

2014 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM
CHICAGO, ILLINOIS, USA
SEPTEMBER 3-6, 2014



PROGRAM BOOK, SHORT COURSES AND EXHIBITS

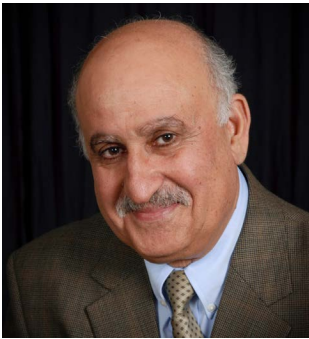


**IEEE ULTRASONICS, FERROELECTRICS,
AND FREQUENCY CONTROL SOCIETY**



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Message from the 2014 IEEE Ultrasonics Symposium General Chair

Jafar Saniie, Filmer Endowed Chair Professor
Department of Electrical and Computer Engineering
Illinois Institute of Technology, Chicago

The 2014 IEEE International Ultrasonics Symposium - Chicago (September 3-6) serves as a premier venue for bringing researchers and scientists from academia and industry together to share cutting-edge advances in ultrasonics research and inspire new ideas and collaborations between scholars. I would like to acknowledge the dedication and unwavering commitment of the **Organizing Committee** and the **Technical Program Committee** who have put forth a remarkable effort to make this conference a memorable and successful experience.

This year we have received a record number of abstracts and the Technical Program Committee members selected 938 papers for oral and poster presentations. These abstracts cover the five areas of focus for this meeting: Medical Ultrasonics, Sensors, NDE & Industrial Applications, Physical Acoustics, Microacoustics - SAW, FBAR & MEMS, and Transducers & Transducer Materials. The oral presentations include 24 invited papers highlighting emerging technologies or overviews of key areas. The poster presentations include the 20 student poster finalists competing for the Student Paper Awards. In order to accommodate the record number of presentations, the oral sessions are organized into seven parallel tracks over three days. I would like to thank Dr. Jan D'hooge, the Technical Program Committee Chair, who has been leading the organization of the symposium's technical program.

I am particularly pleased that this year the conference will be returning to the vibrant city of Chicago after 26 years. The annual 2014 IEEE International Ultrasonics Symposium will be held at the **Hilton Hotel**, Chicago, Illinois, USA from September 3-6, 2014. The hotel is easily accessed through either public transportation or by car. It is centrally located and **within walking distance** of the following attractions.

- Millennium Park
- Art Institute of Chicago
- Shedd Aquarium
- Field Museum
- Grant Park
- Adler Planetarium
- Buckingham Fountain
- Chicago Theatre District
- Lake Michigan

Arrangements have also been made for a highly popular Chicago tour: **Architecture River Cruise** which spotlights more than 50 architecturally significant sites where participants will discover a new perspective on the city of Chicago. I would like to thank Dr. Erdal Oruklu, Symposium Local Chair, who has been arranging many special activities for our conference attendees.

I sincerely encourage your participation in the conference and look forward to hosting you in the world class city of Chicago.

CONFERENCE VENUE



Hilton Hotel Chicago

The IEEE International Ultrasonics Symposium will be held at the beautiful **Hilton Hotel Chicago**. The hotel is easily accessed through public transportation or by car. It is located in the center of downtown adjacent to the majestic Grant Park. The area is central to several local attractions such as the Bean, Buckingham Fountain, and the Jay Pritzker pavilion as well as world renowned architecture such as the Sears Tower, Merchandise Mart, and the Hancock Building.

Venue Address:

Hilton Hotel Chicago
720 South Michigan Avenue
Chicago, Illinois 60605
Phone: 1-312-922-4400

To reach the venue by public transit from **O'Hare international airport**: Take a CTA Blue Line train from the O'Hare stop to the LaSalle stop. Upon leaving the LaSalle stop, continue west on Congress Parkway until you reach Michigan Avenue. After taking a right (towards the South), the hotel will be located on the right hand side. This journey will take approximately one hour and cost \$5.

