- Thursday, October 20, 2011 | Caribbean Ballroom III-V

Session P3Aa.
a - Characterization of Soft Tissue

Chair: **Michael Oelze**
University of Illinois

P3Aa-1 Properties of PVA Tissue Phantoms Produced by Directional Solidification

Gideon Gouws[1], Dayna-Maree Kivell[1], Andrew Dawson[2]
[1]*School of Engineering and Computer Science, Victoria University of Wellington, New Zealand,* [2]*Engineering and Applied Physics, Industrial Research Limited, New Zealand*

P3Aa-2 Characterization of Tissues in the Pulley System Using High-Frequency Ultrasonic Backscatter Signals

Yi-Hsun Lin[1], Tai-Hua Yang[1], Shyh-Hau Wang[1], Fong-Chin Su[1]
[1]*National Cheng Kung University, Taiwan*

P3Aa-3 Comparison of Ultrasonic Measurements of Nulliparous versus Mulitparous Cervices

Lisa Reusch[1], Lindsey Carlson[1], Mark Palmeri[2], Jeremy Dahl[2], Helen Feltovich[1,3], **Timothy Hall**[1]
[1]*Medical Physics, University of Wisconsin - Madison, USA,* [2]*Biomedical Engineering, Duke University, USA,* [3]*Maternal Fetal Medicine, Intermountain Healthcare, USA*

P3Aa-8 Skin lesions assessment using attenuating and statistical properties of backscattered ultrasounds

Hanna Piotrzkowska[1], **Jerzy Litniewski**[1], Elzbieta Szymanska[2], Andrzej Nowicki[1]
[1]*Institute of Fundamental Technological Research, Warsaw, Poland,* [2]*Dermatology Clinic, CSK MSWiA Hospital, Warsaw, Poland*

P3Aa-9 Development of an agar phantom adaptable for visualization of thermal distribution caused by focused ultrasound

Jungsoon Kim[1], Moojoon Kim[2], Yejoon Park[3], Kanglyeol Ha[3]
[1]*Tongmyong University, Korea, Republic of,* [2]*Physics, Pukyong National University, Korea, Republic of,* [3]*Pukyong National University, Korea, Republic of*

P3Aa-10 The acoustic attenuation in an IEC agar-based tissue-mimicking material measured at 12 - 47 MHz

Chao Sun[1], Stephen Pye[2], Anna Janeczko[2], Bill Ellis[2], Mark Brewin[3], Mairead Butler[1], Vassilis Sboros[1], Adrian Thomson[1], Jacinta Browne[4], Carmel Moran[1]
[1]*Medical Physics, University of Edinburgh, Edinburgh, United Kingdom,* [2]*Medical Physics, NHS Lothian, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom,* [3]*Department of Clinical Physics, Royal London Hospital, Barts and the London NHS Trust, London, United Kingdom,* [4]*School of Physics, Dublin Institute of Technology, Dublin, Ireland*

P3Aa-11 Experimental Verification of Blood Characterization Based on Ultrasonic Blood Flow Measurement

Naotaka Nitta[1], Hiroshi Masuda[2], Hidenori Suzuki[2]
[1]*Human Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan,* [2]*UNEX corporation, Japan*

P3Aa-16 High Frequency Ultrasound Iging and Characteriation of Biofilms

Karla Hatfield[1], **Kunal Vaidya**[1], Maria Helguera[1], Michael Pichichero[2]
[1]*CFC Center for Imaging Science, Rochester Institute of Technology, Rochester, NY, USA,* [2]*Research Institute, Rochester General Hospital, USA*

Session P3Ab.
b - Tomography

Chair: **Michael Insana**
Univ. of Illinois at Urbana-Champaign

P3Ab-1 An acoustic radiation force assisted ultrasound modulated optical tomography system

Rui Li[1], Robert Eckersley[2], Chris Dunsby[3], Daniel Elson[4], Meng-Xing Tang[5]
[1]*Department of Bioengineering, Imperial College London, United Kingdom,* [2]*Imaging Sciences Department, Imperial College London, United Kingdom,* [3]*Depatment of Physics, Imperial College London, United Kingdom,* [4]*Department of Surgery, Imperial College London, United Kingdom,* [5]*Department of Bioengineering, Imperial College London, London, London, United Kingdom*

P3Ab-2 Ultrasound mammograph for breast lobe inspection

Serge Mensah[1], Julien Rouyer[1], Philippe Lasaygues[1], Emilie Franceschini[1], Jean-Pierre Lefebvre[1]
[1]*Acoustics and Mechanics Laboratory, CNRS, Marseille, France*

Session P3Ac.
c - Signal Processing

Chair: **Kendall Waters**
Silicon Valley Med. Instruments

P3Ac-1 Compressed sensing of ultrasound single-orthant analytical signals

Celine Quinsac[1], François De Vieilleville[1], Adrian Basarab[1], Denis Kouamé[1]
[1]*IRIT UMR CNRS 5505, University of Toulouse, France*

P3Ac-2 Ultrasound RF Channel Data Compression for Implementation of a Software-Based Array Imaging System

Po-Wen Cheng[1], Che-Chou Shen[2], Pai-Chi Li[1]
[1]*Natoinal Taiwan University, Taiwan,* [2]*Natoinal Taiwan University of Science and Technology, Taiwan*

P3Ac-3 Spectral doppler using compressive sensing

Julien Richy[1], **Hervé Liebgott**[2], Remy Prost[1], Denis Friboulet[1]
[1]*CREATIS, France,* [2]*CREATIS, Villeurbanne, Rhônes, France*

P3Ac-8 Noise Reduction of Tissue Harmonic Images using Information of Fundamental Echo

Takuya Yamamura[1], Masayuki Tanabe[2], Kan Okubo[1], Norio Tagawa[1]
[1]*Grad. School of System Design, Tokyo Metropolitan University, Japan,* [2]*Faculty of Engineering, Kumamoto University, Japan*

Session P3Ad.
d - Contrast Therapy

Chair: **Tom Thomas**
Boston Scientific

P3Ad-1 Performance evaluation of an automatic controlled sonoporation therapy device

Karin Hensel[1], Georg Schmitz[1]
[1]*Electrical Engineering and Information Technologies, Ruhr-Universität, Bochum, Germany*

P3Ad-2 Tumor Treatment with Microbubble Enhanced Low-Intensity Ultrasound and Paclitaxel Nanocapsules Reduces Drug Dose Required for Therapeutic Effect

Lee B. Mullin[1], Ping Ma[2], Kennita Johnson[1], Russell J. Mumper[2,3], Paul A. Dayton[1,3]
[1]*Joint Department of Biomedical Engineering, University of North Carolina/ North Carolina State University, Chapel Hill, NC, USA,* [2]*Division of Molecular Pharmaceutics, Center for Nanotechnology in Drug Delivery, University of North Carolina, Chapel Hill, NC, USA,* [3]*Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill, NC, USA*

P3Aa-4 **Attenuation estimation using a synthetic aperture focusing technique** **Roberto J. Lavarello**[1], Goutam Ghoshal[2], Michael L. Oelze[2] *[1]Seccion Electricidad y Electronica, Pontificia Universidad Catolica del Peru, Peru, [2]Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA*	***P3Aa-12*** **Quantitative Ultrasound Assessment of Thermal Damage in MAT Tumors** Jeremy Kemmerer[1], **Goutam Ghoshal**[1], Michael Oelze[1] *[1]University of Illinois at Urbana-Champaign, Urbana, IL, USA*	***P3Ab-3*** **Geometry Independent Speed of Sound Reconstruction for 3D USCT Using Apriori Information** **Robin Dapp**[1], Michael Zapf[1], Nicole Ruiter[1] *[1]Karlsruhe Institute of Technology, Germany*	***P3Ac-4*** **Transducer Motion Estimation Using Combined Ultrasound Signal Decorrelation and Optical Sensor Data for Low-cost Ultrasound Systems with Increased Field of View** **Kevin Owen**[1,2], F. William Mauldin, Jr.[1,2], John A. Hossack[1] *[1]BME, University of Virginia, Charlottesville, VA, USA, [2]Rivanna Medical, Crozet, VA, USA*	***P3Ad-3*** **Acoustically-Triggered Droplet Vaporization in Macrophages for Hypoxic-Tumor Therapy** **Shih-Tsung Kang**[1], Chih-Kuang Yeh[1] *[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan*
P3Aa-5 **Imaging of Visceral Fat in Living Rabbit by Using Detection of Ultrasonic Velocity Change** **Hiromichi Horinaka**[1], Toshiyuki Matsunaka[1], Yuya Ohara[1], Yoshinori Maeda[1], Yu Izukawa[1], Kazune Mano[1], Tetsuya Matsuyama[1], Kenji Wada[1] *[1]Osaka Prefecture University, Japan*	***P3Aa-13*** **A Composite Statistical Model for Ultrasound Applications** Paschalis C. Sofotasios[1], **Sevan Harput**[1], Steven Freear[1] *[1]School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom*	***P3Ab-4*** **A Clinical Experience of a Prototype Automated Breast Ultrasound System Combining Transmission and Reflection 3D Imaging** **Paolo Pellegretti**[1], Sara Dellepiane[1], Marco Vicari[1], Michele Zani[1], Matthias Weigel[2], Ulrich Saueressig[3], Elmar Kotter[3], Mathias Langer[3] *[1]Esaote SpA, Genova, Italy, [2]Dept. of Radiology, Medical Physics, University Medical Center Freiburg, Freiburg, Germany, [3]Dept. of Radiology, Clinical Radiology, University Medical Center Freiburg, Freiburg, Germany*	***P3Ac-5*** **Adaptive Frequency Compounding for Speckle Reduction** **Il Seob Song**[1], Chang Han Yoon[1], Gi Duck Kim[2], Yangmo Yoo[1,3], Jin Ho Chang[2,3] *[1]Electronic engineering, Sogang University, Seoul, Korea, Republic of, [2]Sogang Institute of Advanced Technology, Sogang University, Seoul, Korea, Republic of, [3]Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of*	***P3Ad-4*** **Ultrasound Therapy with Liposome-microbubble Complex in a Murine Tumor Model** **William Shi**[1], Talent Shevchenko[2], Balasundar Raju[1], Shriram Sethuraman[1], Zhongmin Du[2], Ralf Seip[1], Eugene Leyvi[1], Alexander Klibanov[2] *[1]Philips Research North America, Briarcliff Manor, New York, USA, [2]University of Virginia, Charlottesville, Virginia, USA*
P3Aa-6 **Nonlinear Parameter imaging to characterize HIFU ablation: in vitro results in porcine liver** **François Varray**[1,2], Jérémy Chenot[3], Olivier Basset[1], Piero Tortoli[2], David Melodelima[3], Christian Cachard[1] *[1]Université de Lyon, CREATIS ; CNRS UMR5220 ; INSERM U1044 ; INSA-Lyon ; Université Lyon 1, France, [2]MSD Lab, University of Firenze, Italy, [3]INSERM U1032, Université de Lyon, France*	***P3Aa-14*** **In Vitro Study of Cell-Free Layer in Microvessels by High Frequency Ultrasound Duplex Imaging** **Ting-Yu Liu**[1], Po-Yang Lee[1], Cho-Chiang Shih[1], Chih-Chung Huang[1] *[1]Department of Electrical Engineering, Fu Jen Catholic University, Taiwan*	***P3Ab-5*** **Simulation of shadowing effects in ultrasound imaging from computed tomography images** **An H. Pham**[1,2], Bjarne Stage[1], Bo Lundgren[1], Martin Christian Hemmsen[2,3], Mads Møller Pedersen[2,4], Jørgen Arendt Jensen[2] *[1]National Institute of Aquatic Resources, Technical University of Denmark, Charlottenlund, Copenhagen, Denmark, [2]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Bldg. 349, Technical University of Denmark, DK-2800 Lyngby, Denmark, [3]R&D Applications & Technologies, BK Medical, DK-2730 Herlev, Denmark, [4]Dept. of Radiology, Copenhagen University Hospital, Rigshospitalet, DK-2100 Copenhagen, Denmark*	***P3Ac-6*** **Improved range resolution and side lobe level of ultrasound echoes using nonlinear frequency-modulated excitation signal and modified compressing filter** **Tarcísio Dantas**[1], Rodrigo Costa-Felix[2], João Machado[1] *[1]Biomedical Engineering Program - COPPE, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil, [2]Laboratory of Ultrasound - Division of Acoustic and Vibration Metrology, INMETRO, Duque de Caxias, RJ, Brazil*	***P3Ad-5*** **Delivery of drug-loaded microbubbles and disruption of blood-brain barrier by focused ultrasound in a xenograft rat glioma model** **Chien-Yu Ting**[1], Ching-Hsiang Fan[1], Hao-Li Liu[2], Tzu-Chen Yen[3], Chih-Kuang Yeh[1] *[1]Biomedical Engineering and Environmental Science, National Tsing Hua University, Taiwan, [2]Department of Electrical Engineering, Chang-Gung University, Taiwan, [3]Chang Gung Molecular Medicine Research, Chang-Gung Memorial Hospital, Taiwan*
P3Aa-7 **Classifying Ultrasound Image Regions By Using Characteristics of ARFI Induced Tissue Displacement Temporal Profile** **Liexiang Fan**[1], Paul Freiburger[1], Bob Luick[1], David Duncan[1], Janelle O'Bannon[1], John Benson[1] *[1]Ultrasound Business Unit, Siemens Healthcare, Issaquah, WA, USA*	***P3Aa-15*** **Segmentation of Atherosclerotic Plaque Components using a Multiphase Bayesian Level-Set** **Jonathan Porée**[1], François Destrempes[1], Gilles Soulez[2], Guy Cloutier[1] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center, Montreal, Quebec, Canada, [2]Department of Radiology, University of Montreal Hospital, Montreal, Quebec, Canada*	***P3Ab-6*** **High Frequency Ultrasound Computer Tomography for Small Animal Imaging Applications** **Wei-Tsen Chen**[1], Cho-Chiang Shih[1], Chih-Chung Huang[1] *[1]Department of Electrical Engineering, Fu Jen Catholic University, Taiwan*	***P3Ac-7*** **Detection of Restoration Faults under Fillings in Human Teeth using Ultrasound** **Sevan Harput**[1], Tony Evans[2], Nigel Bubb[3], Steven Freear[1] *[1]School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom, [2]Division of Medical Physics, University of Leeds, Leeds, United Kingdom, [3]Oral Biology, University of Leeds, Leeds, United Kingdom*	***P3Ad-6*** **Sonoporation of endothelial cells in vivo.** **Ilya Skachkov**[1], Klazina Kooiman[1], Ying Luan[1], Antonius F.W. van der Steen[1,2], Nico de Jong[1,2] *[1]Erasmus MC, Netherlands, [2]Interuniversity Cardiology Institute of the Netherlands, Netherlands*

9:30 am - 1:00 pm	Poster --- Thursday, October 20, 2011			Caribbean Ballroom III-V
P3Ad-7 **The Estimation of Delivery Efficiency of Drug-Loaded Microbubbles in Cancer Cells with US and IVIS** Ai-Ho Liao[1], **Ying-Kai Li[2]**, Wei-Jiunn Lee[3], Hao-Li Liu[4], Ming-Fang Wu[5], Min-Liang Kuo[6], Chih-Hung Wang[7] *[1]Graduate Institute of Biomedical Engineering, National Taiwan University of Science and Technology, Taiwan, [2]Graduate Institute of Biomedical Engineering, National Taiwain University of Science and Technology, Taiwan, [3]Institute of Toxicology College of Medicine, National Taiwain University, Taiwan, [4]Department of Electrical Engineerung, Chang Gung University, Taiwan, [5]Medicine of Animall Medicine Center, National Taiwain University, Taiwan, [6]3Institute of Toxicology College of Medicine, National Taiwain University, Taiwan, Taiwan, [7]Department of Otolaryngology-Head and Neck Surgery, National Defense Medical Center, Taiwan*	***P3Ae-3*** **Permeability and Reversibility Timeline Study of the Focused-Ultrasound Induced Blood-Brain Barrier Opening at Distinct Pressures and Microbubble Sizes *in vivo*** **Gesthimani Samiotaki[1]**, Fotios Vlachos[1], Yao-Sheng Tung[1], Elisa Konofagou[1,2] *[1]Biomedical Engineering, Columbia University, New York, NY, USA, [2]Department of Radiology, Columbia University, New York, NY, USA*	***P3B-2*** **Microrheological monitoring of life cycle of yeast cell Saccharomyces cerevisiae** **Emmanuel Caplain[1]**, Jean-Marie Ringeard[2], Stephane Serfaty[2], Loic Martinez[2], Pascal Griesmar[2] *[1]SATIE (CNRS - UMR 8029), Université de Cergy-Pontoise, France, Metropolitan, [2]Université de Cergy-Pontoise, France, Metropolitan*	***P3C-1*** **Particle Trapping of Acoustic Tweezers** **Yanyan Yu[1]**, Weibao QIU[1], Lei SUN[1] *[1]Department of Health Technology and Informatics, The Hongkong Polytechnic University, Hong Kong*	***P3E-1*** **Analysis of beamforming errors from ultrasound sub-array processing** **Kangqiao Zhao[1]**, Tore Bjåstad[1,2], Kjell Kristoffersen[1,2] *[1]Department of circulation and medical imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]GE healthcare, Norway*
P3Ad-8 **3D Ultrasonic Molecular Imaging to Assess the Efficacy of an Aurora Kinase Inhibitor in Human Pancreatic Adenocarcinoma** **Jason E. Streeter[1]**, Gabriela Herrera[2], Joey Cao[2], Jen Jen Yeh[2,3], Paul A. Dayton[1] *[1]Biomedical Engineering, UNC / NC State, Chapel Hill, NC, USA, [2]Lineberger Comprehensive Cancer Center, UNC, Chapel Hill, NC, USA, [3]Division of Surgical Oncology, UNC, Chapel Hill, NC, USA*	***P3Ae-4*** **Feasibility Study of Using Macrophages as Drug Delivery Carriers for Drug-Loaded Phase-Change Droplets** **Ya-Hsuan Lee[1]**, Chung-Hsin Wang[1], Shih-Tsung Kang[1], Chih-Kuang Yeh[1] *[1]Biomedical Engineering and Environmental Science, National Tsing Hua University, Taiwan*	***P3B-3*** **Fabrication of Frequency Scaling circuit Using Phase Locked Loop Synthesizer IC for a Quartz-Crystal Tuning-Fork Tactile Sensor** **Susumu Itoh[1]**, Hideaki Itoh[1] *[1]shinshu university, Japan*	***P3C-2*** **Acoustic Tweezing in the Nodes or Antinodes of a Heptagonal Multi Piezoelectric Transducer Cell** **Anne L. Bernassau[1]**, David R. S. Cumming[1] *[1]School of Engineering, University of Glasgow, Glasgow, United Kingdom*	***P3E-2*** **The use of Fractal Geometry in the design of Piezoelectric Ultrasonic Transducers** **Anthony Mulholland[1]**, Alan Walker[2], Nishal Ramadas[3], Richard O'Leary[3], Anthony Gachagan[3] *[1]Centre for Ultrasonic Engineering, University of Strathclyde, Glasgow, Scotland, United Kingdom, [2]Faculty of Advanced Technology, University of Glamorgan, Pontypridd, United Kingdom, [3]Centre for Ultrasonic Engineering, University of Strathclyde, Glasgow, United Kingdom*
P3Ad-9 **Ultrasound and microbubble parameter optimization for maximizing sonoporation** **Lee Mullin[1]**, Jun Han[2], Michael Jay[1,2], Paul A. Dayton[1,2] *[1]Joint Department of Biomedical Engineering, University of North Carolina/ North Carolina State University, Chapel Hill, NC, USA, [2]Eshelman School of Pharmacy, University of North Carolina, Chapel Hill, NC, USA*	***P3Ae-5*** **Low Intensity Ultrasound Substantially Improves the Efficacy of Bisphosphonate Zoledronic Acid in the Treatment of Breast Cancer Bone Metastases in Animals** **David Melodelima[1]**, Jacqueline Ngo[1], Delphine Goehrig[2], Jean-Yves Chapelon[1], Philippe Clezardin[2] *[1]U1032, INSERM, Lyon, France, [2]U1033, INSERM, Lyon, France*	***P3B-4*** **Use of Inharmonic Modes of Trapped-Energy Resonators for Liquid-Level Sensing** **Ken Yamada[1]**, Shuichi Seto[1], Shuhei Horiuchi[1] *[1]tohoku Gakuin University, Japan*	***P3C-3*** **parallel flow and mass transfer in polymeric ultrasonic microrresonators** **Itziar Gonzalez[1]**, María Tijero[2], Javier Berganzo[3], Victor Acosta[4], Luis Fernandez[5] *[1]Group of Ultrasounds, CSIC Consejo Superior de Invsetigaciones Científicas, Madrid, Madrid, Spain, [2]dpt of microsystems, ikerlan, Spain, [3]microsystems, ikerlan, Spain, [4]CSIC, Spain, [5]Universidad de Zaragoza, Spain*	***P3E-3*** **3D-Analysis of Bending-Type Ultrasonic Transducers for Distance Measurement Applications** **Mario Jungwirth[1]**, Manfred Kaltenbacher[2], Michael Rabl[3], Stefan J. Rupitsch[4] *[1]Automation Engineering, University of Applied Sciences Upper Austria, Wels, Upper Austria, Austria, [2]Institute of Smart Systems Technologies, University of Klagenfurt, Klagenfurt, Carinthia, Austria, [3]University of Applied Sciences Upper Austria, Wels, Upper Austria, Austria, [4]Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany*
P3Ad-10 **Theoretical and experimental evaluation of microstreaming created by a single microbubble: application to sonoporation** **Anthony Novell[1]**, James Collis[2], Alexander Doinikov[1], Andrew Ooi[2], Richard Manasseh[3], Ayache Bouakaz[1] *[1]Inserm U930, CNRS ERL 3106, université François Rabelais de Tours, France, [2]Department of Mechanical Engineering, University of Melbourne, Australia, [3]Faculty of Engineering and Industrial Sciences, Swinburne University, Australia*	***P3Ae-6*** **Intracellular Delivery of Nanoparticles using Ultrasound** **Mercy Afadzi[1,2]**, Svein-Erik Måsøy[2], Yngve Hofstad Hansen[1], Rune Hansen[2,3], Tonni Franke Johansen[2], Bjørn Angelsen[2], Catharina de L Davies[1] *[1]Department of Physics, The Norwegian University of Science and Technology, Trondheim, Norway, [2]Department of Circulation and Medical Imaging, The Norwegian University of Science and Technology, Trondheim, Norway, [3]Medical Technology, SINTEF Health Research, Trondheim, Norway*	***P3B-5*** **Estimation of the influence of ultrasonic flowmeter structures on their dynamic errors** **Vakif Hamidullin[1]** *[1]State University of Aerospace Instrumentation, St. Petersburg, Russian Federation*	***P3C-4*** **Acoustic trapping of particle in the near field of a resonant periodically structured stiff plate** **Feiyan Cai[1]**, Long Meng[1], Xin Cheng[1], Hairong Zheng[1] *[1]Shenzhen Institutes of Advanced Technology, China, People's Republic of*	***P3E-4*** **Diffraction correction for precision measurements of sound velocity in gas. Use of an alternative method accounting for non-uniform piezoelectric transmitting transducer vibration** **Espen Storheim[1]**, Per Lunde[1,2], Magne Vestrheim[1] *[1]Department of Physics and Technology, University of Bergen, Bergen, Norway, [2]Christian Michelsen Research AS, Bergen, Norway*

P3Ad-11 **Choice and normalization of contrast ultrasound parameters for detection of anti-angiogenic response** **Thomas Payen**[1], Aymeric Guibal[2], Michele Lamuraglia[2], Olivier Lucidarme[2], Delphine Le Guillou[3], Sharon Lori Bridal[3] *[1]Laboratoire d'Imagerie Paramétrique UMR 7623 CNRS UPMC, Paris, Ile-de-France, France, [2]Université paris VII, France, [3]Laboratoire d'Imagerie Paramétrique UMR 7623 CNRS UPMC, France*	***P3Ae-7*** **Trapping of solid particles by cavitation-induced acoustic streaming** Adam Maxwell[1], **Simone Park**[1], Charles Cain[1], Zhen Xu[1] *[1]Biomedical Engineering, University of Michigan, USA*	***P3B-6*** **Evaluation of Transducer Configurations and Signal Processing Techniques for Ultrasonic Cross-Correlation Flowmeters** **Michael Vogt**[1], Helmut Ermert[1] *[1]Dept. of Electrical Engineering and Information Technology, Ruhr-University Bochum, Bochum, Germany*	***P3C-5*** **Real time acoustic sensing of flowing microdroplets in a microfluidic device** **Changyang Lee**[1], Jungwoo Lee[1], Shia-Yen Teh[2], Abraham Lee[2], Hyung Ham Kim[1], K. Kirk Shung[1] *[1]Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA, [2]University of California at Irvine, USA*	***P3E-5*** **Finite element modelling and design of cymbal transducers for power ultrasonics applications** **Fernando Bejarano-Duran**[1], Margaret Lucas[1] *[1]School of Engineering, University of Glasgow, United Kingdom*
Session P3Ae. ***e - Therapeutical Effects, Microbubbles and Drug Delivery*** *Chair:* **Kullervo Hynhynen** *Univ. of Toronto*	***P3Ae-8*** **High Frame Rate Imaging of Cavitation Events Using Dual-mode Ultrasound Arrays** **Andrew Casper**[1], Alyona Haritonova[1], Emad Ebbini[1] *[1]University of Minnesota, USA*	***P3B-7*** **Flow Rate Measurement using an Ultrasonic Beam Radiated Perpendicular to a Pipe when Flow Profile Exists** **Juei Igarashi**[1], Koichi Mizutani[1], Naoto Wakatsuki[1], Takanobu Kuroyama[1] *[1]Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, Ibaraki, Japan*	***P3C-6*** **Analysis of oscillational instabilities in acoustic levitation using the finite-difference time-domain method** **Arturo Santillan**[1] *[1]Institute of Technology and Innovation, University of Southern Denmark, Odense S, Southern Denmark, Denmark*	
P3Ae-1 **Improving the activation threshold of acoustic droplet vaporization agents through precision formulation using microfluidics** **Thomas D. Martz**[1], Paul S. Sheeran[2], David Bardin[3], Steven Feingold[2], Abraham P. Lee[3], Paul A. Dayton[2] *[1]Material Science, University of North Carolina, Chapel Hill, North Carolina, USA, [2]Biomedical Engineering, UNC & NCSU, Chapel Hill, North Carolina, USA, [3]Biomedical Engineering, UCI, Irvine, California, USA*	***Session P3B.*** ***Ultrasonics and Fluidics*** *Chair:* **Mario kupnik** *Brandenburg University of Technology , Germany*	***P3B-8*** **Ultrasonics in enhanced recovery of oil from porous rock** **Eimear Neeson**[1], Margaret Lucas[1] *[1]University of Glasgow, United Kingdom*	***P3C-7*** **Creating a periodic nanocomposite material structure using nanoparticles in ultrasound standing waves** **Farid G. Mitri**[1], Dipen N. Sinha[1] *[1]MPA-11, LANL, Los Alamos, NM, USA*	
P3Ae-2 **Effects of Tissue Mechanical Properties on Histotripsy** **Eli Vlaisavljevich**[1], Charles Cain[1], Zhen Xu[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA*	***P3B-1*** **Translocation of microparticles in a fluid-flow by adjusting the operating frequency of ultrasonic standing wave (USW)** **SeungHyun Cho**[1], A. K. M. Ariful Haque Siddique[1,2], CheolGi Kim[2], Bongyoung Ahn[1] *[1]Center for Safety Measurement, Korea Research Institute of Standards and Science, Yuseong-Gu, Daejeon, Korea, Republic of, [2]Department of Materials Science & Engineering, Chungnam National University, Yuseong-Gu, Daejeon, Korea, Republic of*	***Session P3C.*** ***Acoustic Tweezers II*** *Chair:* **Christine Demore** *University of Dundee*	***Session P3E.*** ***Transducer Modeling*** *Chair:* **Reinhard Lerch** *University of Erlangen*	

1:00 pm - 4:30 pm — Poster --- Thursday, October 20, 2011 — Caribbean Ballroom III-V

Session P4Aa.
a - Needle Guidance & Simulation tools

Chair: **Herve Liebgott**
CREATIS, Lyon

P4Aa-1 **Quantitative analysis of coated needles for ultrasound guided intervention**

Chris de Korte[1], Gert Weijers[1], Dennis Vriezema[2], Hendrik Hansen[1]
[1]*Clinical Physics Laboratory, Radboud University Nijmegen Medical Centre, Netherlands,* [2]*Encapson B.V., Nijmegen, Netherlands*

P4Aa-2 **Signature-Based Algorithm for Improved Needle Localization in Ultrasound Images: a Feasibility Study**

Mohammad I. Daoud[1], Purang Abolmaesumi[1], Septimiu E. Salcudean[1], Robert N. Rohling[1,2]
[1]*Department of Electrical and Computer Engineering, University of British Columbia, Vancouver, British Columbia, Canada,* [2]*Department of Mechanical Engineering, University of British Columbia, Vancouver, British Columbia, Canada*

P4Aa-3 **Imaging Small Targets Using the Time-Reversal with MUSIC Imaging Algorithm: A Phantom Study**

Yassin Labyed[1], Lianjie Huang[1]
[1]*Los Alamos National Lab, USA*

Session P4Ab.
b - Bone

Chair: **Mami Matsukawa**
Doshisha University

P4Ab-1 **Assessment of anisotropic elasticity of small bone samples with resonant ultrasound spectroscopy: attenuation does not prevent the measurements**

Simon Bernard[1], Quentin Grimal[1], Sylvain Haupert[1], Pascal Laugier[1]
[1]*Laboratoire d'Imagerie Paramétrique, UPMC-CNRS, Paris, France*

P4Ab-2 **Quantitative Ultrasound Noninvasive Investigation of Trabecular Organization and Orientation**

Frederick Serra-Hsu[1], Stephanie Wang[1], Jiqi Cheng[1], Yi-Xian Qin[1]
[1]*Biomedical Engineering, Stony Brook University, Stony Brook, New York, USA*

P4Ab-3 **Characterization of the fast wave in cancellous bone using the Bayesian probability theory approach**

Mami Matsukawa[1], Katsunori Mizuno[1], Joseph Hoffman[2], Amber Nelson[2], Mark Holland[2], Yoshiki Nagatani[3], James Miller[2]
[1]*Doshisha University, Japan,* [2]*Washington University in St.Louis, USA,* [3]*Kobe City College of Technology, Japan*

Session P4Ac.
c - Targeted Contrast Agents

Chair: **Nobuki Kudo**
Hokkaido University

P4Ac-1 **A Fast Ultrasound Molecular Imaging Method**

Xiaowen Hu[1], Lisa Mahakian[1], Charles Caskey[1], Julie Beegle[1], Dustin Kruse[1], Joshua Rychak[2], Patrick Sutcliffe[1], Katherine Ferrara[1]
[1]*Biomedical Engineering, University of California, Davis, CA, USA,* [2]*Targeson, Inc, San Diego, CA, USA*

P4Ac-2 **Targeted Microbubble-mediated Ultrasound Therapy: A Feasibility Study**

Reshu Saini[1], Anna Sorace[1], Kenneth Hoyt[2]
[1]*Biomedical Engineering, University of Alabama at Birmingham, USA,* [2]*Radiology, University of Alabama at Birmingham, USA*

P4Ac-3 **Adhesion of targeted microbubbles under pulsatile and steady flow**

Charles Sennoga[1], John Seddon[2], Robert Eckersley[3], Meng-Xing Tang[4]
[1]*Department of Bioengineering, Imperial College London, United Kingdom,* [2]*Department of Chemistry, Imperial College London, United Kingdom,* [3]*Imaging Sciences Department, Imperial College London, United Kingdom,* [4]*Department of Bioengineering, Imperial College London, London, London, United Kingdom*

P4Ad-1 **Todoidal transducer with two large focal zones for increasing the coagulated volume**

Jeremy Vincenot[1], David Melodelima[1], Alexandre Vignot[1], Francoise Chavrier[1], Jean-Yves Chapelon[1]
[1]*Inserm, U1032, Lyon, F-69003, France ; Université de Lyon, Lyon, F-69003, France., France, Metropolitan*

P4Ad-2 **A Unified Approach for Ultrasound-monitored Focused Ultrasound Thermal Therapy: Combination of Temperature Estimation and Nakagami-based Necrosis-Formation Detection**

Sheng-Min Huang[1], Hao-Li Liu[2], Meng-Lin Li[1]
[1]*Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan,* [2]*Dept. of Electrical Engineering, Chang-Gung University, Taiwan*

P4Ad-3 **MR-Guided High Intensity Focused Ultrasound (HIFU) with Spatial and Temporal Temperature Control for Hyperthermia**

Yu Liu[1], Brett Fite[2], Dustin Kruse[1], Lisa Even[1], Erik Dumont[3], Charles Caskey[1], Katherine Ferrara[1]
[1]*Biomedical Engineering, University of California at Davis, Davis, CA, USA,* [2]*Biophysics Graduate Group, University of California at Davis, Davis, CA, USA,* [3]*Image Guided Therapy, France*

P4Ad-4 **MR-guided transcranial HIFU treatments in nine human cadaver heads: accuracy of 3D spatial targeting and local temperature elevations based on skull attenuation measurements**

Laurent Marsac[1,2], Dorian Chauvet[3], Mathieu Pernot[1], Mathias Fink[1], Jean Francois Aubry[1], Anne Laure Boch[3], Mickael Tanter[1]
[1]*Institut Langevin, Paris, France,* [2]*SuperSonic Imagine, Aix en provence, France,* [3]*Département de Neurochirurgie, Hôpital Pitié Salpêtrière, Paris, France*

P4Ad-9 **Temperature measurement using backscattered ultrasonic power for non-invasive thermometry during HIFU ablation**

David Melodelima[1], Jeremy Chenot[1], Jean-Yves Chapelon[1]
[1]*U1032, INSERM, Lyon, France*

Session P4B.
Tranducers for NDE Applications

Chair: **Eric Furgason**
Purdue University, USA

P4Ad-10 **Multiple-frequency Phased Array Pattern Synthesis for HIFU Surgery**

John Ballard[1], Dalong Liu[1], Andrew Casper[2], Alyona Haritonova[2], Mohamed Almekkawy[1], Emad Ebbini[1]
[1]*Department of Electrical Engineering, University of Minnesota, USA,* [2]*Department of Biomedical Engineering, University of Minnesota, USA*

P4B-1 **Characterization of two-dimensional hydrophone arrays for instantaneous beamwidth measurements of shockwave lithotripters**

Dan Gross[1], Erwan Filoux[1], Jeffrey A. Ketterling[1]
[1]*Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA*

P4Aa-4 **Angular spectrum approach for fast simulation of pulsed non-linear ultrasound fields**

Yigang Du[1,2], Henrik Jensen[2], Jørgen Arendt Jensen[1]
[1]*Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Bldg. 349, Technical University of Denmark, Kgs. Lyngby, Denmark,* [2]*R&D Applications & Technologies, BK Medical Aps, Herlev, Denmark*

P4Ab-4 **The two-wave phenomenon in cancellous bone with the closed-pores on the boundaries: An in vitro study**

Katsunori Mizuno[1], Yoshiki Nagatani[2], Keisuke Yamashita[1], Mami Matsukawa[1]
[1]*Doshisha University, Japan,* [2]*Kobe City College of Technology, Hyogo, Japan*

P4Ac-4 **A new ultrasound-based approach to visualize target specific polymeric contrast agent**

Malin Larsson[1], Anna Bjällmark[1], Matilda Larsson[1], Lars-Åke Brodin[1], Reidar Winter[2], Kenneth Caidahl[3]
[1]*School of Technology and Health, Medical Engineering, Huddinge, Sweden,* [2]*Clinical Physiology, Karolinska University Hospital in Huddinge, Sweden,* [3]*Molecular Medicine and Surgery, Karolinska University Hospital in Solna, Sweden*

P4Ad-5 **Dual Frequency Imaging and Therapeutic Transducer Using an Acoustic Band-pass Filter for Application to Endoscopic Surgery**

Takashi Azuma[1,2], Hajime Kenmotsu[3], Makoto Hashizume[3], Shu Takagi[1], Yoichiro Matsumoto[1]
[1]*Faculty of Engineering, The University of Tokyo, Japan,* [2]*Hitachi Central Research Laboratory, Japan,* [3]*Faculty of Medicine, Kyushu University, Japan*

P4B-2 **Single-transducer ultrasonic continuous-wave system for transmitting coded sequences**

Frank Melandso[1], Svein Jacobsen[1]
[1]*Dept of Physics and Technology, The University of Tromso, Tromso, Norway*

P4Aa-5 **Multiphysics modeling in support of ultrasonic image development: integration of fluid-structure interaction simulations and Field II applied to the carotid artery**

Abigail Swillens[1], Gianluca De Santis[1], Joris Degroote[2], Lasse Lovstakken[3], Jan Vierendeels[2], Patrick Segers[1]
[1]*IBiTech-bioMMeda, Ghent University, Ghent, Belgium,* [2]*Department of flow, heat and combustion mechanics, Ghent University, Belgium,* [3]*Department of circulation and medical imaging, NTNU, Norway*

P4Ab-5 **Guided mode measurement on bone phantoms with realistic geometry**

Josquin Foiret[1], Jean-Gabriel Minonzio[1], Maryline Talmant[1], Pascal Laugier[1]
[1]*LIP - UPMC Univ Paris 6 - CNRS UMR 7623, Paris, France*

P4Ac-5 **The Periodicity between the Aggregated Microbubbles by Secondary Radiation Force**

Sevan Harput[1], Benjamin Raiton[1], Paschalis C. Sofotasios[1], James Mclaughlan[1], Stephen Evans[2], Steven Freear[1]
[1]*School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom,* [2]*School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*

P4Ad-6 **Real-time Monitoring of Thermal and Mechanical Tissue Response to Modulated Phased-array HIFU Beams in Vivo**

Dalong Liu[1], John Ballard[2], Alyona Haritonova[3], Jeunghwan Choi[4], John Bischof[4], Emad Ebbini[2]
[1]*Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, USA,* [2]*Electrical and Computer Engineering, University of Minnesota, USA,* [3]*Biomedical Engineering, University of Minnesota, USA,* [4]*Mechanical Engineering, University of Minnesota, USA*

P4B-3 **An ultrasonic probe and technique for measuring longitudinal and shear properties of viscous liquids**

Zhen Qu[1], **Yuu Ono**[1]
[1]*Carleton University, Canada*

P4Aa-6 **Frequency Domain Time-Space Decomposition for Efficient Near Field Pressure Computations**

Erwin J. Alles[1,2], Koen W.A. van Dongen[2], Robert J. McGough[1]
[1]*Department of Electrical and Computer Engineering, College of Engineering, Michigan State University, East Lansing, Michigan, USA,* [2]*Laboratory of Acoustical Imaging and Sound Control, Faculty of Applied Sciences, Delft University of Technology, Delft, Zuid-Holland, Netherlands*

P4Ab-6 **The slow-wave disappearance owing to the structure at the interface between cancellous and cortical bones - A computational study**