To reach the venue by public transit from **Midway International Airport**: Take an Orange Line train from the Midway stop to the Roosevelt stop. Upon leaving the Roosevelt stop, continue west on Roosevelt Road until you reach Michigan Avenue. After taking a left (towards the North), the hotel will be located on the left hand side. This journey will take approximately 30 minutes and cost \$2.25.

For additional information on public transit, please review transitchicago.com website.

In addition to public transportation, **taxi cabs** are readily available throughout the city. For cab fare information, please refer to the City of Chicago cab fare website:

https://www.cityofchicago.org/city/en/depts/bacp/supp_info/2012_passenger_information.html

REGISTRATION AND FEES (\$USD)

Registration Type	Before August 3, 2014	After August 3, 2014
IEEE Members*	\$665	\$815
Non-IEEE Members*	\$890	\$1040
Student* (Show valid student ID at conference)	\$250 (IEEE Member) \$400 (Non-IEEE Member)	\$400 (IEEE Member) \$550 (Non-IEEE Member)
Retiree*	\$250	\$400
Life IEEE Member* (Show life member card at conference)	\$250	\$400
One-Day Registration**	\$400	\$400
Short Courses***	\$250 (One Short Course) \$400 (Two Short Courses)	\$350 (One Short Course) \$500 (Two Short Courses)
Short Courses *** (Student with valid student ID) or Retiree	\$150 (One Short Course) \$250 (Two Short Courses)	\$250 (One Short Course) \$400 (Two Short Courses)
Guest**** (Includes reception and breakfasts)	\$150	\$150
Conference Proceedings DVD	\$25	\$25
Banquet	\$90	\$90

* Registration includes access to all sessions, exhibits, welcome reception, conference program, conference proceedings, plus additional conference handouts. Short courses are not included.

**One Day Registration includes tickets to the Reception (if it coincides with the day of reception) but it does not include tickets to Banquet or Conference Proceedings). The Banquet is optional and is \$90.

***Short Course Only Registration does not include access to conference sessions, tickets to the Banquet, Reception, exhibits, and Conference Proceedings

****Guest registration includes the Thursday night reception and three continental breakfasts on Thursday, September 4rd, Friday, September 5th, and Saturday, September 6th. The Friday banquet is not included in the guest registration. The Banquet is optional and is \$90. Guests are NOT allowed to attend any technical sessions except for the Thursday morning plenary session. Only ages 10 or older need to register.

All registrations include password-controlled internet access to the conference proceedings for a period of one year for downloading the papers

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.

Refund Policy

General attendees (non-authors) are eligible for a registration refund if the refund is requested in writing prior to August 1, 2014 and will incur a processing fee of \$50. There are no registration refunds after August 1st, 2014. Authors who have uploaded their papers are NOT entitled to any refunds.

CONFERENCE PROCEEDINGS

In order for the 2014 IEEE International Ultrasonics Symposium to be published in a timely manner, it is important that authors follow the submission instructions to the best of their ability. Printed proceedings will not be available from the conference but can be ordered directly from the IEEE Shop: Conference Proceedings. Conference attendees will receive the electronic version of the conference contain all the papers presented at the conference as part of their full registration fee.

As the Proceedings is a record of the 2014 IEEE International Ultrasonics Symposium, only those papers which are actually presented and defended at the Symposium by the author during either an oral or a poster session will be accepted for publication in the Proceedings. In the event that an author is unable to personally present the paper, she/he **MUST** be represented in either poster or oral sessions by an individual who is qualified to discuss the technical material in the paper and who will remain in attendance for the full session in which the paper is presented. All the session chairpersons will be recording the presenters attendance, both oral and poster, and sending the results to the Proceedings Editor.