Yoshiki Nagatani[1], Katsunori Mizuno[2], **Mami Matsukawa**[2]
[1]*Kobe City College of Technology, Japan,* [2]*Doshisha University, Japan*

P4Ac-6 **Characterization of Acoustically-Vaporized Droplets under Dynamic Flow Conditions**

Tung-Yeh Wu[1], Shih-Tsung Kang[1], Chih-Kuang Yeh[1]
[1]*Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan*

P4Ad-7 **Multi-parametric analysis of monitoring High Intensity Focused Ultrasound (HIFU) treatment using Harmonic Motion Imaging for Focused Ultrasound (HMIFU)**

Gary Y. Hou[1], Fabrice Marquet[1], Jianwen Luo[1], Elisa E. Konofagou[1]
[1]*Biomedical Engineering, Columbia University, USA*

P4B-4 **Parameter reproducibility of polypropylene ferroelectret transducers for air-coupled ultrasonic testing**

Mate Gaal[1], Joachim Doring[1], Juergen Bartusch[1], Viktor Bovtun[2], Gerhard Brekow[1], Marc Kreutzbruck[1]
[1]*BAM Federal Institute for Material Research and Testing, Berlin, Germany,* [2]*Department of Dielectrics, Institute of Physics ASCR, Prague, Czech Republic*

P4Aa-7 **2D matrix array optimization by simulated annealing for 3D hepatic imaging**

Bakary Diarra[1,2], **Hervé Liebgott**[1], Piero Tortoli[2], Christian Cachard[1]
[1]*CREATIS, Université de Lyon ; CNRS UMR 5220 ; INSERM U1044 ; Université Lyon 1 ; INSA-Lyon, Villeurbanne, France,* [2]*MSDLab,Università degli Studi di Firenze, Florence, Italy*

P4Ab-7 **Ultrasound propagation in random anisotropic media using numerical simulation in 2D: applications to trabecular bone assessment**

Marie Muller[1], Emmanuel Bossy[1], Fabien Mézière[1], Arnaud Derode[1]
[1]*Institut Langevin- Université Paris Diderot - ESPCI - CNRS, Paris, France*

Session P4Ad.
d - Therapy: HIFU, Monitoring, Control, and Quality Assurance

Chair: **Jean-Yves Chapelon**
INSERM, Lyon

P4Ad-8 **Design of a Focused Ultrasound Array for the Treatment of Stroke: A Simulation Study**

Daniel Pajek[1,2], Kullervo Hynynen[1,2]
[1]*Sunnybrook Research Institute, Toronto, ON, Canada,* [2]*Medical Biophysics, University of Toronto, Toronto, ON, Canada*

P4B-5 **Homogeneity Evaluation of a Synthetic Silica Glass Ingot by the Ultrasonic Microspectroscopy Technology**

Jun-ichi Kushibiki[1], **Mototaka Arakawa**[1], Yuji Ohashi[1], Yuko Maruyama[1], Hideharu Horikoshi[2], Kenji Moriyama[2]
[1]*Electrical Engineering, Tohoku University, Sendai, Japan,* [2]*Tosoh SGM Corporation, Shunan, Japan*

1:00 pm - 4:30 pm	Poster --- Thursday, October 20, 2011			Caribbean Ballroom III-V
P4B-6 **A track-pad device based on piezoelectric bimorph** **Antonio Iula**[1], Giosue Caliano[2], Nicola Lamberti[3] *[1]D.I.F.A., University of Basilicata, Potenza, PZ, Italy, [2]University Roma Tre, Italy, [3]University of Salerno, Italy*	***P4C-6*** **Analytical Solutions of Surface Acoustic Wave Propagation in Functionally Graded Plates with the Homotopy Analysis Method** Liming Gao[1], Zheng Zhong[2], **Ji Wang**[3] *[1]School of Mech Eng, Shanghai Institute of Technology, Shanghai, China, People's Republic of, [2]School of Aerospace Eng & Applied Mechanics, Tongji University, Shanghai, China, People's Republic of, [3]School of Mech Eng & Mechanics, Ningbo University, Ningbo, Zhejiang, China, People's Republic of*	***P4D-6*** **Surface Acoustic Waves on Silicon and the Effect of Electric Current** **Lingyao Chen**[1], Massood Tabib-Azar[2] *[1]ECE, UoU, USA, [2]ECE, UoU, Salt Lake City, Utah, USA*	***P4E-5*** **A Novel Method to Fabricate Full-Kerfed High-Frequency (>100MHz) Ultrasonic Array Transducers** **Jinying Zhang**[1], Weijiang Xu[2], Julien Carlier[2], Bertrand Nongaillard[2], Xinming Ji[1], Yiping Huang[1] *[1]ASIC and System State Key Lab, Department of Microelectronics, Fudan University, Shanghai, China, People's Republic of, [2]Departement of Opto-Acousto-Electronics, IEMN, CNRS UMR 8520, Valenciennes, France*	
P4B-7 **Study on Rotation Speed Control of Coiled Stator Ultrasonic Motor Using Pulse Width Modulation** **Tomohiko Omura**[1], Masayuki Tanabe[2], Kan Okubo[1], Norio Tagawa[1] *[1]Graduate School of System Design, Tokyo Metropolitan University, Tokyo, Japan, [2]Graduate School of Science and Technology, Kumamoto University, Kumamoto, Japan*	***P4C-7*** **Modeling Acoustic Wave Field Propagation in 3D Breast Models** **N. Ozmen-Eryilmaz**[1], L. Demi[1], E.J. Alles[1], M.D. Verweij[1], K.W.A. van Dongen[1] *[1]Laboratory of Acoustical Imaging and Sound Control, Delft University of Technology, Delft, Netherlands*	***P4D-7*** **Effect of Lattice Symmetry on the Formation of Phononic Band Gaps in a Silicon Plate with Metallic Stubs** **Reza Pourabolghasem**[1], Abdelkrim Khelif[1,2], Ali Asghar Eftekhar[1], Saeed Mohammadi[1], Ali Adibi[1] *[1]Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]Institut FEMTO-ST, CNRS UMR 6174, Université de Franche-Comté, Besançon Cedex, France*	***P4E-6*** **A Study of 1-3 Pseudo-Random Pillar Piezocomposites for Ultrasound Transducers** **Hao-Chung Yang**[1], Jonathan Cannata[1], Jay Williams[1], K. Kirk Shung[1] *[1]Biomedical Engineering, University of Southern California, Los Angeles, CA, USA*	
Session P4C. ***Wave Propagation III*** *Chair:* **Andreas Mayer** *HS Offenburg, Gengenbach, Germany*	***Session P4D.*** ***BAW and MEMS*** *Chair:* **Jan Kuypers** *Sand 9, Inc.*	***P4D-8*** **Theoretical Investigation of Cyclic Mechanically-coupled Contour Mode Filters** **Hadi Yagubizade**[1], Yung-Yu Chen[2], Miko C. Elwenspoek[1], Niels R. Tas[1] *[1]Transducers Science and Technology Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, Netherlands, [2]Mechanical Engineering, Tatung University, Taipei 10452, Taiwan*	***P4E-7*** **Micromachining Techniques in Developing High Frequency Piezoelectric Composite Ultrasound Array Transducers** **Changgeng Liu**[1], Frank Djuth[1], Qifa Zhou[2], Kirk Shung[2] *[1]Geospace Research, Inc., El Segundo, CA, USA, [2]Biomedical Engineering, University of Southern California, USA*	
P4C-1 **Analysis of Frequency Gap of Nanomechanical Antenna Structure Resonator Using Mathieu Equation** **Hideaki Itoh**[1], Hiroshi Tatebe[2] *[1]Faculty of Engineering, shinshu university, Nagano, Nagano, Japan, [2]shinshu university, Japan*	***P4D-1*** **TaO_x/SiO_2 insulating acoustic mirrors for AlN-based X-band BAW resonators** **Jose Capilla**[1], Valeriy Felmetsger[2], Marta Clement[3], Jimena Olivares[3], Arnaud Devos[4], Enrique Iborra[3] *[1]Grupo de Microsistemas y Materiales Electronicos, Universidda Politecnica de Madrid, Madrid, Spain, [2]Oem Group Inc., USA, [3]Universidad Politecnica de Madrid, Spain, [4]Département ISEN, France*	***Session P4E.*** ***Transducer Design and Application*** *Chair:* **Jean-Francois Saillaint** *Areva*		

P4C-2 **Self-demodulation effects in nonlinear focused beams** **Petr Konicek**[1], Michal Bednarik[1], Milan Cervenka[1] *[1]CTU FEE Prague, Czech Republic*	***P4D-2*** **Comparison of Different Electromagnetic Models of Bulk Acoustic Wave Resonators and Filters** **Nermin Selimovic**[1], Bernhard Bader[2], Jürgen Kiwitt[2], Maximilian Pitschi[2], Thomas Eibert[1] *[1]Technische Universität München, Munich, Germany, [2]TDK-EPC Corporation, Munich, Germany*	***P4E-1*** **A Piezoelectric Acoustic Pump: Design, Mechanism and Characterization** **Tao Li**[1], Jan Ma[2] *[1]tli@ntu.edu.sg, Singapore, [2]asjma@ntu.edu.sg, Singapore*		
P4C-3 **Wave propagation in elastic waveguides with a finite length crack** **Mykhailo Semkiv**[1] *[1]The Faculty of Mechanics and Mathematics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*	***P4D-3*** **On the rule of thumb for flipping of the dispersion relation in BAW devices** **Sumy Jose**[1], Ray Hueting[1], André Jansman[2] *[1]Semiconductor Components, University of Twente, Netherlands, [2]Research, NXP Semiconductors, Netherlands*	***P4E-2*** **Fabrication and Characterization of Half-Kerfed LiNbO3_based High-Frequency (>100MHz) Ultrasonic Array Transducers** **Jinying Zhang**[1,2], Weijiang Xu[2], Julien Carlier[2], Xinming Ji[1], Samuel Queste[3], Bertrand Nongaillard[2], Yiping Huang[1] *[1]ASIC and System State Key Lab, Department of Microelectronics, Fudan University, Shanghai, China, People's Republic of, [2]Departement of Opto-Acousto-Electronics, IEMN, CNRS UMR 8520, Valenciennes, France, [3]Institute FEMTO-ST, CNRS UMR 6174, University of Franche-Comte, Besancon, France*		
P4C-4 **Analysis of nonlinear standing waves in two coupled acoustic resonators** **Michal Bednarik**[1], Milan Cervenka[1], Petr Konicek[1] *[1]Czech Technical University in Prague-FEE, Prague, Czech Republic*	***P4D-4*** **Growth of AlN oriented films on insulating substrates** **Jimena Olivares**[1], Jose Capilla[1], Marta Clement[1], Jesús Sangrador[1], Enrique Iborra[1] *[1]Universidad Politécnica de Madrid, Spain*	***P4E-3*** **Electrode design and coupling optimization for Aluminum Nitride Tuning Forks** **Gabriele Vigevani**[1], Fabian T. Goericke[2], Igor Izyumin[2], Albert P. Pisano[2], Bernhard E. Boser[2] *[1]Mechanical Engineering, University of California at Berkeley, Berkeley, CA, USA, [2]University of California at Berkeley, USA*		
P4C-5 **Complex Acoustic Doppler Effect in Double Negative Resonance Metamaterials** **Ivan Lisenkov**[1], Sergey Nikitov[1,2] *[1]Kotel'nikov Institute for Radioengineering and Electronics of RAS, Moscow, Russian Federation, [2]Department of Physical and Quantum Electronics, Moscow Institute for Physics and Technology (State University), Moscow, Russian Federation*	***P4D-5*** **Aluminum Scandium Nitride Thin-Film Bulk Acoustic Resonators for wide band applications** Johan Bjurstrom[1], Milena Moreira[1], Ilia Katardjiev[1], **Ventsislav Yantchev**[1] *[1]Solid State Electronics, Uppsala University, Sweden*	***P4E-4*** **Easy Generation of Airborne Ultrasonic Helical Wavefronts.** **Joao Ealo**[1], Jose Carlos Prieto[2], Fernando Seco[2] *[1]School of Mechanical Engineering, University of Valle, Cali, Valle del Cauca, Colombia, [2]Centro de Automática y Robótica CSIC-UPM, Arganda del Rey, Madrid, Spain*		

8:00 am - 9:30 am — Oral --- Friday, October 21, 2011

	Session 1H. CMUT, 3D and Intravascular Imaging Systems *Chair:* **Stuart Foster** *Univ. of Toronto*	Session 2H. Vascular Elastography *Chair:* **Stanislav Emelianov** *Univ. of Texas at Austin*	Session 3H. Drug Delivery I *Chair:* **Tom Matula** *Univ. of Washington*	Session 4H. Laser Ultrasonics *Chair:* **R. Addison** *Rockwell Science Center, USA*	Session 5H. Single Crystal Piezoelectrics *Chair:* **Jian Yuan** *Philips Ultrasound*	Session 6H. SAW Simulation and Devices *Chair:* **Don Malocha** *University of Central Florida*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
8:00 am	***1H-1*** **Seventeen years of CMUTS: A Platform Technology** Pierre Khuri-Yakub[1] *[1]Stanford University, USA*	***2H-1*** **Strain estimation in the carotid artery from ultrasonic wall tracking: a multiphysics model study** **Abigail Swillens[1]**, Gianluca De Santis[1], Joris Degroote[2], Lasse Lovstakken[3], Jan Vierendeels[2], Patrick Segers[1] *[1]IBiTech-bioMMeda, Ghent University, Ghent, Belgium, [2]Department of flow, heat and combustion mechanics, Ghent University, Belgium, [3]Department of circulation and medical imaging, NTNU, Norway*	***3H-1*** **Dual-Frequency Ultrasound-Mediated Delivery of Rapamycin from Microbubbles Decreases Drug Dose Needed to Reduce Neointima Formation *In Vivo*** **Linsey C. Phillips[1]**, Ali H. Dhanaliwala[1], Alexander L. Klibanov[1,2], Brian R. Wamhoff[2,3], John A. Hossack[1,3] *[1]Dept. of Biomedical Engineering, University of Virginia, USA, [2]Dept. of Medicine - Cardiovascular Division, University of Virginia, USA, [3]R.M.Berne Cardiovascular Research Center, University of Virginia, USA*	***4H-1*** **Three-dimensional Crack Depth Profile Assessment using Near-Field Surface Acoustic Wave Signal Response** **James Blackshire[1]** *[1]AFRL/RXLP, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA*	***5H-1*** **Continuous feed growth and characterization of PMN-PT single crystals** **Kazuhiko Echizenya[1]**, Mitsuyoshi Matsushita[1] *[1]Research Laboratories, JFE MINERAL COMPANY, LTD., Chiba, Japan*	***6H-1*** **Ultra Low-Profile Self-Matched HTCC SAW-Duplexer: Manufacturing and Performance Challenges** Robert D. Koch[1], Christian Bauer[1], F. Maximilian Pitschi[1], Juergen E. Kiwitt[1], **Robert Weigel[2]** *[1]TDK-EPC Corporation, Germany, [2]University of Erlangen-Nuremberg, Germany*
8:15 am		***2H-2*** **In vivo noninvasive multi-angle ultrasound strain imaging of carotid arteries** **Hendrik Hansen[1]**, Gert Jan de Borst[2], Tim Idzenga[1], Suzanne Holewijn[3], Gerard Pasterkamp[4], Richard Lopata[5], Chris de Korte[1] *[1]Clinical Physics Laboratory, Department of Pediatrics, Radboud University Nijmegen Medical Centre, Netherlands, [2]Department of Vascular Surgery, University Medical Centre Utrecht, Netherlands, [3]Department of General Internal Medicine, Division of Vascular Medicine, Radboud University Nijmegen Medical Centre, Netherlands, [4]Department of Experimental Cardiology, University Medical Centre Utrecht, Netherlands, [5]Department of Biomedical Engineering, Eindhoven University of Technology, Netherlands*	***3H-2*** **Potentiating the effects of docetaxel (Taxotere) with ultrasound stimulated microbubbles** **David Goertz[1,2]**, Margarita Todorova[2], Omid Mortazavi[2], Xuan Huo[2], Raffi Karshafian[3], Kullervo Hynynen[1,2] *[1]Medical Biophysics, University of Toronto, Canada, [2]Imaging Research, Sunnybrook Research Institute, Toronto, Canada, [3]Ryerson University, Canada*	***4H-2*** **Material characterization of thermally sprayed nickel aluminum coatings using a laser ultrasound technique** **Cheng-Hung Yeh[1]**, Che-Hua Yang[1], Cherng-Yuh Su[1], Wei-Tien Hsiao[2] *[1]Graduate Institute of Manufacyuting Technology, National Taipei University of Technology, Taiwan, [2]Material and Chemical Research Laboratories, Industrial Technology Research institute, Taiwan*		***6H-2*** **A Design Technique to Enhance Isolation of Duplexer in Single-Ended and Differential Mode** Jun Tsutsumi[1], **Shogo Inoue[1]**, Masafumi Iwaki[1], Motoaki Hara[1], Hiroshi Nakamura[1], Kazuhiro Matsumoto[1], Masanori Ueda[1], Yoshio Satoh[1] *[1]TAIYO YUDEN CO.,LTD., Japan*

8:30 am	***1H-2*** **Real-time 3D Catheter Localization System Using Ultrasound: Recent in Vivo Results Towards Endovascular Abdominal Aortic Aneurysm Repair** **Jay Mung**[1], John Moos[2], Fred Weaver[2], Jesse Yen[1] *[1]Biomedical Engineering, University of Southern California, Los Angeles, CA, USA, [2]CardioVascular Thoracic Institute, Keck School of Medicine - University of Southern California, USA*	***2H-3*** **Intramural shear strain can highlight the presence of atherosclerosis: a clinical *in vivo* study** **Guillaume Zahnd**[1], Loïc Boussel[1,2], André Sérusclat[2], Didier Vray[1] *[1]Université de Lyon, CREATIS; CNRS UMR 5220; Inserm U1044; INSA-Lyon, France, [2]Louis Pradel Hospital, Radiology Department, Lyon, France*	***3H-3*** **Effects of Acoustic Parameters on Sonothrombolysis with Contrast Microbubbles** Bénédicte Petit[1,2], Emmanuel Gaud[1], **Marcel Arditi**[1], Feng Yan[1], Peter Frinking[1], Eric Allémann[2], François Tranquart[1] *[1]Bracco Suisse SA, Switzerland, [2]School of Pharmaceutical Sciences, U. Geneva, U. Lausanne, Switzerland*	***4H-3*** **Guided waves propagating in plates with temperature gradients** **Sheng-Po Tseng**[1], Che-Hua Yang[1] *[1]Graduate Institute of Manufacturing Technology, National Taipei University of Technology, Taipei, Taiwan*	***5H-2*** **Shearwave Generation of 6MHz 128ch Linear Array using Mn doped PMN-PT Single Crystal for Elastograhpy Imaging.** **Sungmin Rhim**[1], Jung Ho[1], Deokyoung Kim[1], Ho-Yong Lee[2], Jeong Seok Kim[3] *[1]HUMANSCAN Co., Ltd., Ansan, Kyunggi, Korea, Republic of, [2]Ceracomp Co., Ltd., Cheonan, Chungnam, Korea, Republic of, [3]R&D Dept., GE Ultrasound Korea, Seongnam, Kyunggi, Korea, Republic of*	***6H-3*** **A Nonlinear Elastic Model for Predicting Triple Beat in SAW Duplexers** **Shogo Inoue**[1], Seiichi Mitobe[2], Motoaki Hara[1], Masafumi Iwaki[1], Jun Tsutsumi[1], Hiroshi Nakamura[1], Masanori Ueda[1], Yoshio Satoh[1] *[1]Microdevice Research & Development Department, TAIYO YUDEN CO., LTD., Akashi, Hyogo, Japan, [2]TAIYO YUDEN Mobile Technology Co., Ltd., Yokohama, Kanagawa, Japan*
8:45 am	***1H-3*** **A CMUT-based Real-time Volumetric Ultrasound Imaging System with Row-Column Addressing** **Albert Chen**[1], Lawrence Wong[1], John Yeow[2], Andrew Logan[2] *[1]Systems Design Engineering, University of Waterloo, Waterloo, Ontario, Canada, [2]University of Waterloo, Canada*	***2H-4*** **Feasibility of elastic and compositional characterization of an arterial plaque by dual mechanical strain and thermal strain imaging using a single ultrasound probe** **Debaditya Dutta**[1], Kang Kim[1,2] *[1]Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh and University of Pittsburgh Medical Center, USA, [2]Department of Bioengineering, University of Pittsburgh, USA*	***3H-4*** **Sonoporation-dependent cytotoxicity with toxins subunit** **Olivier Couture**[1], Estelle Dransart[2], Marine Thiebaud[2], Ludger Johannes[2], Mickael Tanter[3] *[1]CNRS / ESPCI, France, [2]Institut Curie, France, [3]INSERM, France*	***4H-4*** **Measuring Crystal Orientation by Resonant Ultrasound Spectroscopy** **Farhad Farzbod**[1], David Hurley[1] *[1]Idaho National Laboratory, USA*	***5H-3*** **Advancements in Micromachined PC-MUTs for Medical Devices** **Yu Liang**[1], Kevin Snook[1], Bradley Dunkin[1], Raffi Sahul[1], Wesley Hackenberger[1] *[1]TRS Technologies, State College, PA, USA*	***6H-4*** **A New Simulation Model of Nonlinearity for SAW Resonator Filters** **Katsuhiro Nako**[1], Ryo Nakagawa[1], Takanao Suzuki[1], Kazuhiro Takigawa[1], Hiroshi Shimizu[1], Haruki Kyouya[1] *[1]New Technology & Products Development Group, Murata Manufacturing Company,Ltd., Yasu-shi, Shiga, Japan*
9:00 am	***1H-4*** **Real-time 3D Imaging with a 7.5 MHz Dual-layer Array Transducer – Data Acquisition and Signal Processing** **Man Nguyen**[1], Yuling Chen[1], Jesse Yen[1] *[1]Biomedical Engineering, University of Southern California, Los Angeles, CA, USA*	***2H-5*** **Shear Wave Induced Resonance Elastography for Ultrasound Imaging and Mechanical Characterization of Venous Thrombi** **Guy Cloutier**[1], Cédric Schmitt[1], Anis Hadj Henni[1], Shijie Qi[2] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center, Montreal, Quebec, Canada, [2]Laboratory of Experimental Microsurgery, University of Montreal Hospital Research Center, Montreal, Quebec, Canada*	***3H-5*** **Investigating the Interaction Between Acoustically Activated Microbubbles and Fibrin Clots** **Christopher Acconcia**[1,2], Kullervo Hynynen[1,2], David Goertz[1,2] *[1]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada, [2]Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada*	***4H-5*** **Laser ultrasound technique for ray tracing investigation of Lamb wave tomography** **Chia Han Wu**[1], Che Hua Yang[1] *[1]Graduate Institute of Manufacturing Technology, National Taipei University of Technology, Taipei, Taiwan*	***5H-4*** **Piezoelectric Crystal Composite for Low and High Frequency Ultrasound Application** **Jian Tian**[1], Kevin Meneou[1], Brandon Stone[1], Pengdi Han[1] *[1]H. C. Materials Corporation, Bolingbrook, Illinois, USA*	***6H-5*** **Nonlinear lumped electrical model for Contour Mode AlN Resonators** **Jeronimo Segovia Fernandez**[1], Augusto Tazzoli[1], Gianluca Piazza[1] *[1]University of Pennsylvania, USA*
9:15 am	***1H-5*** **Development of a high-definition intravascular ultrasound imaging system and catheter** **Kendall Waters**[1], Rick Bautista[1], Robert Zelenka[1], Donald Masters[1], Steve Reynolds[1], Steve Nelson[1], Duc Lam[1], Ron Neville[1], Thomas Moore[1] *[1]Silicon Valley Medical Instruments, Inc., Fremont, CA, USA*	***2H-6*** **Pulse wave imaging of arteries of healthy subjects and patients with hypertension and abdominal aortic aneurysms** **Jianwen Luo**[1], Ronny Li[1], Sandhya Balaram[2], Farooq Chaudhry[3], John Lantis[2], Elisa Konofagou[1,4] *[1]Department of Biomedical Engineering, Columbia University, New York, NY, USA, [2]Department of Surgery, St. Luke's-Roosevelt Hospital Center, New York, NY, USA, [3]Department of Medicine, St. Luke's-Roosevelt Hospital Center, New York, NY, USA, [4]Department of Radiology, Columbia University, New York, NY, USA*	***3H-6*** **Evaluation of doxorubicin-containing microbubbles for ultrasound-triggered delivery** **Jean-Michel Escoffre**[1], Bart Geers[2], Ine Lentacker[2], Ayache Bouakaz[1] *[1]Inserm U930, CNRS ERL 3106, université François Rabelais de Tours, France, [2]Laboratory of General Biochemistry and Physical Pharmacy, Ghent University, Belgium*	***4H-6*** **Multi-channel random-quarature receiver for industrial laser-ultrasonics** **bruno pouet**[1], alexis wartelle[1], sebastien breugnot[1] *[1]bossa nova technologies, USA*	***5H-5*** **Characterisation of PMN-29%PT as a Function of Temperature and Pressure** **Muhammad Sadiq**[1], Zhen Qiu[1], Christine Demore[1], Zhihong Huang[1], Sandy Cochran[1] *[1]University of Dundee, United Kingdom*	***6H-6*** **Simulation of complex 2D transducer structures using finite element analysis combined with a canonical Green's function based boundary element method** **Thierry Laroche**[1], Markus Mayer[2], Xavier Perois[3], William Daniau[1], Julien Garcia[1], Sylvain Ballandras[1], Karl Wagner[2] *[1]Time & Frequency, FEMTO-ST, UMR CNRS 6174, France, [2]EPCOS AG, TDK-EPC Corporation, Germany, [3]EPCOS AG, TDK-EPC Corporation, France*

10:30 am - 12:00 pm — Oral --- Friday, October 21, 2011

	Session 1I. Image Processing *Chair:* **Olivier Basset** *CREATIS, Lyon*	***Session 2I. Histotripsy and General Therapy*** *Chair:* **Georg Schmitz** *Ruhr-Universität Bochum*	***Session 3I. Drug Delivery II*** *Chair:* **Ayache Bouakaz** *INSERM, Tours*	***Session 4I. Applications and Measurements of Ultrasonic Energy*** *Chair:* **Kentaro Nakamora** *Tokyo Institute of Technology, Japan*	***Session 5I. Application of Materials*** *Chair:* **Steven Freear** *University of Leeds*	***Session 6I. MEMS*** *Chair:* **Sunil Bhave** *Cornell University*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
10:30 am	***1I-1*** **Ultrasound image segmentation**	***2I-1*** **A Dose-efficient Treatment Strategy for Histotripsy By Removing Cavitation Memory** **Tzu-Yin Wang**[1], Zhen Xu[1], Timothy Hall[1], Brian Fowlkes[1,2], Charles Cain[1] *[1]Biomedical Engineering Department, University of Michigan, USA, [2]Radiology Department, University of Michigan, USA*	***3I-1*** **Optical Characterization of Individual Liposome Loaded Microbubbles** **Ying Luan**[1], Telli Faez[1], Erik Gelderblom[2], Ilya Skachkov[1], Bart Geers[3], Ine Lentacker[3], Antonius van der Steen[1], Michel Versluis[2], Nico de Jong[1,2] *[1]Erasmus Medical Center, Netherlands, [2]University of Twente, Netherlands, [3]University of Gent, Belgium*	***4I-1*** **Ultrasonic welding using complex vibration and high frequency vibration - Various vibration sources and frequency characteristics of ultrasonic welding -** **Jiromaru Tsujino**[1,2] *[1]Kanagawa University, Yokohama, Kanagawa, Japan, [2]Asahi EMS Co Ltd, Yokohama, Kanagawa, Japan*	***5I-1*** **Synthesis and Characterization of PZT Single Crystals** **Zuo-Guang Ye**[1], Yujuan Xie[1], Alexei Bokov[1], Xifa Long[1] *[1]Simon Fraser University, Burnaby, BC, Canada*	***6I-1*** **Temperature compensation of silicon MEMS resonators by heavy p and n type doping** **Tuomas Pensala**[1], Antti Jaakkola[1], Mika Prunnila[1], James Dekker[1] *[1]VTT Technical Research Centre of Finland, Finland*
10:45 am		***2I-2*** **Non-invasive Fetal Therapy Using Histotripsy: Safety and Local Impact on Fetal Development** **Yohan Kim**[1], Carlen Fifer[2], Sarah Gelehrter[2], Gabe Owens[2], Eli Vlaisavljevich[1], Charles Cain[1], Zhen Xu[1] *[1]Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA, [2]Department of Pediatrics, Division of Pediatric Cardiology, University of Michigan, Ann Arbor, MI, USA*	***3I-2*** **Ultrasound and Microbubble Mediated Doxil Delivery in a Murine Breast Cancer Model: Therapeutic Efficacy Dependence on Tumor Growth Rate** **Ralf Seip**[1], Evgeniy Leyvi[1], Balasundar Raju[1], William Shi[1], Marcel Bohmer[2], Ceciel Chlon[2], Charles Sio[2], Kristin Patterson[3], Terri Swanson[3] *[1]Philips Research, NA, USA, [2]Philips Research Europe, Netherlands, [3]Pfizer Global Research and Development, USA*		***5I-2*** **1-3 Microfabricated Composite Acoustic Matching Layers for High Frequency Transducers** **Tung Manh**[1], Geir Uri Jensen[2], Tonni Franke Johansen[3], Lars Hoff[1] *[1]Department of Micro and Nano Technology, Vestfold University College, Borre, Norway, [2]Department of Microsystems and Nanotechnology, SINTEF ICT, Oslo, Norway, [3]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway*	***6I-2*** **Lithium-Niobate-Based Surface Acoustic Wave Device Directly Integrated on LSI** KyeongDong Park[1], Masayoshi Esashi[2], **Shuji Tanaka**[1] *[1]Department of Nanomechanics, Tohoku University, Sendai, Japan, [2]WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan*

11:00 am	***1I-2*** **Fast 3D Echocardiographic Segmentation using B-Spline Explicit Active Surfaces: A validation study in a clinical setting** **Daniel Barbosa**[1,2], Olivier Bernard[2], Denis Friboulet[2], Thomas Dietenbeck[2], Piet Claus[1], Helene Houle[3], Jan D'hooge[1] *[1]Lab on Cardiovascular Imaging & Dynamics, Dept. of Cardiovascular Diseases, Katholieke Universiteit Leuven, Leuven, Belgium, [2]CREATIS, INSA Lyon, France, [3]Siemens Medical Solutions, USA*	***2I-3*** **The Effect of Acoustic Parameters on a Non-invasive Embolus Trap (NET) Using a Histotripsy-Generated Bubble Cloud** **Simone Park**[1], Adam Maxwell[1], Gabe Owens[2], Hitinder Gurm[3], Charles Cain[1], Zhen Xu[1] *[1]Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA, [2]Department of Pediatric Cardiology, University of Michigan, Ann Arbor, MI, USA, [3]Department of Internal Medicine, University of Michigan, Ann Arbor, MI, USA*	***3I-3*** **Mechanism Monitoring of Noninvasive Cavitation-Guided Blood-Brain Barrier Opening Using Focused Ultrasound and Microbubbles in Non-Human Primates** **Yao-Sheng Tung**[1], Fabrice Marquet[1], Tobias Teichert[2], Vincent Ferrera[2], Elisa Konofagou[1,3] *[1]Biomedical Engineering, Columbia University, USA, [2]Neuroscience, Columbia University, USA, [3]Radiology, Columbia University, USA*	***4I-2*** **Optimization of Friction Stir Welding Parameter for AA 5083 By Radiography and Ultrasonic Technique** **Vidya Joshi**[1], Krishnan Balasubramaniam[1], Raghu V. Prakash[1] *[1]Department of Mechanical Engineering, Indian Institute of Technology madras, Chennai, Tamilnadu, India*	***5I-3*** **Tapered Impedance Matching Section Using PDMS Moulding** **Dawei Wu**[1], Alan Wright[1], Paul Harris[1] *[1]Medical Device Technology, Industrial Research Limited, Lower Hutt, Wellington, New Zealand*	***6I-3*** **Thin Film Transfer Technology for Tunable SAW Filter Using Integrated Ferroelectric Varactors** **Hideki Hirano**[1], Toshiyuki Kikuta[1], Masayoshi Esashi[1], Shuji Tanaka[1] *[1]Tohoku University, Sendai, Japan*
11:15 am	***1I-3*** **Fine Resolution 3D Displacement Measurements of Mouse Left Ventricle Using Orthogonal Sets of 2D B-Mode Ultrasound Images** **Dan Lin**[1], Yaqin Xu[1], Brent A. French[1], John A. Hossack[1] *[1]Biomedical Engineering, University of Virginia, USA*	***2I-4*** **Spatiotemporal Electrophysiological Changes during HIFU Ablation in Langendorff-perfused Rabbit Hearts** **Ziqi Wu**[1], Cheri X. Deng[1], Ronald E. Kumon[1], Yi-sing Hsiao[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA*	***3I-4*** **Effect of Microbubble Shell Components on Ultrasound and Microbubble mediated Gene Transfection *in vivo*** **Richard J. Browning**[1], Helen Mulvana[1], Mengxing Tang[2], Jo V. Hajnal[1], Dominic J. Wells[3], Robert J. Eckersley[1] *[1]Imaging Sciences Department, Imperial College London, London, United Kingdom, [2]Department of Bioengineering, Imperial College London, London, United Kingdom, [3]Department of Veterinary Basic Sciences, Royal Veterinary College, London, United Kingdom*	***4I-3*** **High Temperature Ultrasonic Transducers for In Service Inspection of Liquid Metal Fast Reactors** **Jeffrey Griffin**[1], Gerald Posakony[2], Robert Harris[2], David Baldwin[2], Leonard Bond[2] *[1]Applied Physics, Pacific Northwest National Laboratory, Richland, Washington, USA, [2]Pacific Northwest National Laboratory, USA*	***5I-4*** **Collinear Composite Materials for Impedance Matching** **Paul Harris**[1], Dawei Wu[1], Matthew Thomson[1], Russell Petherick[1], Frederic Lecarpentier[1], Harry Chen[1] *[1]Industrial Research Ltd, New Zealand*	***6I-4*** **Hollow Stems for Higher UHF Micromechanical Disk Resonator Quality Factor** **Lingqi Wu**[1], Mehmet Akgul[1], Zeying Ren[1], Yang Lin[1], Wei-Chang Li[1], Tristan Rocheleau[1], Clark T.-C. Nguyen[1] *[1]Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, Berkeley, CA, USA*
11:30 am	***1I-4*** **Three-dimensional myocardial strain estimation from volumetric ultrasound: experimental validation in an animal model** **Brecht Heyde**[1], Ruta Jasaityte[1], Stefaan Bouchez[2], Michael Vandenheuvel[2], Dirk Loeckx[3], Piet Claus[1], Patrick Wouters[2], Jan D'hooge[1,4] *[1]Cardiovascular Imaging and Dynamics, Catholic University of Leuven, Leuven, Belgium, [2]Department of Anesthesiology, Ghent University, Ghent, Belgium, [3]Medical Image Computing, Catholic University of Leuven, Leuven, Belgium, [4]Medical Imaging Lab, Norwegian Institute for Science & Technology, Trondheim, Norway*	***2I-5*** **The feasibility of using thermal strain imaging to regulate energy delivery during intercardiac radiofrequency ablation** **Chi Hyung Seo**[1,2], Douglas Stephens[3], Jonathan Cannata[4], Aaron Dentinger[5], Feng Lin[5], Suhyun Park[5], Douglas Wildes[5], Kai Thomenius[5], Peter Chen[6], Tho Nguyen[6], Alan Delarama[6], Jong Seob Jeong[7], Aman Mahajan[8], Kalyanam Shivkumar[8], Omer Oralkan[9], Amin Nikoozadeh[9], David Sahn[10], Pierre Khuri-Yakub[9], Matthew O'Donnell[2] *[1]Siemens Healthcare, USA, [2]University of Washington, USA, [3]University of*	***3I-5*** **Monitoring of Microbubble-mediated Ultrasound Therapy using Fluorescent Imaging: A Feasibility Study** **Anna Sorace**[1], Reshu Saini[1], Eben Rosenthal[2], Kenneth Hoyt[3] *[1]Biomedical Engineering, University of Alabama at Birmingham, Birmingham, AL, USA, [2]Surgery, University of Alabama at Birmingham, Birmingham, AL, USA, [3]Radiology, University of Alabama at Birmingham, Birmingham, AL, USA*	***4I-4*** **Coupling between flexural and Stoneley modes in cylindrical three-layered media** **Hanyin Cui**[1], Jon Trevelyan[1], Sherri Johnstone[1], Stuart Millman[2] *[1]School of engineering and computing sciences, Durham University, Durham, United Kingdom, [2]Research Development & Technology, Tata steel, Middlesbrough, United Kingdom*	***5I-5*** **An All-optical Thin-film High-frequency Ultrasound Transducer** **Clay Sheaff**[1], Shai Ashkenazi[1] *[1]Biomedical Engineering, University of Minnesota-Twin Cities, Minneapolis, MN, USA*	***6I-5*** **A Robust Doppler Ultrasonic 3D-imaging System with MEMS Microphone Array and Configurable Processor** **Yasushige Maeda**[1], Masanori Sugimoto[2], Hiromichi Hashizume[3] *[1]Department of Informatics, The Graduate University for Advanced Studies, Japan, [2]School of Engineering, University of Tokyo, Japan, [3]Information Systems Architecture Science Research Division, National Institute of Informatics, Japan*
11:45 am	***1I-5*** **Methodology to register prostate B-mode and ARFI images to MR and histology data** **Christina Hsu**[1], Matthew Davenport[2], Rajan Gupta[2], Thomas Polascik[3], John Madden[4], Mark Palmeri[5], Kathy Nightingale[5] *[1]Biomedical Engineering, Duke University, Durham, NC, USA, [2]Department of Radiology, Duke University Medical Center, USA, [3]Division of Urology, Department of Surgery, Duke University Medical Center, USA, [4]Department of Pathology, Duke University Medical Center, USA, [5]Biomedical Engineering, Duke University, USA*	***2I-6*** **Acoustic Radiation Force for Vascular Stem Cell Therapy: an in Vitro Validation** **Mehmet Kaya**[1], Catalin Toma[1], Michelle Grata[1], Huili Fu[1], Flordeliza S. Villanueva[1], Xucai Chen[1] *[1]Center for Ultrasound Molecular Imaging and Therapeutics, Cardiovascular Institute, University of Pittsburgh Medical Center, Pittsburgh, PA, USA*	***3I-6*** **Imaging Tumor Vascularity by Tracing Single Microbubbles** **Monica Siepmann**[1], Jessica Bzyl[2], Moritz Palmowski[2], Fabian Kiessling[2], Georg Schmitz[1] *[1]Medical Engineering, Ruhr-University, Bochum, NRW, Germany, [2]Experimental Molecular Imaging, RWTH Aachen, Aachen, NRW, Germany*	***4I-5*** **Macro energy harvester based on Aluminium Nitride thin films** Thibault Ricart[1], Pierre Patrick Lassagne[1], Sebastien Boisseau[1], Ghislain Despesse[1], **Emmanuel Defay**[1], Christophe Billard[1] *[1]CEA/Leti, France*	***5I-6*** **Effect of the crystallographic orientation of Pb(Zr,Ti)O_3 films on the d_{31} transverse piezoelectric coefficient** Matthieu Cueff[1], Marjolaine Allain[1], Julie Abergel[1], Gwenael Le Rhun[1], **Emmanuel Defay**[1], Marc Aid[1] *[1]CEA-Leti, Minatec Campus, Grenoble, France*	***6I-6*** **Novel Template-Free Microfluidic Synthesis and Encapsulation Technique for Layer-by-Layer Polymer Nanocapsule Assembly** Aisha Qi[1], Jenny Ho[2], Peggy Chan[3], Leslie Yeo[2], **James Friend**[4] *[1]MicroNanophysics Research Laboratory, Monash University, Australia, [2]MicroNanophysics Research Laboratory, Monash University, Clayton, Victoria, Australia, [3]Chemical Engineering, Monash University, Clayton, Victoria, Australia, [4]Mechanical Engineering, Monash University, Clayton, VIC, Australia*