All presenters, both oral and poster, are encouraged to publish in the conference proceedings. Full paper submissions are limited to four (4) single-side pages in the required two-column format. Invited papers can be up to ten (10) pages in length. For all papers: two (2) extra pages may be used at an excess page charge of \$125/page. Payments for excess page charge are part of the paper submission process.

Instructions for the generation of the conference papers can be found at the IEEE Proceedings Author Tools Box at the following website:

http://www.ieee.org/conferences_events/conferences/publishing/templates.html. Here you will find Manuscript Templates for Conference Proceedings, IEEE Citation Reference, and IEEE Keyword Guidelines.

Part of the paper submission process involves standard conversion to PDF, and the authors will be given the opportunity to approve the converted files before the completion of the submission process. As part of the submission process, the author will have to indicate that they have read and conformed to the IEEE Proceedings formatting standards. Authors may risk having their paper not included in the proceedings if there is excessive deviations from the IEEE format standards. Our publication schedule will not allow the authors to make changes to their manuscripts after the deadline. If the papers deviate from the standard format they will be removed from publication.

All paper submissions will be checked by the CrossCheck in order to prevent plagiarism. CrossCheck compares submitted manuscripts against a very large database of published technical papers. Please note that self-plagiarism will also be checked. Plagiarism in any form is unacceptable and is considered a serious breach of professional conduct.

For authors who are including Multimedia content in their papers, they can find supporting Multimedia Materials instructions at the IEEE Author Digital Tool Box:

<http://www.ieee.org/web/publications/authors/transjnl/index.html>.

While this site provides the Multimedia instructions for the IEEE Transactions and Journals, the instructions are appropriate for our Proceedings. In simple terms, the author needs to make notation in her/his paper as to the multimedia file name so that a link can be added by the editor. During the standard submission process, the author will be requested to upload the multimedia file.

VISA ASSISTANCE

Obtaining Visa Application Document (Formal Letter of Invitation)

Visa requirements: The US has updated its visa policies to increase security, so it may take you several 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, please provide the following information (order like stated below):

- salutation (Mrs. / Mr.)
- title (Prof. / Dr. / ...)
- complete name (first, middle, last name)
- complete mailing address (company/institution, street, city, state/province, postal code, country)
- e-mail address
- whether you are author/co-author (including ID# of your contribution)
- whether you have already registered AND paid your registration fee (incl. Invoice #), and any other details that US or your country of residence requires for your visa application

Then, contact the Conference Coordinators by email at:

Erdal Oruklu
Local Chair, IUS 2014
erdal@ece.iit.edu
Telephone: +1-312-567-8814

IEEE VISA Guidelines

According to IEEE's guidelines for providing visa letters such formal letters of invitation will only be issued to:

- People the committee knows
- Speakers/Presenters
- Committee members
- Attendees/Exhibitors who have paid their registration fee in full

The Conference cannot contact or intervene with any US 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 2014 IEEE International Ultrasonics Symposium.

STUDENT TRAVEL SUPPORT

Student Travel Support will be available beginning Friday, September 5th, 1:00 pm in the registration area. Please have identification and travel receipts available.

PRESIDENT'S STUDENT RECEPTION

Students attending the Conference are invited to attend a complimentary breakfast on Friday, September 5th from 7:00 am to 8:00 am. This is an opportunity for students to network with other students and with the Administrative Committee members of the UFFC Society.

WOMEN IN ENGINEERING LUNCHEON

Women active in the technical areas of the UFFC conference are invited to attend a complimentary lunch and networking event organized by the women in UFFC group on Friday September 5 from 12:00 to 13:00. Elisa Konofagou, Professor of Biomedical Engineering and Radiology at Columbia University, NY, will offer a highlight presentation on securing, pursuing and maintaining an academic career while drawing upon your creative edge and attaining a good work-life balance.

For additional information please contact Dr. Lori Bridal at lori.bridal@upmc.fr.