FRIDAY ORAL

2:00 pm - 3:30 pm — Oral --- Friday, October 21, 2011

	Session 1J. Beam Forming *Chair:* **John Hossack** *Univ. of Virginia*	Session 2J. Ultrasound Therapy of the Brain *Chair:* **Greg Clement** *Harvard Medical School*	Session 3J. Cardiovascular Tissue Characterization *Chair:* **James Miler** *Washingon University*	Session 4J. High Resolution Acoustic Imaging *Chair:* **Roman Maev** *University of Windsor, Canada*	Session 5J. Acoustic Wave Propagation I *Chair:* **Mihir Patel** *Schlumberger-Doll Research*	Session 6J. Harsh Environment (5C) *Chair:* **Mauricio Pereira Da Cunha** *University of Maine*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
2:00 pm	***1J-1*** **Shear Wave Induced Phase Encoding Imaging with Enhanced Resolution** **Stephen McAleavey**[1], Vaibhav Kakkad[1] [1]*Biomedical Engineering, University of Rochester, Rochester, NY, USA*	***2J-1*** **Optimization of the Ultrasound-Induced Blood-Brain Barrier Openings** **Elisa Konofagou**[1] [1]*Columbia University, USA*	***3J-1*** **IVUS Is Still Alive - Multi Parameter Analysis for Tissue Characterization of Coronary Atherosclerosis and Interpretation from Acoustic Microscopy Observation** **Yoshifumi Saijo**[1] [1]*Graduate School of Biomedical Engineering, Tohoku University, Japan*	***4J-1*** **Implementation of an ultrasound biomicrscopy system by rotational scanning of a high-frequency angled needle transducer** **Tae-Hoon Bok**[1], Juho Kim[1], Dong-Guk Paeng[1], Jinho Bae[1], Chong Hyun Lee[1] [1]*Ocean System Engineering, Jeju National University, Jeju, Jeju, Korea, Republic of*	***5J-1*** **Guided Acoustic Waves Propagating at Surfaces, Interfaces or Edges** **Andreas Mayer**[1] [1]*HS Offenburg, Gengenbach, Germany*	***6J-1*** **Iridium interdigital transducers for ultra-high-temperature SAW devices** **Thierry Aubert**[1,2], Jochen Bardong[1], Omar Elmazria[2], Gudrun Bruckner[1], Badreddine Assouar[3] [1]*Carinthian Tech Research, Villach/St. Magdalen, Austria,* [2]*Institut Jean Lamour, Vandoeuvre-lès-Nancy, France,* [3]*Georgia Institute of Technology, International Joint laboratory (UMI 2958), CNRS - GIT, Atlanta, GA, USA*
2:15 pm	***1J-2*** **Physical Principles for Clutter Reduction in Ultrasonic Imaging via Wavefront Coherence** **Jeremy Dahl**[1], Gregg Trahey[1,2] [1]*Biomedical Engineering, Duke University, Durham, NC, USA,* [2]*Radiology, Duke University Medical Center, Durham, NC, USA*		***3J-2*** **Ultrasonic assessment of disease using a quantitative analysis of microvessel morphology** **Ryan Gessner**[1], Stephen Aylward[2], Elizabeth Bullitt[3], Paul Dayton[1] [1]*Biomedical Engineering, UNC/NCSU, Chapel Hill, NC, USA,* [2]*Medical imaging, Kitware, Carrboro, NC, USA,* [3]*Surgery, UNC, Chapel Hill, NC, USA*	***4J-2*** **Adaptive Array Processing for Ultrasonic Non-Destructive Evaluation** **Minghui Li**[1], Gordon Hayward[1] [1]*Centre for Ultrasonic Engineering, Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom*		***6J-2*** **SAW Parameters for Langasite at High Temperatures** **Elena Mayer**[1], David Eisele[1], Leonhard M. Reindl[1], Victor P. Plessky[2], Gudrun Bruckner[3], Jochen Bardong[3], Thierry Aubert[3] [1]*IMTEK, University of Freiburg, Freiburg, Germany,* [2]*GVR Trade SA, Bevaix, Switzerland,* [3]*Carinthian Tech Research (CTR), Villach, Austria*

2:30 pm	***1J-3*** **Transducers with non-rectangular elements** **Svetoslav Ivanov Nikolov**[1], Henrik Jensen[2], Terry Kling[3] *[1]RD Applications and Technology, BK Medical Aps, Herlev, Sjæeland, Denmark, [2]RD Applications and Technology, BK Medical Aps, Denmark, [3]Sound Technology Inc., USA*	***2J-2*** **Focused ultrasound with submicron bubbles producing inertial cavitation suppression in blood-brain barrier opening application** **Ching-Hsiang Fan**[1], Hao-Li Liu[2], Tzu-Chen Yen[3], Chih-Kuang Yeh[1] *[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan, [2]Department of Electrical Engineering, Chang-Gung University, Taiwan, [3]Molecular Imaging Center, Chang-Gung Memorial Hospital, Taiwan*	***3J-3*** **Feasibility of Echocardiographic-based Assessment of Myocardial Fiber Structure in Individual Hearts** Michelle Milne[1], Gautam Singh[1], James Miller[1], **Mark Holland**[1] *[1]Washington University, USA*	***4J-3*** **Acoustic Tomography: Promise versus Reality** **Neb Duric**[1] *[1]Karmanos Cancer Institute, Wayne State University, Detroit, MI, USA*	***5J-2*** **Experimental Results on the Pressure Dependence of the Minnaert Resonance Frequency** **Bernt Inge Hansen**[1], Jarle André Johansen[1] *[1]Department of Engineering and Safety, University of Tromsoe, Tromsoe, Troms, Norway*	***6J-3*** **Impact of High-Temperature Dielectric and Piezoelectric Behavior on LGT Acoustic Wave Properties up to 900°C** **Peter Davulis**[1], Mauricio Pereira da Cunha[1] *[1]Electrical and Computer Engineering Dept., University of Maine, Orono, ME, USA*
2:45 pm	***1J-4*** **Resolution, apodization, and noise considerations in short-lag spatial coherence (SLSC) images compared to B-mode images** **Muyinatu Lediju**[1], Jeremy Dahl[1], Gregg Trahey[1] *[1]Duke University, Durham, NC, USA*	***2J-3*** **Initial In Vivo Feasibility of a Simple, Pre-Clinical Focused Ultrasound System Applied to Blood-Brain Barrier Opening** **Fabrice Marquet**[1], Yao-Sheng Tung[1], Tobias Teichert[2], Vincent Ferrera[2], Elisa Konofagou[1,3] *[1]Biomedical Engineering, Columbia University, USA, [2]Neuroscience, Columbia University, USA, [3]Radiology, Columbia University, USA*	***3J-4*** **An effective medium model for ultrasound blood characterization** **Emilie Franceschini**[1], Bloen Metzger[2], Guy Cloutier[3] *[1]Laboratoire de Mécanique et d'Acoustique LMA - CNRS UPR 7051, Marseille, France, [2]Institut Universitaire des Systèmes Thermiques Industriels IUSTI - CNRS UMR 6595, Marseille, France, [3]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Centre, Montreal, Quebec, Canada*		***5J-3*** **Wave Propagation in a Microporous Structure for Angled Excitation** **Andrew Dawson**[1], Roger Young[1], Paul Harris[1] *[1]Industrial Research Ltd, Lower Hutt, New Zealand*	***6J-4*** **Intrinsic Characteristics of Thermally Stable AlN Lamb Wave Resonators at High Temperature** **Chih-Ming Lin**[1], Ting-Ta Yen[1], Valery Felmetsger[2], Jan Kuypers[1], Albert Pisano[1] *[1]Mechanical Engineering, University of California at Berkeley, USA, [2]OEM Group Incorporated, USA*
3:00 pm	***1J-5*** **Adaptive Spatial Compounding for Needle Visualization** **Bo Zhuang**[1], Kris Dickie[1], Laurent Pelissier[1] *[1]Ultrasonix Medical Corp., Canada*	***2J-4*** **MR-guided adaptive focusing of transcranial HIFU beams: a human cadaver study** **Laurent Marsac**[1,2], Dorian Chauvet[3], Benoit Larrat[1], Mathieu Pernot[1], Benjamin Robert[2], Mathias Fink[1], Jean Francois Aubry[1], Anne Laure Boch[3], Mickael Tanter[1] *[1]Institut Langevin, Paris, France, [2]SuperSonic Imagine, Aix en provence, France, [3]Département de Neurochirurgie, Hôpital Pitié Salpêtrière, Paris, France*	***3J-5*** **Experimental validation of the structure factor model on tissue-mimicking phantoms** Nesmah Awad[1], **Emilie Franceschini**[1] *[1]Laboratoire de Mécanique et d'Acoustique LMA - CNRS UPR 7051, Marseille, France*	***4J-4*** **Autofocus Imaging in an Anisotropic Austenitic Weld** **jie zhang**[1], Bruce Drinkwater[1], Paul Wilcox[1], Alan Hunter[2] *[1]Mechanical Engineering, University of Bristol, Bristol, Avon, United Kingdom, [2]TNO, Netherlands*	***5J-4*** **High-Frequency Wave Propagation in Piezoelectric Semiconductor Plate Under Biasing Electric Field** **bernard collet**[1] *[1]Institut Jean le Rond d'Alembert, CNRS,UMR 9170, Case 162, Université Pierre et Marie Curie, Paris, Ile de france, France*	***6J-5*** **Is AlN/Sapphire bilayer structure an alternative to langasite for ultra-high-temperature SAW applications ?** **Thierry Aubert**[1,2], Jochen Bardong[1], Badreddine Assouar[3], Gudrun Bruckner[1], Omar Elmazria[2] *[1]Carinthian Tech Research, Villach/St. Magdalen, Austria, [2]Institut Jean Lamour, Vandoeuvre-lès-Nancy, France, [3]Georgia Institute of Technology, International Joint laboratory (UMI 2958), CNRS - GIT, Atlanta, GA, USA*
3:15 pm	***1J-6*** **Separable 2D Direct-Sampled In-phase Quadrature Beamforming for Greatly Increased Computational Efficiency** **Kevin Owen**[1,2], Michael I. Fuller[2], John A. Hossack[1] *[1]BME, University of Virginia, Charlottesville, VA, USA, [2]Pocketsonics Inc, Charlottesville, VA, USA*	***2J-5*** **Stationary Waves Arising from Ultrasound Therapy of the Brain: Experimental Measurements, Numerical Computations and Safety Considerations** **Gianmarco Pinton**[1], Emilie Beaulieu-Ouellet[1], Stephen Meairs[2], Jean-Francois Aubry[1], Mickael Tanter[1] *[1]Institut Langevin, ESPCI, Paris, France, [2]Department of Neurology, Universitätsklinikum Mannheim, University of Heidelberg, Mannheim, Germany*	***3J-6*** **Experimental study of active control of microbubbles in blood flow by forming their aggregations** **Kohji Masuda**[1], Ren Koda[1], Nobuyuki Watarai[1], Takumi Ito[1], Nobuhiko Shigehara[1], Takashi Kakimoto[2], Yoshitaka Miyamoto[2], Shin Enosawa[2], Toshio Chiba[2] *[1]Tokyo Univ of A&T, Japan, [2]National Center for Child Health and Development, Japan*	***4J-5*** **Ultrasonic Imaging of Pitting using Multilayer Synthetic Aperture Focusing** **Martin Skjelvareid**[1,2], Tomas Olofsson[3], Yngve Birkelund[1] *[1]Department of Physics and Technology, University of Tromsoe, Tromsoe, Norway, [2]Breivoll Inspection Technologies, Tromsoe, Norway, [3]Department of Engineering Sciences, Uppsala University, Sweden*	***5J-5*** **Estimation of Rock Anisotropic Constants using Sonic Data from Deviated Wellbores** **Bikash Sinha**[1] *[1]Schlumberger-Doll Research, Cambridge, MA, USA*	***6J-6*** **Effect of anisotropy on SAW behavior in LGS orientation with Euler angles (0&[deg], 22&[deg], 90&[deg])** **Natalya Naumenko**[1] *[1]Moscow Technical University of Communication & Information Science, Moscow, Russian Federation*

4:30 pm - 6:00 pm — Oral --- Friday, October 21, 2011

	Session 1K. Abdominal Elastography *Chair:* **Timothy Hall** *Univ. of Wisconsin-Madison*	***Session 2K. Vascular Imaging*** *Chair:* **Anne Hall** *GE medical systems*	***Session 3K. Functional Imaging & Image Quality*** *Chair:* **Mickael Tanter** *INSERM, Paris*	***Session 4K. NDE Methods and Analysis*** *Chair:* **David Greve** *Carnegie Mellon University, USA*	***Session 5K. Acoustic Wave Propagation II*** *Chair:* **Ji Wang** *Ningbo University*	***Session 6K. Medical Therapy Devices*** *Chair:* **Sandy Cochran** *University of Dundee*
	Boca Rooms II-IV	**Boca Rooms VI-VII**	**Caribbean Ballroom VII**	**Caribbean Ballroom I**	**Caribbean Ballroom II**	**Caribbean Ballroom VI**
4:30 pm	***1K-1*** **Comparison between Acoustic Radiation Force Impulse (ARFI)-based hepatic stiffness quantification in constrained and unconstrained pressurized canine livers** **Veronica Rotemberg**[1], Mark Palmeri[1,2], Kathryn Nightingale[1] *[1]Biomedical Engineering, Duke University, USA, [2]Anesthesiology, Duke University Medical Center, USA*	***2K-1*** **Intravascular Ultrasound Chirp Imaging of atherosclerotic plaque pathology and neovascularization** **David Maresca**[1], Krista Jansen[1], Guillaume Renaud[1], Wijnand den Dekker[2], Gijs van Soest[1], Xiang Li[3], Qifa Zhou[3], Jonathan Cannata[3], Antonius F.W. van der Steen[1,4] *[1]Biomedical Engineering, Thorax Centre, Erasmus MC, Rotterdam, Netherlands, [2]Experimental Cardiology, Erasmus MC, Rotterdam, Netherlands, [3]Resource Center for Medical Ultrasonic Transducer Technology, University of Southern California, Los Angeles, USA, [4]Interuniversity Cardiology Institute of the Netherlands, Netherlands*	***3K-1*** **Spatiotemporal dynamics of epileptic seizures followed by ultrasensitive functional ultrasound imaging** **Emilie Mace**[1], Gabriel Montaldo[1], Ivan Cohen[2], Michel Baulac[2], Mathias Fink[1], Mickael Tanter[1] *[1]Institut Langevin, ESPCI ParisTech, CNRS UMR7587, Inserm U979, Paris, France, [2]Institut du Cerveau et de la Moelle épinière, Inserm UMRS 975, CNRS UMR7225, CHU Pitié Salpêtrière, Paris, France*	***4K-1*** **Dependency of Signal to Noise Ratio on Transducer Diameter and Buffer Diameter in Guided wave Time Domain Reflectometry** **Håkon Viumdal**[1,2], Kuo-Ting Wu[3], Saba Mylvaganam[1] *[1]Telemark University College, Porsgrunn, Norway, [2]Tel-Tek, Porsgrunn, Norway, [3]Industrial Materials Institute, National Research Council, Montreal, Canada*	***5K-1*** **Non-invasive measurement of sound velocity profiles** **Elfgard Kühnicke**[1], Michael Lenz[1], Martin Bock[1] *[1]Fakultät Elektrotechnik, Institut für Festkörperelektronik, Technische Universität Dresden, Dresden, Germany*	***6K-1*** **Triple Function Imaging, Radiation Force, and Therapeutic IVUS for Microbubble Based Drug Delivery** **Joseph P. Kilroy**[1], John A. Hossack[1] *[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA*
4:45 pm	***1K-2*** **Supersonic shear imaging of elastography in obstetrics: quantification of cervix elasticity and uterine contraction.** Jean-Luc Gennisson[1], **Marie Muller**[1], Olivier Ami[2], Valerie Kohl[2], Alexandra Benachi[2], René Frydman[2], Dominique Musset[2], Mickael Tanter[1] *[1]Institut Langevin- Université Paris Diderot - ESPCI - CNRS, Paris, France, [2]Hôpital Antoine Béclère, Université Paris Sud XI, France*	***2K-2*** **A Hybrid Intravascular Ultrasound and Optical Coherence Tomography Catheter for the Imaging of Coronary Artery Disease** Brian Li[1], **Amandeep Thind**[2], Annie Leung[1], Alan Soong[3,4], Chelsea Munding[5], Hyunggyun Lee[6], Nigel Munce[7], Bradley Strauss[8], F. Stuart Foster[1,6], Brian Courtney[4,6] *[1]University of Toronto, Canada, [2]Colibri Technologies, Toronto, ON, Canada, [3]Sunnybrook Research Institute, Toronto, Canada, [4]Colibri Technologies Inc, Canada, [5]University of Toronto, Toronto, Canada, [6]Sunnybrook Research Institute, Toronto, ON, Canada, [7]University of Toronto, Toronto, ON, Canada, [8]Sunnybrook Health Sciences Centre, Toronto, ON, Canada*	***3K-2*** **In-vivo pulsed magneto-motive ultrasound imaging of tumor bearing small animals** **Mohammad Mehrmohammadi**[1], Seungsoo Kim[1], Min Qu[1], Ryan Truby[1], Pieter Kruizinga[2], Stanislav Emelianov[1] *[1]Biomedical Engineering, University of Texas at Austin, Austin, TX, USA, [2]Thoraxcenter, Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands*	***4K-2*** **Ultrasonic Characterization of Polymer Infiltration into Foam Materials** **James Blackshire**[1], Ray Ko[2], Ming-Yung Chen[3] *[1]AFRL/RXLP, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA, [2]University of Dayton Research Institute, Dayton, Ohio, USA, [3]AFRL/RXBC, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA*	***5K-2*** **Modeling Nonlinear Pressure Fields in Inhomogeneous Attenuative Media Using a Lossy Green's Function and a Contrast Source** **L. Demi**[1], N. Ozmen-Eryilmaz[1], K. W. A. van Dongen[1], M. D. Verweij[1] *[1]Laboratory of Acoustical Imaging and Sound Control, Delft University of Technology, Delft, Zuid Holland, Netherlands*	***6K-2*** **Tissue Ablation Using Multi-frequency Focused Ultrasound** **Sijia Guo**[1], Xiaoning Jiang[2] *[1]Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, [2]Mechanical & Aerospace Engineering, North Carolina State University, Raleigh, NC, USA*

5:00 pm	***1K-3*** **Shear Wave Spectroscopy in liver: initial clinical results and implementation discussion** **Thomas Deffieux**[1], Jean-Luc Gennisson[1], Mathieu Couade[1,2], Jeremy Bercoff[2], Laurence Bousquet[3], Simona Cosconea[3], Vincent Mallet[3], Stanislas Pol[3], Mickael Tanter[1] *[1]Institut Langevin – Ondes et Images, ESPCI ParisTech, CNRS UMR 7587, INSERM U979, France, [2]Supersonic Imagine, France, [3]Hepatology Unit, Department of Hepato-Gastroenterology, Cochin Hospital, France*	***2K-3*** **Hybrid Method For Restoring the Fidelity of Ultrasound Images of Vessels** **Thomas Szabo**[1], Caroline Smith[2], Betty Chan[2], Brian Harvey[2] *[1]Biomedical Engineering, Boston University, Boston, MA, USA, [2]Boston University, USA*	***3K-3*** **Reduction of Reverberation Artifacts with Superharmonic Imaging** Mikhail G. Danilouchkine[1,2], Frits Mastik[1], Robert Beurskens[1], Paul L.M.J. van Neer[1], Guillaume M. Matte[1], Wim Vletter[3], Christian Prins[4], Folkert J. ten Cate[3], Johan G. Bosch[1], Antonius F.W. van der Steen[1,2], **Nico de Jong**[1,2] *[1]Biomedical Engineering, Erasmus Medical Center, Netherlands, [2]The Interuniversity Cardiology Institute of the Netherlands, Netherlands, [3]Cardiology, Erasmus Medical Center, Netherlands, [4]Oldelft BV, Netherlands*	***4K-3*** **Ultrasonic Visualization for Water Flooding in PEM Fuel Cells Using Guided Wave Linear Arrays** **Ching-Chung Yin**[1], Yu-Shyan Liu[2,3], Yu-Tai Wang[4] *[1]Deaprtment of Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan, [2]Deaprtment of Mechanical Engineering, National Chiao Tung University, Taiwan, [3]Center for Measurement Standards, Industrial Technology Research Institute, Hsinchu, Taiwan, [4]National Chiao Tung University, Taiwan*	***5K-3*** **Carbon nanomaterials as broadband airborn ultrasound transducer** **Maxim Daschewski**[1], Jens Prager[2], Marc Kreutzbruck[2], Andrea Harrer[2], Asmus Meyer-Plath[2], Matthias Guderian[2] *[1]Federal Institute for Materials Research and Testing, Berlin, Germany, [2]Federal Institute for materials research and testing, Germany*	***6K-3*** **Novel Concept of Array Transducer Element Using Combined Resonance Between Oscillations of Hemispherical Piezoceramic Shell and Bulk Water** **Kenji Otsu**[1], Shin Yoshizawa[2], Shin-ichiro Umemura[1] *[1]Department of Biomedical Engineering, Tohoku University, Japan, [2]Department of Electrical and Communication Engineering, Tohoku University, Japan*
5:15 pm	***1K-4*** **Quantitative Assessment of Thermal Lesion Stiffness in the Liver: Initial ex vivo Results** **Hua Xie**[1], Shiwei Zhou[1], Vijay Shamdasani[2], Yan Shi[1], Jean-Luc Robert[1], John Fraser[2], Shigao Chen[3], James Greenleaf[3] *[1]Philips Research North America, Briarcliff Manor, New York, USA, [2]Philips Healthcare, Bothell, Washington, USA, [3]Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	***2K-4*** **Quantitative analysis of flow behavior of carotid plaque neovasculature** **Assaf Hoogi**[1], Hans Bosch[2], Antonius.F.W Van der steen[2], Dan Adam[1] *[1]Biomedical engineering, Technion, Israel, [2]Biomedical engineering, Thorax center, ErasmusMC, Netherlands*	***3K-4 In Vivo*** **Application of SLSC Imaging in Human Liver** **Marko Jakovljevic**[1], Gregg Trahey[1], Jeremy Dahl[1] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA*	***4K-4*** **Higher Order Modes Cluster (HOMC) based Guided Wave Technique for Hidden Corrosion NDT** **Krishnan Balasubramaniam**[1], Krishnamurthy C.V.[2] *[1]Mechanical Engineering, IIT Madras, Chennai, Tamil Nadu, India, [2]Department of Physics, IIT Madras, Chennai, Tamil Nadu, India*	***5K-4*** **Experimental validation of a method for the simulation of backscatter signals from finite, shaped scatterers** Martin Salzle[1], Jan D'hooge[1,2], **Marco M. Voormolen**[1] *[1]MI Lab and Department of Circulation and Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Cardiovascular Imaging and Dynamics, Catholic University of Leuven, Leuven, Belgium*	***6K-4*** **Intracranial Dual-mode IVUS and Hyperthermia Using Circular Arrays** **Edward Light**[1], Carl Herickhoff[1], Vivek Patel[1], Mark Palmeri[1], Gerald Grant[2], Gavin Britz[2], Stephen Smith[1] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA, [2]Neurosurgery, Duke University Medical Center, Durham, North Carolina, USA*
5:30 pm	***1K-5 In vivo*** **assessment of renal tissue viscoelasticity during acute and gradual renal ischemia** **Carolina Amador**[1], Matthew Urban[1], Shigao Chen[1], James Greenleaf[1] *[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA*	***2K-5*** **Pulse Wave Ultrasound Manometry (PWUM): Measuring central blood pressure non-invasively** **Jonathan Vappou**[1,2], Jianwen Luo[1], Kazue Okajima[3], Marco Di Tullio[3], Elisa Konofagou[1] *[1]Department of Biomedical Engineering, Ultrasound and Elasticity Imaging Laboratory, Columbia University, New York, NY, USA, [2]Currently at: LSIIT - UMR 7005 CNRS-Strasbourg University, France, [3]Department of Medicine, Columbia University, USA*	***3K-5*** **Dual sided automated ultrasound system in the mammographic geometry** **Paul Carson**[1], Fouzaan Zafar[1], Sacha van der Spek[1], Gerald LeCarpentier[1], Fong Ming Hooi[2], Sumedha Sinha[2] *[1]Radiology, Univ. of Michigan, Ann Arbor, MI, USA, [2]Radiology and BME, Univ. of Michigan, Ann Arbor, MI, USA*	***4K-5*** **Noncontact Ultrasonic Characterization Techniques for Fibrous Materials Analysis** **Thamizhisai Periyaswamy**[1], Karthikeyan Balasubramanian[2], Chistopher Pastore[3] *[1]Human Environmental Studies, Central Michigan University, Mount Pleasant, Michigan, USA, [2]Electrical and Computer Engineering, Temple University, USA, [3]Textiles and Materials Technology, Philadelphia University, USA*	***5K-5*** **The influence of the ultrasonic strain on the polarization of quantum-well heterolasers emission** **Liudmila Kulakova**[1] *[1]Russian Academy, Ioffe Physico-Technical Institute, St.Petersburg, Russian Federation*	***6K-5*** **Ultrasonic Cutting with a d31-mode PMN-PT-driven Planar Tool** **Muhammad Sadiq**[1], Yang Kuang[1], Zhihong Huang[1], Sandy Cochran[1] *[1]Mechanical Engineering and Mechatronics, University of Dundee, Dundee, Scotland, United Kingdom*
5:45 pm	***1K-6*** **Clinical Multi-Push (MP) ARF for Noninvasive, In Vivo Evaluation of Renal Transplant Status** Mallory R. Scola[1], **Leslie M. Baggesen**[1], Randy K. Detwiler[2], Wui K. Chong[3], So Yoon Jang[2], Lauren M. B. Burke[3], Kristel L. Jernigan[2], Melissa C. Caughey[2], Melrose W. Fisher[2], Sonya B. Whitehead[3], Caterina M. Gallippi[1] *[1]Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, [2]Department of Medicine, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, [3]Department of Radiology, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*	***2K-6*** **A method for measuring the variation of intima-media thickness during the entire cardiac cycle using B-Mode images** **Tobias Nilsson**[1], Åsa Rydén Ahlgren[2], Tomas Jansson[1], Hans W Persson[1], Kjell Lindström[1], Jan Nilsson[2], Magnus Cinthio[1] *[1]Faculty of Engineering, LTH, Lund University, Sweden, [2]Lund University, Sweden*	***3K-6*** **Optimizing frequency and pulse shape for ultrasound current source density imaging** **Yexian Qin**[1], Zhaohui Wang[1], Charles Ingram[1], Qian Li[1], Russell Witte[1] *[1]The University of Arizona, USA*	***4K-6*** **Generic hybrid models for two-dimensional ultrasonic guided wave problems** Manoj Reghu[1], **Prabhu Rajagopal**[1], Krishnamurthy Chitti Venkata[1], Krishnan Balasubramaniam[1] *[1]Centre for Nondestructive Evaluation, Indian Institute of Technology - Madras, India*	***5K-6*** **Numerical study of low-frequency sound beams** **Milan Cervenka**[1], Michal Bednarik[1] *[1]Czech Technical University in Prague, Faculty of Electrical Engineering, Czech Republic*	***6K-6*** **An Electronically-Scanned CMUT-in-CMOS Transducer for Hemodialysis Vascular Access Monitoring** **David F. Lemmerhirt**[1], Xiaoyang Cheng[1], Grant Kruger[2], William F. Weitzel[2] *[1]Sonetics Ultrasound, Inc., Ann Arbor, MI, USA, [2]University of Michigan, Ann Arbor, MI, USA*

9:30 am - 1:00 pm | **Poster --- Friday, October 21, 2011** | **Caribbean Ballroom III-V**

Session P5Aa.
a - Beam Formation: Resolution Improvement

Chair: **Pai-Chi Li**
National Taiwan University

P5Aa-1 **A beamforming strategy dedicated to ocular posterior segment imaging at 20MHz**

Tony Matéo[1], Yassine Mofid[1], Jean-Marc Grégoire[1], Dominique Certon[1], Frédéric Ossant[1,2]
[1]Université François-Rabelais, UMRS U930-CNRS ERL 3106, Tours, France, [2]CHRU de Tours, Tours, Indre et Loire, France

P5Aa-2 **High range resolution ultrasound imaging of a human carotid artery using frequency domain interferometry**

Hirofumi Taki[1], Takuya Sakamoto[1], Kousuke Taki[2], Makoto Yamakawa[3], Tsuyoshi Shiina[4], Motoi Kudo[2], Toru Sato[1]
[1]Graduate School of Informatics, Kyoto University, Kyoto, Kyoto, Japan, [2]Department of Anatomy, Shiga University of Medical Science, Otsu City, Shiga, Japan, [3]Advanced Biomedical Engineering Research Unit, Kyoto University, Kyoto, Kyoto, Japan, [4]Graduate School of Medicine, Kyoto University, Kyoto, Kyoto, Japan

P5Aa-3 **Mean Sound Speed Estimation with Focusing Quality Evaluation for Medical Ultrasound Imaging**

Seok Joon Park[1], Jaejin Lee[1], Woo Youl Lee[1], Yangmo Yoo[1,2]
[1]Department of Electronic Engineering, Sogang University, Seoul, Korea, Republic of, [2]Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of

P5Aa-8 **High frame rate imaging with diverging beam transmission and Fourier reconstruction**

Jian-yu Lu[1], Hong Chen[1]
[1]Bioengineering, The University of Toledo, Toledo, Ohio, USA

Session P5Ab.
b - Elastography: Clinical Applications

Chair: **Richard Lopata**
Eindhoven University of Technology

P5Ab-1 **Quantifying Local Stiffness Variations in Thermal Ablations Using Dynamic Nanoindentation**

Ryan DeWall[1,2], Tomy Varghese[1,2], Chris Brace[2]
[1]Department of Medical Physics, University of Wisconsin-Madison, USA, [2]Department of Biomedical Engineering, University of Wisconsin-Madison, USA

P5Ab-2 **Ultrasound observation of the 4D (spatio-temporal) strain distribution in poroelastic media under sustained uniform and localised compressive loading**

Jeremie Fromageau[1], Leo Garcia[1], Nigel Bush[1], Gary Berry[1], Jeffrey Bamber[1]
[1]Joint Department of Physics, Institute of Cancer Research and Royal Marsden NHS, Sutton, Surrey, United Kingdom

P5Ab-7 **Non-invasive assessment of mechanical property changes with cell growth in a polymer-based vascular graft using ultrasound elasticity imaging**

Debaditya Dutta[1], Keewon Lee[2], Jiao Yu[1], Yadong Wang[2], Kang Kim[1,2]
[1]Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh and University of Pittsburgh Medical Center, USA, [2]Department of Bioengineering, University of Pittsburgh, USA

Session P5Ac.
c - Harmonic & High Frequency Imaging

Chair: **Jeff Ketterling**
Riverside New York

P5Ac-1 **Tissue Harmonic Imaging with CMUTs**

Mathieu Legros[1], Anthony Novell[2], Ayache Bouakaz[2], Guillaume Férin[1], Rémi Dufait[1], Dominique Certon[2]
[1]Vermon, Tours, France, [2]Université François Rabelais, UMR Inserm U930, CNRS ERL 3106, Tours, France

P5Ac-2 **High Frequency Pulse Inversion Chirp Coded Tissue Harmonic Imaging**

Jinhyoung Park[1], Ying Huang[2], Ching-Ling Lien[2], Kirk Shung[1]
[1]Biomedical Engineering, University of Southern California, Los Angeles, California, USA, [2]Surgery, Saban Research Institute of Children's Hospital Los Angeles, Los Angeles, California, USA

Session P5Ad.
d - Multimodality Image & Image Quality

Chair: **Jorgen Jensen**
Technical Univ. of Denmark

P5Ad-1 **Imaging ultrasound field and shear wave with a CCD camera**

Yi Cheng[1], Lipei Song[2], Rui Li[1], Daniel Elson[2], Meng-Xing Tang[3]
[1]Department of Bioengineering, Imperial College London, United Kingdom, [2]Department of Surgery, Imperial College London, United Kingdom, [3]Department of Bioengineering, Imperial College London, London, United Kingdom

P5Ad-2 **Multi modality fusion imaging technique for laparoscopic surgery guiding**

Satoki Zenbutsu[1], Tadashi Yamaguchi[1], Tatsuo Igarashi[2]
[1]Research Center for Frontier Medical Engineering, Chiba University, Japan, [2]Graduate School of Engineering, Chiba University, Japan

P5Ad-3 **Compound imaging using Synthetic Aperture Sequential Beamformation**

Casper Bo Jensen[1], Jonas Jensen[1], Martin Christian Hemmsen[1,2], Jens Munk Hansen[1], Jørgen Arendt Jensen[1]
[1]Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, DK-2800 Kgs. Lyngby, Denmark, [2]R&D Applications & Technologies, BK Medical, DK-2730 Herlev, Denmark

P5B-2 **Characterization of Langasite for Application in High Temperature SAW Sensors**

S. Sakharov[1], **N. Naumenko**[2], A. Zabelin[1], S. Zhgoon[3]
[1]Fomos-Materials, Moscow, Russian Federation, [2]Moscow Technical University of Communication & Information Science, Moscow, Russian Federation, [3]Moscow Power Engineering Institute, Moscow, Russian Federation

P5B-3 **Resonance Properties of Surface Acoustic Wave Resonator in Supercritical CO_2**

Shoji Kakio[1], **Katsuhiro Hayashi**[1], Eiichi Kondoh[1]
[1]Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, Kofu, Yamanashi, Japan

P5B-4 **SAW Phase Modulation by Optical Illumination of Graphene Composite Films deposited on LiNbO3**

Venkata Chivukula[1], Daumantas Ciplys[2], Jin-Ho Kim[3], Romualdas Rimeika[2], Jimmy Xu[4], Michael Shur[5]
[1]Rensselaer Polytechnic Institute, Troy, NY, USA, [2]Vilnius University, Vilnius, Lithuania, [3]jin_ho_kim@brown.edu, Providence, RI, USA, [4]Brown University, USA, [5]Rensselaer Polytechnic Institute, USA

P5B-5 **The System Design of a Love Wave Sensor for Measuring Liquid Dielectric Constant**

Qianliang Xia[1], Zhijun Chen[1], Mengyang Wang[1]
[1]College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, China, People's Republic of

P5Aa-4 Improved Depth of Focus for Single Element Annular Transducers

Kai-Han Huang[1], Jian-Hung Liu[1], Pai-Chi Li[1]
[1]*Natoinal Taiwan University, Taiwan*

P5Aa-5 Fresnel Beamforming and Dual Apodization with Cross-Correlation for Curvilinear Arrays in Low-cost Portable Ultrasound Systems

Man Nguyen[1], Jesse Yen[1]
[1]*Biomedical Engineering, University of Southern California, Los Angeles, CA, USA*

P5Aa-6 Reduction of Coherent and Incoherent Image Quality in Rectangular Boundary Arrays Due to Misalignment of Boundary Elements

Christian Coviello[1], Richard Kozick[2], Penny Probert Smith[1], Constantin-C. Coussios[1]
[1]*Institute of Biomedical Engineering, Department of Engineering Science, University of Oxford, Oxford, United Kingdom,* [2]*Department of Electrical Engineering, Bucknell University, Lewisburg, PA, USA*

P5Aa-7 Capon Beamforming Applied to Second-Harmonic Ultrasound Experimental Data

Sven Peter Näsholm[1], Andreas Austeng[1], Are Charles Jensen[1], Carl-Inge Colombo Nilsen[1], Sverre Holm[1]
[1]*Department of Informatics, University of Oslo, Norway*

P5Ab-3 Noninvasive Measurement of Bladder Muscle Activity Using Radiofrequency Ultrasound Strain Imaging

Tim Idzenga[1], Fawzy Farag[2], John Heesakkers[2], Wout Feitz[2], Chris de Korte[1]
[1]*Paediatrics, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands,* [2]*Urology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands*

P5Ab-4 Imaging Feedback of Histotripsy Treatments With Ultrasound Transient Elastography

Tzu-Yin Wang[1], Timothy Hall[1], Zhen Xu[1], Brian Fowlkes[1,2], Charles Cain[1]
[1]*Biomedical Engineering Department, University of Michigan, USA,* [2]*Radiology Department, University of Michigan, USA*

P5Ab-5 Feature based analysis of axial-shear strain imaging for breast mass classification

Haiyan Xu[1], Tomy Varghese[1,2], Jingfeng Jiang[2], Timothy Hall[2]
[1]*Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA,* [2]*Department of Medical Physics, University of Wisconsin-Madison, Madison, WI, USA*

P5Ab-6 Fourier Domain and High Frame Rate based Elastography for Breast Nodules Investigation

Alessandro Ramalli[1,2], **Stefano Ricci**[1], Elisabetta Giannotti[3], Dalmar Abdulcadir[3], Jacopo Nori[4], Olivier Basset[2], Christian Cachard[2], Piero Tortoli[1]
[1]*Electronics & Telecommunications, Università di Firenze, Italy,* [2]*Université de Lyon, CREATIS ; CNRS UMR5220 ; Inserm U1044 ; INSA-Lyon ; Université Lyon 1, France,* [3]*Department of Radiology, Careggi University Hospital, Firenze, Italy,* [4]*Senology Diagnostic Unit, Careggi University Hospital, Firenze, Italy*

P5Ac-3 High-Frequency (75MHz) Ultrasound based Tooth Digitization using Sparse Spatial Compounding

Stefan Heger[1], Thorsten Vollborn[1], Joachim Tinschert[2], Stefan Wolfart[2], Fabrice Chuembou[1], Klaus Radermacher[1]
[1]*Chair of Medical Ingineering, RWTH Aachen University, Aachen, Germany,* [2]*Clinic of Prosthodontics and Dental Materials, University Hospital Aachen, Aachen, Germany*

P5Ac-4 Second harmonic imaging using synthetic aperture sequential beamforming

Yigang Du[1,2], Joachim Rasmussen[1], Henrik Jensen[2], Jørgen Arendt Jensen[1]
[1]*Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Bldg. 349, Technical University of Denmark, Kgs. Lyngby, Denmark,* [2]*R&D Applications & Technologies, BK Medical Aps, Herlev, Denmark*