IEEE EVENT PHOTOGRAPHY STATEMENT

Attendance at, or participation in this conference constitutes to the use and distribution by IEEE of the attendee's image or voice for informational, publicity, promotional and / or reporting purpose in print or electronic communications media. No flash photography will be used. Video recording by participants and other attendees during any portion of the conference is not allowed without special prior written permission of IEEE. Photographs of PowerPoint or other slides as well as posters are not permitted.

IEEE NON-DISCRIMINATION POLICY

IEEE is committed to the principle that all persons shall have equal access to programs, facilities, services, and employment without regard to personal characteristics not related to ability, performance or qualification as determined by IEEE policy and / or applicable laws.

CONFERENCE RECEPTION

Thursday, September 4th, 2014

Time: 6:00pm-8:00pm

Location: Hilton Chicago Hotel, Second floor

The Conference Reception will be held at the Grand Ballroom.

Entertainment:



The Chicago Jazz Quartet: This quartet combines some of Chicago's top jazz players into one high powered group. Lead by Chicago Jazz Magazine publisher Mike Jeffers this group includes instrumentalists who have performed at many of Chicago's world famous jazz clubs. Specializing in performing classic standards made famous by such artists as Frank Sinatra, Nat Cole, Ella Fitzgerald, Oscar Peterson and many others, The Chicago Jazz Quartet helps to create the perfect Chicago Jazz atmosphere.

CONFERENCE BANQUET

Friday, September 5th, 2014

Time: 6:30pm-11:00pm

Location: Hilton Chicago Hotel, Second floor

The Conference Banquet will be held at the Grand Ballroom.

Entertainment:



Blooze Brothers: This high-powered, choreographed, 12-piece show band covers music from the 40's to Top 10, Swing, Motown, Soul, R & B, Classic Rock, Original music from the band, and of course the music and crazy antics of the famous original Blues Brothers. This Chicago favorite cover band will take stage at 8pm.

TOURS

There is one Chicago tour scheduled during the conference on Saturday, September 6th. Please check the tour option in the conference registration form (online or paper) or contact Local Chair Erdal Oruklu via e-mail erdal@ece.iit.edu.

Event Date: Saturday 9/6/2014 **Start Time:** 10:00 am **End Time:** 01:00 pm

Description: Architecture River Cruise



Chicago Architecture Foundation-certified expert docents interpret the world-class architecture along the Chicago River. Marvel at Chicago's soaring towers while enjoying a 90-minute narrated river cruise. This tour spotlights more than 50 architecturally significant sites where you will discover a new perspective on the city.

Ticket per person: \$85

Guests are encouraged to contact [Access Destination Services](#) for other Chicago tours and events including Trolley tour & Skydeck Experience and the Shedd Aquarium:

Kathryn Kratz, CWEP | Senior Sales Manager

ACCESS Destination Services®

d 312.786.6267 | f 214.716.1064 | c 847.942.1597

27 E. Monroe Street Suite 400 | Chicago, IL 60603

www.accessdmc.com

Description: Trolley Tour and Skydeck Experience



Guests will be picked up from their hotel and transported to the Willis Tower for their Skydeck Experience where they will be able to step outside the tallest building in the western hemisphere and the third tallest in the world. At 1,353 feet in the air, the Ledge's glass boxes extend out 4.3 feet from Skydeck giving guests a unique view of the city.

Description: Shedd Aquarium



The Total Experience Pass allows your guests to experience everything that Shedd has to offer. Access to all exhibits plus admission to the 4-D Experience and the Shedd's infamous aquatic show that is sure to be the hit of the day! Explore Waters of the World, Caribbean Reef, Amazon Rising, Wild Reef, the Abbott Oceanarium, Polar Play Zone and Jellies special exhibit.

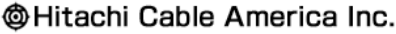
EXHIBITORS LIST

Gold Level Exhibitor Information

Logo	Description
	Verasonics has developed revolutionary ultrasound system technology based on real-time software. The system accelerates research, provides unsurpassed control while simplifying data collection and analysis process.