P5Ac-5 In vivo endoluminal ultrasound biomicroscopic imaging of colon lesions in mouse models of cancer and inflammation

Kelly Alves[1], Rossana Soletti[1], Marcelo de Britto[2], Dyanna Matos[3], Helena Borges[3], Mônica Soldan[4], João Machado[1,2]
[1]*Biomedical Engineering Program - COPPE, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil,* [2]*Post-Graduation Program in Surgical Sciences - Department of Surgery from School of Medicine, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil,* [3]*Biomedical Science Institute, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil,* [4]*Division of Gastroenterology, Endoscopy Unit, Clementino Fraga Filho University Hospital, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil*

P5Ac-6 Third Harmonic Imaging using a Pulse Inversion Technique

Joachim Rasmussen[1], Yigang Du[1,2], Jens Munk Hansen[1], Martin Hemmsen[1,2], Jørgen Arendt Jensen[1]
[1]*Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark,* [2]*BK Medical Aps, Herlev, Denmark*

P5Ad-4 Characterize the vasculatures distribution of murine tumors between center and peripheral regions based on Doppler ultrasound and immunofluorescent analysis

Jia-Jiun Chen[1], Chi-Shiun Chiang[1], Ji-Hong Hong[2], Chih-Kuang Yeh[1]
[1]*Biomedical Engineering and Enviromental Sciences, National Tsing Hua University, Hsinchu, Taiwan,* [2]*Department of Radiation Oncology, Chung Gung Memorial Hospital-Linkou, Taoyuan, Taiwan*

P5Ad-5 White Light Correction in Ultrasound Imaging

Kajoli Krishnan[1], Johan Kirkhorn[2]
[1]*Diagnostic and Biomedical Technologies, GE Global Research, Bangalore, Karnataka, India,* [2]*GE Healthcare, Norway*

Session P5B. Surface Acustic Wave Sensors

Chair: **Pierre Khuri-Yakub**
Stanford University, USA

P5B-1 Low-loss SAW gas sensor with self-temperature-compensation characteristics for sensor network

Jun Hosaka[1], Mitsutaka Hikita[1]
[1]*Faculty of GE, Kogakuin University, Shinjuku-ku, Tokyo, Japan*

Session P5C. Bulk Wave Effects and Devices II

Chair: **Bikash Sinha**
Schlumberger-Doll Research

P5C-1 Influence of Nanocomposite Polymeric Layers on Efficiency of Radiation of Bulk Acoustic Wave in Liquid by Antisymmetric Lamb Wave in Thin Piezoelectric Plate

Iren Kuznetsova[1], Boris Zaitsev[1], Irina Borodina[1], Vladimir Kolesov[2], Anatolii Sknarya[2]
[1]*IRE of RAS, Saratov Branch, Russian Federation,* [2]*IRE of RAS, Russian Federation*

P5C-2 A Mindlin Plate Theory Based Parallel Two-dimensional Finite Element Analysis for Quartz Crystal Resonators

Ji Wang[1], Rongxing Wu[1], Jianke Du[1], Dejin Huang[1], Wei Yan[2]
[1]*School of Mech Eng & Mechanics, Ningbo University, Ningbo, Zhejiang, China, People's Republic of,* [2]*School of Civil & Arch Eng, Ningbo University, Ningbo, Zhejiang, China, People's Republic of*

P5C-3 Analysis of Capacitances of Electrical Equivalent Circuit of Quartz-Crystal Tuning Fork in Consideration of Electric Field Distribution using Conformal Mapping Method

Takahiro Ishikawa[1], Hideaki Itoh[2]
[1]*Shinshu University, Japan,* [2]*shinshu university, Japan*

9:30 am - 1:00 pm	Poster --- Friday, October 21, 2011			Caribbean Ballroom III-V
P5C-4 **Deposition of Crack-Free 30 µm AlN on IDT/ZnO/Si for Wave Guiding Layer Acoustic Wave Applications** **Ouarda Legrani**[1], Omar Elmazria[1], Philippe Pigeat[1], Ausrine Bartasyte[1], Sergei Zhgoon[2] *[1]Institut Jean Lamour, CNRS-Nancy University, France, [2]Moscow Power Engineering Institute, Moscou, Russian Federation*	***P5E-5*** **LFE Transducers based on Inversion Layer for Medical Imaing** **Jin Chen**[1], Chao Zhang[2], Zhitian Zhang[2], Guanping Feng[1] *[1]Tsinghua University, Beijing, China, People's Republic of, [2]Research Institute of Tsinghua University in Shenzhen, China, People's Republic of*			
P5C-5 **Quantitative analysis of the effect of energetic particle bombardment during deposition on (11-20) ZnO piezoelectric films** **Shinji Takayanagi**[1], Takahiko Yanagitani[2], Mami Matsukawa[1], Yoshiaki Watanabe[1] *[1]Doshisha University, Kyotanabe, Kyoto, Japan, [2]Nagoya Institute of technology, Nagoya, Aichi, Japan*	***P5E-6*** **A matrix transducer for 3D Transesophageal Echocardiography with a separate transmit and receive subarray** **Sandra Blaak**[1], Charles T. Lancée[1], Johan G. Bosch[1], Christian Prins[2], Antonius F.W. van der Steen[1,3], Nico de Jong[1,3] *[1]Thoraxcenter, Biomedical Engineering, ErasmusMC, Rotterdam, Netherlands, [2]Oldelft Ultrasound B.V., Delft, Netherlands, [3]Interuniversity Cardiology Institute of the Netherlands, Netherlands*			
P5C-6 **Effective precipitation method of NaCl using a focused ultrasound** Moojoon Kim[1], **Jungsoon Kim**[2], Kanglyeol Ha[1], Choonghwa Lee[3] *[1]Physics, Pukyong National University, Busan, Busan, Korea, Republic of, [2]Media Eng., Tongmyong University, Busan, Busan, Korea, Republic of, [3]Physics, Pukyong National University, Korea, Republic of*	***P5E-7*** **Time Reversal Ultrasound Focusing with Electromagnetic Feedback** **Armen Sarvazyan**[1], Gaurav Gandhi[1], Alexander Sutin[2] *[1]Artann Laboratories, Ewing, NJ, USA, [2]Stevens Institute of Technology, Hoboken, NJ, USA*			
Session P5E. ***Medical Transducers*** *Chair:* **Geoff Lockwood** *Queen's University*	***P5E-8*** **Design and Fabrication of High frequency Ultrasound Imaging Arrays Integrated into Medical Interventional Tools** **Robert Ssekitoleko**[1], Jack Hoyd-Gigg Ng[2], Christine Demore[3], David Flynn[2], Marc Desmulliez[2], Sandy Cochran[3] *[1]Department of Bioengineering, University of Strathclyde, Glasgow, United Kingdom, [2]MIcroSystems Engineering Centre, Heriot-Watt University, Edinburgh, United Kingdom, [3]Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom*			

P5E-1 **Extended Necrosis by Using Dual-Curved Therapeutic Transducer for Noninvasive HIFU Surgery** **Jong Seob Jeong**[1], Jonathan M. Cannata[2], K. Kirk Shung[2] *[1]Department of Medical Biotechnology, Dongguk University-Seoul, Seoul, Korea, Republic of, [2]Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA*	***P5E-9*** **One-dimensional optoacoustic array employing chirped excitation and GPU-based beamforming** Ya Shu[1], Xinqing Guo[1], Mengyang Liu[1], **Takashi Buma**[1] *[1]University of Delaware, USA*			
P5E-2 **Automated Transducer Testing and Calibration with a Dynamic Phantom** George Corner[1], Florian Riedel[2], Alex Valente[3], Joyce Joy[4], **Sandy Cochran**[5] *[1]Ninewells Hospital, NHS Tayside, United Kingdom, [2]Ilmenau University of Technology, Germany, [3]St Andrews University, United Kingdom, [4]University of Dundee, United Kingdom, [5]Institute for Medical Science and Technology, University of Dundee, Dundee, Dundee and Angus, United Kingdom*	***P5E-10*** **High-Intensity Focused Ultrasound by Optoacoustic Generation from Carbon-Nanotube Polymer Composite Layers** **Hyoung Won Baac**[1], Jong G. Ok[2], L. Jay Guo[1] *[1]Department of Electrical Engineering and Computer Science, University of Michigan, USA, [2]Department of Mechanical Engineering, University of Michigan, USA*			
P5E-3 **High Intensity Focused Ultrasound Array Transducers for Sonochemistry Applications** Chuangnan Wang[1], **Tony Gachagan**[1], Richard O'Leary[1], Alison Nordon[2] *[1]Electronic and Electrical Engineering, University of Strathclyde, Glasgow, Scotland, United Kingdom, [2]Department of Pure and Applied Chemistry and Centre for Process Analytics and Control Technology, University of Strathclyde, Glasgow, Scotland, United Kingdom*				
P5E-4 **Design of 15-MHz Concave Array Transducers for Ophthalmic Imaging** **Jung Hyui Cha**[1], Tai-Kyong Song[2], Jin Ho Chang[1,3] *[1]Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of, [2]Department of Electronic Engineering, Sogang University, Korea, Republic of, [3]Sogang Institute of Advanced Technology, Korea, Republic of*				

1:00 pm - 4:30 pm	Poster --- Friday, October 21, 2011			Caribbean Ballroom III-V
Session P6Aa. ***a - Photoacoustics*** *Chair:* **Parag Chitnis** *Riverside New York*	***P6Aa-8*** **Photoacoustic imaging using narrow laser beam scanning** **Jinjun xia**[1], Chen-wei Wei[2], Lingyun Huang[2], Ivan Pelivanov[2,3], Matthew O'Donnell[2] *[1]bioengineering, University of washington, seattle, wa, USA, [2]bioengineering, University of washington, USA, [3]International Laser Center, Moscow State University, Russian Federation*	***P6Ab-5*** **Precise Tracking of Impulsive Acoustic Radiation Force Induced Small Displacements for Shear Wave Speed Estimation** **Yang Shen**[1], Feiyan Cai[1], Yang Xiao[1], Tao Ling[1], Chengzhi Zeng[1], Qiaofeng Jin[1], Xin Liu[1], Hairong Zheng[1] *[1]Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of*	***P6Ac-4*** **Counter flow microbubble channeling using acoustic radiation force funnel** Benjamin Raiton[1], **Sevan Harput**[1], Dr James Mclaughlan[1], Dr Steven Freear[1] *[1]Ultrasound Group, School of Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom*	***P6Ad-4*** **Pitch-catch phase aberration correction for 3D ultrasound brain helmet** **Brooks Lindsey**[1], Stephen Smith[1] *[1]Biomedical Engineering, Duke University, Durham, NC, USA*
P6Aa-1 **In vivo monitoring of nanoparticle delivery using spectroscopic photoacoustic imaging** **Seungsoo Kim**[1], Geoffrey Luke[2], Yun-Sheng Chen[2], Stanislav Emelianov[1,2] *[1]Biomedical Engineering, University of Texas at Austin, Austin, TX, USA, [2]Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, USA*	***P6Aa-9*** **Fabrication of Dye-Loaded Submicron Perfluorocarbon Droplets for Contrast Enhancement in Photoacoustic Imaging** **Rei Asami**[1], Ken-ichi Kawabata[1] *[1]Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan*	***P6Ab-6*** **Phase Aberration in Shear Wave Dispersion Ultrasound Vibrometry** **Yan Shi**[1], Hua Xie[1], Vijay Shamdasani[2], John Fraser[2], Jean-Luc Robert[1], Shiwei Zhou[1], Matthew W. Urban[3], Shigao Chen[3], James F. Greenleaf[3] *[1]Philips Research North America, Briarcliff Manor, NY, USA, [2]Philips Ultrasound, Bothell, WA, USA, [3]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA*	***P6Ac-5*** **Single bubble Acoustic Characterisation and Stability Measurement of Adherent Microbubbles** **Jonathan Casey**[1], Helen Mulvana[1], Jo Hajnal[1], Mengxing Tang[2], Robert Eckersley[1] *[1]Imaging Sciences Department, Imperial college london, London, London, United Kingdom, [2]Bio-engineering Department, Imperial college london, London, London, United Kingdom*	***P6Ad-5*** **Performance of Adaptive Beamformers for Ultrasound Imaging of a Partially Shaded Object** **Saeed Mehdizadeh**[1], Andreas Austeng[2], Tonni Franke Johansen[1], Sverre Holm[1,2] *[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Department of Informatics, University of Oslo, Oslo, Norway*
P6Aa-2 **Applying ultrasound beamformers to photoacoustic imaging** **Tyler Harrison**[1], Roger Zemp[2] *[1]Electrical and Computer Engineering, University of Alberta, Canada, [2]University of Alberta, Canada*	***P6Aa-10*** **Improved Synthetic Aperture Focusing Technique for Acoustic-resolution Photoacoustic Microscopy** **Meng-Lin Li**[1], Yi-Chieh Tseng[1], Po-Hsun Wang[1] *[1]Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan*	***P6Ab-7*** **Improving Shear Wave Velocity Imaging of Thermal Ablations by Assuming Bidirectional Shear Wave Propagation** **Ryan DeWall**[1,2], Tomy Varghese[1,2] *[1]Department of Medical Physics, University of Wisconsin-Madison, USA, [2]Department of Biomedical Engineering, University of Wisconsin-Madison, USA*	***P6Ac-6*** **Improving the quantitative ability of contrast enhanced ultrasound perfusion imaging: effect of contrast administration rate and imaging plane orientation** **Kennita Johnson**[1], Paul Kogan[1], Steven Feingold[1], Nicholas Garrett[2], Ismayil Guracar[3], William Arendshorst[2], Paul Dayton[1] *[1]Biomedical Engineering, UNC/NC State, Chapel Hill, NC, USA, [2]Cell and Molecular Physiology, UNC, Chapel Hill, NC, USA, [3]Siemens Medical Solutions, Mountain Veiw, CA, USA*	***Session P6B.*** ***NDE Methods and Transducers*** *Chair:* **Michal Bezdek** *Endress+Hauser Flowtec AG, Switzerland*
P6Aa-3 **Clinical demonstration of reflection-mode photoacoustic image clutter reduction using tissue deformation** Michael Jaeger[1], David David Birtill[1], Andreas Gertsch[1], Elizabeth O'Flynn[2], **Jeffrey Bamber**[1] *[1]Joint Department of Physics, Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom, [2]CRUK-EPSRC Cancer Imaging Centre, Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom*	***Session P6Ab.*** ***b - Shear Wave Elastography II*** *Chair:* **Emad Ebinni** *Univ. of Minnesota*	***P6Ab-8*** **Impacts of the Capsule on Estimation of Shear Viscoelasticity of Livers** **Yi Zheng**[1], Ke Chen[1,2], Aiping Yao[1], Eugene Zheng[3], Tianfu Wang[4], Siping Chen[4] *[1]Electrical and Computer Engineering, St. Cloud State University, St. Cloud, MN, USA, [2]Biomedical Engineering, Sichuan University, Chengdu, Sichuan, China, People's Republic of, [3]Dartmouth College, Hanover, NH, USA, [4]Biomedical Engineering, Shenzhen University, Shenzhen, Guandong, China, People's Republic of*	***P6Ac-7*** **Experimental Implementation of the Second Harmonic Inversion Imaging on an Open Ultrasonic Scanner** **Fanglue Lin**[1], François Varray[1], Aymeric Guibal[2], Christian Cachard[1], Olivier Basset[1] *[1]CREATIS; Université de Lyon; CNRS UMR5220; INSERM U1044; INSA-Lyon; Université Lyon 1, Villeurbanne, France, [2]Hospices Civils de Lyon, Hôpital Edouard Herriot, Service d'Imagerie Digestive, Lyon, France*	***P6B-1*** **Detection of Discontinuities in Contact Pressure Between Rough Surfaces** **Anthony C. Karloff**[1], Andriy M. Chertov[1], Roman Gr. Maev[1] *[1]Institute for Diagnostic Imaging Research, Windsor, Ontario, Canada*

P6Aa-4 **Thermoacoustic imaging and spectroscopy for enhanced breast cancer detection** **Daniel Bauer**[1], Xiong Wang[2], Hao Xin[2], Russell Witte[1] *[1]Department of Radiology, University of Arizona, USA, [2]Department of Electrical and Computer Engineering, University of Arizona, USA*	***P6Ab-1*** **Real-Time Quantitative Elastography on Standard Ultrasound Using Mechanically Induced Vibration: System Design and Initial Results** **Reza Zahiri Azar**[1], Kris Dickie[1], Benjamin Kerby[1], Sergio Bernardo[1], Chris Cheung[1], Laurent Pelissier[1] *[1]R&D, Ultrasonix Medical Corporation, Richmond, BC, Canada*	***Session P6Ac.*** ***c - Contrast Agents II*** *Chair:* **Lori Bridal** *Univ. Pierre and Marie Curie*	***Session P6Ad.*** ***d - Adaptive Beam Forming*** *Chair:* **Sverre Holm** *University of Oslo*	***P6B-2*** **Analysis of Subharmonic Resonance in Ultrasonic Testing of a Closed Crack Based on Gap-Width-Dependent Property of Interfacial Stiffness** **Kenji Kurihara**[1], Keiichi Naitou[1], Toshihiko Sugiura[1] *[1]Mechanical Engineering, Keio University, Japan*
P6Aa-5 **Sound velocity and attenuation measurement of perfluorocarbon liquids using photoacoustic methods** **Eric Strohm**[1], Michael Kolios[1] *[1]Physics, Ryerson University, Toronto, Ontario, Canada*	***P6Ab-2*** **Shear Wave Speed Measurements Using Ultrasound Radiation Force Can be Depth Dependent** **Heng Zhao**[1], Pengfei Song[1], Matthew W. Urban[1], Randall R. Kinnick[1], Meng Yin[2], James F. Greenleaf[1], Shigao Chen[1] *[1]Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [2]Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	***P6Ac-1*** **The Effect of Vial Activation Temperature on the Acoustic Properties of Definity** Xuan Huo[1], **Brandon Helfield**[1,2], David Goertz[1,2] *[1]Imaging Research, Sunnybrook Research Institute, Toronto, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Canada*	***P6Ad-1*** **Analysis of minimum-variance and Wiener-filtered beamforming strategies** **Nghia Nguyen**[1], Craig Abbey[2], Michael Insana[3] *[1]Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA, [2]Psychological and Brain Sciences, University of California, Santa Barbara, Santa Barbara, California, USA, [3]Bioengineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA*	***P6B-3*** **Rapid prototyping technologies for ultrasonic beam focussing in NDE** **Duncan Billson**[1], Christopher Purssell[2], Simon Leigh[3], David Hutchins[2] *[1]Engineering, University of Warwick, Coventry, Coventry, United Kingdom, [2]School of Engineering, University of Warwick, United Kingdom, [3]Engineering, University of Warwick, United Kingdom*
P6Aa-6 **A Monte Carlo study on the effects of erythrocyte oxygenation on photoacoustic signals** Ratan K Saha[1], **Michael C Kolios**[1] *[1]Department of Physics, Ryerson University, Toronto, Ontario, Canada*	***P6Ab-3*** **High Frequency Acoustic Radiation Force Elastography for Imaging the Elastic Properties of Tissues** **Cho-Chiang Shih**[1], Chih-Chung Huang[1] *[1]Department of Electrical Engineering, Fu Jen Catholic University, Taiwan*	***P6Ac-2*** **Optical Fluorescence Studies of Perfluorocarbon Droplet Vaporization** **Nikita Reznik**[1], Minseok Seo[1,2], Ross Williams[2], Naomi Matsuura[1,2], Peter Burns[1,2] *[1]Medical Biophysics, University of Toronto, Canada, [2]Sunnybrook Research Institute, Toronto, Canada*	***P6Ad-2*** **Coherent Plane-Wave Compounding and Minimum Variance Beamforming** **Andreas Austeng**[1], Carl-Inge C Nilsen[1], Are FC Jensen[1], Sven Peter Näsholm[1], Sverre Holm[1] *[1]Department of Informatics, University of Oslo, Oslo, Oslo, Norway*	***P6B-4*** **Effect of Angle Errors in Conical Tip Buffer Rods** **Javier Garcia-Alvarez**[1], Miguel Garcia-Hernandez[1], Juan Antonio Chavez[1], Antoni Turo[1], Jordi Salazar[1] *[1]Electronic Engineering, Universitat Politècnica de Catalunya UPC, Barcelona, Barcelona, Spain*
P6Aa-7 **The use of optically activated nanoparticles to enhance controlled lesion formation from high intensity focused ultrasound exposures** **James McLaughlan**[1], Todd W. Murray[2], Ronald A. Roy[3] *[1]Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom, [2]Mechanical Engineering, University of Colorado Boulder, Boulder, CO, USA, [3]Mechanical Engineering, Boston University, Boston, MA, USA*	***P6Ab-4*** **Finite Element Modeling for Shear Wave Elastography** **Shiwei Zhou**[1], Jean-Luc Robert[1], John Fraser[2], Yan Shi[1], Hua Xie[1], Vijay Shamdasani[2] *[1]Philips Research North America, USA, [2]Philips Healthcare, USA*	***P6Ac-3*** **Using Fluidity Regulation to Control Size Distribution of Lipid-coated Bubbles** **Chung-Hsin Wang**[1], Chih-Kuang Yeh[1] *[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan*	***P6Ad-3*** **SNR-Dependent Coherence Weighting for Minimum Variance Beamforming** **Yu-Hsin Wang**[1], Pai-Chi Li[1] *[1]Natoinal Taiwan University, Taiwan*	***P6B-5*** **Guided Waves in a Seven-Wire Strand under Vertical Load** **Isamu Oguma**[1], Toshihiko Sugiura[1] *[1]Mechanical Engineering, Keio University, Yokohama, Kanagawa, Japan*

1:00 pm - 4:30 pm	Poster --- Friday, October 21, 2011			Caribbean Ballroom III-V
P6B-6 **Ultrasound based system and methodology for in-line, real time, process monitoring and control** **Johan Wiklund**[1], Mats Stading[1] *[1]Structure and Material Design, SIK-The Swedish Institute for Food and Biotechnology, Gothenburg, Västra Götaland, Sweden*	***P6C-7*** **Propagation of Surface Acoustic Waves in Two-Dimensional Periodic Structures** **Sergey Nikitov**[1], Valery Grigorievskii[1], Iosif Kotelyanskii[1], Sergey Suchkov[2] *[1]IRE RAS, Russian Federation, [2]Saratov State University, Russian Federation*			
Session P6C. Phononic Crystals *Chair:* **Abdelkrim Khelif** *Centre National de la Recherche Scientifique*	***P6C-8*** **Basic Study of Property of Planate Acoustic Lens Constructed with Phononic Crystal Structures** **Takenobu Tsuchiya**[1], Tetsuo Anada[1], Nobuyuki Endoh[1], Sayuri Matsumoto[2], Kazuyoshi Mori[3] *[1]Faculty of Engineering, Kanagawa University, Yokohama, Japan, [2]The Port and Airport Research Institute, Yokosuka, 239-0826, Japan, [3]National Defense Academy, Yokosuka, Japan*			
P6C-1 **Reducing Anchor Loss in Micromechanical Resonators using Phononic Crystal Strips** Feng-Chia Hsu[1], **Jin-Chen Hsu**[2], Tsun-Che Huang[1], Chin-Hung Wang[1], Ping Chang[1] *[1]Microsystems Technology Center, Industrial Technology Research Institute -South, Tainan 709, Taiwan, [2]Department of Mechanical Engineering, National Yunlin University of Science and Technology, Douliou 64002, Yunlin, Taiwan*	***P6C-9*** **Propagation Characteristics of Surface Acoustic Waves under Hexagonal Phononic Gratings** **Ventsislav Yantchev**[1], Victor Plessky[2], Ilia Katardjiev[1] *[1]Solid State Electronics, Uppsala University, Uppsala, Sweden, [2]GVR Trade SA, Switzerland*			
P6C-2 **Isolation of acoustic waves in a sensor array utilizing phononic crystals** **Yung-Yu Chen**[1], Li-Chung Huang[1], Tsung-Tsong Wu[2], Jia-Hong Sun[2] *[1]Department of Mechanical Engineering, Tatung University, Taiwan, [2]Institute of Applied Mechanics, National Taiwan University, Taiwan*				

P6C-3 **Complex band structure and evanescent Bloch waves in two-dimensional phononic plates** **Mourad Oudich**[1], Badreddine Assouar[1,2] [1]*Institut Jean Lamour, Nancy University - CNRS, Vandoeuvre-lès-Nancy, France,* [2]*International Joint Laboratory (UMI 2958), Georgia Institute of Technology - CNRS, ATLANTA, USA*				
P6C-4 **Experimental exploration of imaging properties of a two-dimensional flat lens made of phononic crystals** **Etoungh Dimitri Manga**[1,2], Lionel Haumesser[1,2], Bruno Morvan[2,3], Anne-Christine Hladky-Hennion[2,4], Emmanuel Le Clézio[1,2] [1]*Laboratoire Imagerie et Cerveau, Equipe Caractérisation Ultrasonore et Piézoélectricité, Blois, France,* [2]*Fédération Acoustique du Nord Ouest, FR CNRS 3110, France,* [3]*Université du Havre, Laboratoire Ondes et Milieux Complexes, Le Havre, France,* [4]*Institut d'Electronique, de Microélectronique et de Nanotechnologie, ISEN, Lille, France*				
P6C-5 **Ultrasonic Transmission through Plates Perforated with Compound Hole Arrays** **Hector Estrada**[1,2], Daniel Puig[1], Vicente Gómez-Lozano[1], Antonio Uris[1], Pilar Candelas[1], Francisco Belmar[1], Francisco Meseguer[1,2] [1]*Centro de Tecnologías Físicas, Valencia, Spain,* [2]*Instituto de Ciencia de Materiales de Madrid (CSIC), Madrid, Spain*				
P6C-6 **Two-Dimensional Tunable Phononic Crystals** **Sz-Chin Lin**[1], Tony Huang[1] [1]*Engineering Science and Mechanics, The Pennsylvania State University, University Park, PA, USA*				

Session Chairs

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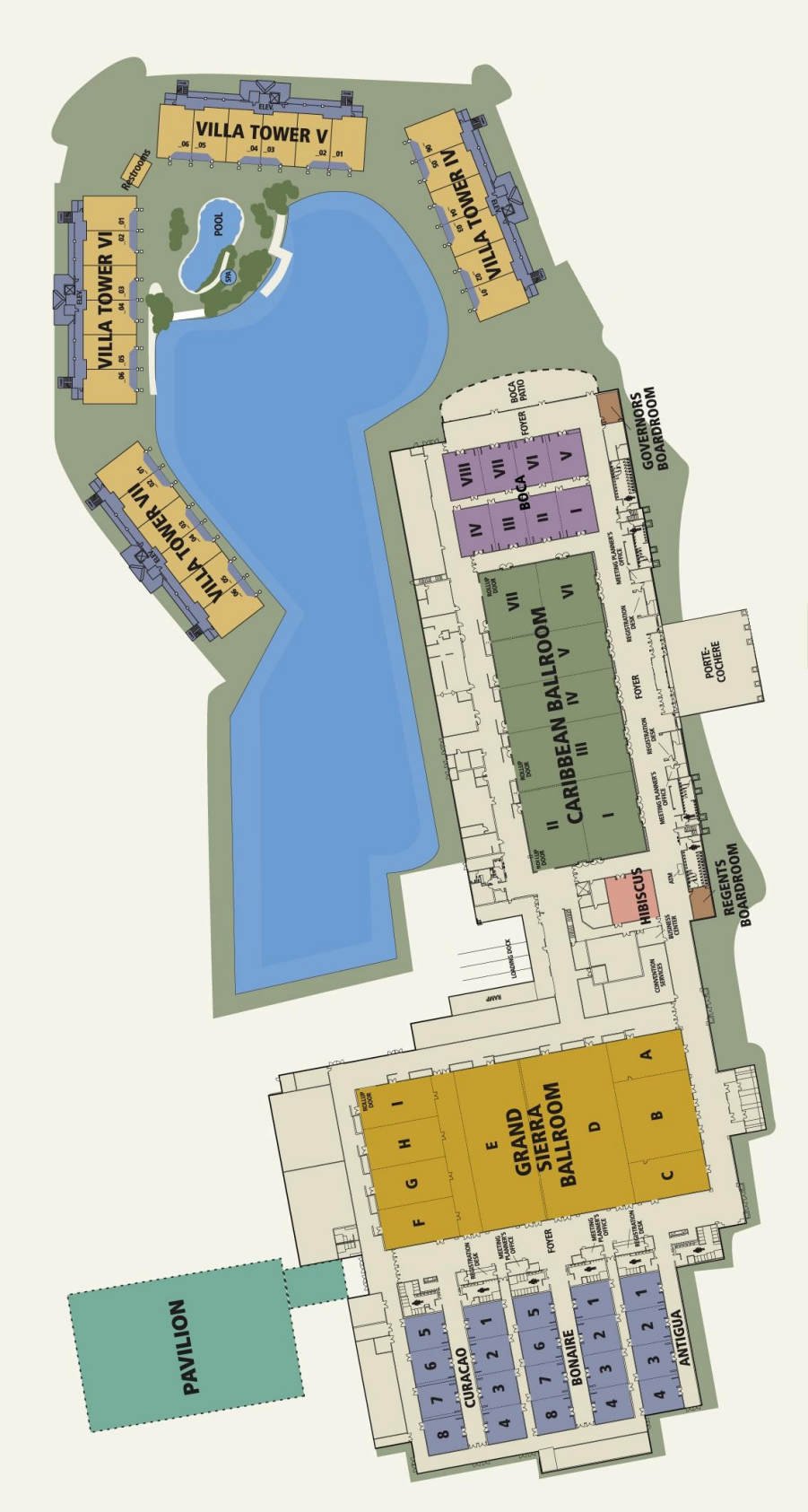
Floor Plan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Condensed Program (Tuesday)

Tuesday, Oct. 18	Boca Rooms IV	Boca Rooms V	Boca Rooms VI	Boca Rooms VII	Boca Rooms VIII
	Symposium Registration 07:00 – 18:00				
8:00 . - 12:00	**Short Course 1A** Ultrasound Contrast Agents: Theory and Experiment	**Short Course 2A** Ultrasonic Motors: Vibration Generation, Friction drive and Energy Harvesting	**Short Course 3A** Medical Ultrasound Transducers	**Short Course 4A** Phonoic Crystals	**Short Course 5A** Elasticity Imaging: Methods and Applications
12:00 - 13:00	Lunch				
13:00 . - 17:00	**Short Course 1B** Acoustic Microfluidics: Microscale Acoustics and Ultrasonics for Driving Fluids	**Short Course 2B** Ultrasonic Signal Processing for Detection, Estimation and Compression	**Short Course 3B** Processing and Characterization Challenges for Integrated Ferroelectric/Piezoelectric Devices	**Short Course 4B** Ultrasound Imaging Systems: from Principles to Implementation	**Short Course 5B** Quantitative Ultrasound, Theory and Practice

Condensed Program (Wednesday)

Wednesday, Oct. 19	Boca Rooms II-IV	Boca Rooms VI-VIII	Caribbean Ballroom VII	Caribbean Ballroom I	Caribbean Ballroom II	Caribbean Ballroom VI
	Symposium Registration 07:00 – 18:00			**Exhibits** Caribbean Ballroom III-V, 09:00 - 17:00		
8:00 – 9:30	**Plenary Session**					
9:30 – 13:00	**Refreshments**					
	Poster Session P1 (Caribbean Ballroom III-V)					
10:30– 12:00	Session 1A. Ultrasound Drug Or Gene Delivery and Enhancement	Session 2A. Cardiac Visco-Elasticity and Strain Imaging	Session 3A. Scattering and Attenuation	Session 4A. Physical and Biological Acoutic Sensing	Session 5A. TCF Reduction	Session 6A. CMUTs I Applications
12:00 – 14:00	**Lunch**					
14:00 - 15:30	Session 1B. HIFU Application and Monitoring	Session 2B. Cardiac Beam Forming	Session 3B. Contrast Agents I	Session 4B. Acoustic Tweezers I	Session 5B. Microacoustic Sensors (6J)	Session 6B. Medical Imaging Transducers
13:00 – 16:30	**Refreshments**					
	Poster Session P2 (Caribbean Ballroom III-V)					
16:30 – 18:00	Session 1C. 3D Imaging & Fast Simulation Tools	Session 2C. Advanced Flow Estimation Algorithms and Functional Imaging	Session 3C. Photoacoustics: Applications	Session 4C. Bulk Wave Effects and Devices I	Session 5C. Transverse Modes inSAW (6F)	Session 6C. Transducer Modeling

Condensed Program (Thursday)

Thursday, Oct. 20	Boca Rooms II-IV	Boca Rooms VI-VIII	Caribbean Ballroom VII	Caribbean Ballroom I	Caribbean Ballroom II	Caribbean Ballroom VI
	Symposium Registration 07:00 – 18:00			**Exhibits** Caribbean Ballroom III-V, 09:00 – 17:00		
8:00 – 9:30	Session 1D. Bio-effects and Dosimetry	Session 2D. Cardiovascular Imaging	Session 3D. Targeted contrast Agents	Session 4D. Phased Arrays	Session 5D. Radio Frequency Phononic Crystals	Session 6D. CMUTs II Devices
9:30 – 13:00	**Refreshments**					
	Poster Session P3 (Caribbean Ballroom III-V)					
10:30– 12:00	Session 1E. Clinical Session	Session 2E. Bone	Session 3E. Novel Ultrasound Systems	Session 4E. Imaging and Signal Processing	Session 5E. Optical and Electromagnetic Interactions I	Session 6E. Applications
12:00 – 14:00	**Lunch**					
14:00 - 15:30	Session 1F. Synthetic Aperture Beam Forming	Session 2F. Elastography: New Methods	Session 3F. Photoacoustics: Technology Development	Session 4F. Novel Acoustic Wave Sensors	Session 5F. Ultrasonic Motors and Actuators I	Session 6F. BAW Components and Technology (5B)
13:00 – 16:30	**Refreshments**					
	Poster Session P4 (Caribbean Ballroom III-V)					
16:30 – 18:00	Session 1G. Blood Flow Imaging	Session 2G. Shear Wave Elastography	Session 3G. Contrast Agents II	Session 4G. Acoustic Micro Fluidics	Session 5G. Physics of Phononic Crystals	Session 6G. SAW Design, Integration & Tunability

Friday, Oct. 21	Boca Rooms II-IV	Boca Rooms VI-VIII	Caribbean Ballroom VII	Caribbean Ballroom I	Caribbean Ballroom II	Caribbean Ballroom VI
	Symposium Registration 07:00 – 13:00			**Exhibits** Caribbean Ballroom III-V, 09:00 – 13:00		
8:00 – 9:30	Session 1H. CMUT, 3D and Intravascular Imaging Systems	Session 2H. Vascular Elastography	Session 3H. Drug Delivery I	Session 4H. Laser Ultrasonics	Session 5H. Single Crystal Piezoelectrics	Session 6H. SAW Simulation and Devices
9:30 – 13:00	**Refreshments**					
	Poster Session P5 (Caribbean Ballroom III-V)					
10:30– 12:00	Session 1I. Image Processing	Session 2I. Histotripsy and General Therapy	Session 3I. Drug Delivery II	Session 4I. Applications and Measurements of Ultrasonic Energy	Session 5I. Application of Materials	Session 6I. MEMS
12:00 – 14:00		**Lunch**				
14:00 - 15:30	Session 1J. Beam Forming	Session 2J. Ultrasound Therapy of the Brain	Session 3J. Cardiovascular Tissue Characterization	Session 4J. High Resolution Acoustic Imaging	Session 5J. Acoustic Wave Propagation I	Session 6J. Harsh Environment (5C)
13:00 – 16:30	**Refreshments**					
	Poster Session P6 (Caribbean Ballroom III-V)					
16:30 – 18:00	Session 1K. Abdominal Elastography	Session 2K. Vascular Imaging	Session 3K. Functional Imaging & Image Quality	Session 4K. NDE Methods and Analysis	Session 5K. Acoustic Wave Propagation II	Session 6K. Medical Therapy Devices
18:30 – 19:30	**Closing Ceremony** (Caribbean Ballroom)					

Closing Ceremony
Caribbean Ballroom, Friday, October 21, 2011
06:30 p.m. - 07:30 p.m.

Final remarks by
Ken-ya Hashimoto and Clemens Ruppel, General Co-Chairs

Invitation to IUS 2012 in Dresden
Manfred Weihnacht, General Chair

2011 UFFC-S Plenary Speaker
William D. Hunt, Ph.D., Acoustic Based Biosensors—A Window Into the Soul of Biology

Abstract: There are a variety of biosensor approaches in the literature—all with the express intent of transducing some biochemical interaction into an electrical signal. A typical embodiment requires that one first immobilize a molecular recognition element, e.g. an antibody, onto the device surface. When an antigen binds to the antibody the surface physical properties of the device are perturbed, resulting in a change in the electrical signal from the device. For optical biosensors, such as surface plasmon resonance or fiber optic sensors, the operative physical property is the dielectric permittivity of the antibody-antigen space. For acoustic-based biosensors the physical properties perturbed can include mass attachment and stiffness changes in the antibody-antigen space. If we look more closely into the world of biology, we find that **every** biomolecular event has three essential components: i) molecular recognition, ii) conformational change and iii) ATP (adenosine triphosphate) as an energy source. The beer you will be drinking during this talk would not be possible if the yeast (e.g. *Saccharomyces cerevisiae*) involved in the brewing did not actively engage in the use of molecular recognition, conformational change and ATP. Acoustic wave biosensors inherently probe i) and ii) of this canonical set of molecular biology. In this talk we will present more on the underlying molecular biology. In addition we will discuss work from our lab at Georgia Tech as well as from labs around the globe where acoustic-based biosensors are being used to tease out information regarding the details of biomolecular events. The seeds of this approach have been laid in theoretical work within the UFFC community as well as those who have delved into digital radio in such areas as QAM (quadrature amplitude modulation) systems.

Biography of the speaker

William D. Hunt, Ph.D. is Professor of Electrical Computer Engineering at the Georgia Institute of Technology and is Adjunct Professor in the Department of Hematology and Oncology at the Emory University School of Medicine. He runs the Microelectronics Acoustics Group at Georgia Tech and has a diverse collection of graduate students which has included students from Electrical Engineering, Biomedical Engineering and Chemistry.

He joined the electrical engineering faculty at Georgia Tech following completion of his Ph.D. degree. Special recognitions he has received include the NSF Presidential Young Investigator Award in 1989, the DuPont Young Faculty Award in 1988, the University of Alabama Distinguished Engineering Fellowship in 1994. Dr. Hunt was a Rhodes Scholar Finalist in 1975. His "dog on a chip" invention which is a chip which can do specific molecular

recognition of compounds in the vapor phase garnered world-wide press culminating in Dr. Hunt's appearance in the January 12, 2004 issue of Time Magazine in their inaugural article on Innovators. His area of expertise is in the area of Microelectronic acoustic devices for wireless applications as well as chemical and biological sensors based on this technology. He has published over 70 papers in refereed journals and conference proceedings. He holds 8 US patents and 6 provisional patents. He is a Senior Member of the IEEE and served as a Distinguished Lecturer for the IEEE Sensors Council from 2006 to 2008 and is currently serving as a Distinguished Lecturer for the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society.

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