Exhibitor Information

Logo	Description
	Advanced OEM Solutions (AOS) designs and manufactures customizable Ultrasonic Phased Array and conventional Ultrasonic instruments perfect for research and industrial applications.
	Alpinion Medical Systems believes that technology is only meaningful when it delivers value to health care providers. Guided by this philosophy Alpinion focuses on the development and production of ultrasound including diagnostic ultrasound and advanced piezoelectric and single-crystal transducer technology
	Apex Ultrasound company is one of the leading companies for designing, developing and manufacturing medical ultrasonic transducer and probe products and providing interrelated technical service.
	Cephasonics - Embedded-ultrasound technology and subsystem electronics for B2B health care and industrial applications as well as cutting-edge research can be simply stated: We enable ultrasound.
 EBL Products, Inc.	EBL Products Inc. provides standard and application specific and industrial piezoceramic transducer elements to researchers as well as manufacturers of piezoelectric transducers according to their terms and specifications
	Electronics & Innovation is a focused and dynamic company fulfilling the market demand for rugged and reliable RF power amplifiers, components and modules. We offer unparalleled service and support with custom designs to meet your specific applications.

	Exelis Acoustic Systems is one of North America's largest manufacturer of piezoceramic materials including components, value added sub-assemblies and transducers for diverse medical imaging, therapy and surgical applications, power ultrasonics for cleaning and welding, oceanographic and oil and gas applications. Exelis has over 60 years of piezomaterials and transducer engineering, design and production experience that has benefitted large and small customers. Exelis offers standard and custom piezoceramic formulations of PZT, PT and PMN-PT materials, FEA and applications assistance for prototype and production volume applications. Exelis is ISO 9001/2008 registered and can provide 100% testing of components
	Hitachi Cable America Inc. (HCA) is an indirect wholly owned subsidiary of Hitachi Metals, Ltd., a global manufacturer of high-grade metal products with customers in the computer, automotive and aerospace industries.
	Imasonic develops and produces ultrasonic transducers for Medical and NDT applications. Using our proprietary Piezocomposite technology, any type of transducer can be designed from single element to Phased Array transducers
	IPPT PAN is a government funded scientific institute conducting research in theoretical and applied mechanics, theory of coupled mechanical and physical fields, theoretical and experimental mechanics of materials and structures, computational methods in mechanics, acoustoelectronics, and ultrasonic medical diagnostics.
	Lecoeur Electronique company is devoted to non-destructive testing, using ultrasounds. We are capable of building your custom-made equipment and we are able to adapt to your technical and budgetary requests.
	We specialise in sensing and monitoring systems that measure physical parameters in the extreme environments of aircraft, space vehicles, power generators, nuclear, oil and gas installations and test laboratories
	Onda has established itself as a global leader in ultrasound measurement instrumentation and services for medical applications. The seasoned team at Onda has extensive knowledge in diagnostic, therapeutic, and physiotherapy ultrasound applications. Markets have also been served outside the medical sector, including wirebonding, non-destructive testing, and cleaning applications
	Polytec is the market leader for non-contact, laser based vibration and velocity measurement instrumentation. Our innovative solutions allow our customers to maintain their own technical leadership across many fields.
	When it comes to measuring ultrasound in the frequency range 40kHz to 50MHz, Precision Acoustics is regarded world-wide as a leading global supplier of products to measure acoustic pressure and intensity. Precision Acoustics offers consultancy, for transducer development and acoustic measurement services to medical, NDT and academic establishments.

	Roth and Rau AG Microsystems provides leading solutions for surface trimming as well as advanced deposition technologies using specialized plasma and ion beam expertise. The equipment and technologies produced by Roth & Rau are used in the photovoltaics, semiconductor, optics, battery, automotive and rail industries
	scia Systems was launched in 2013 and offers advanced ion beam and plasma technologies for the production of microelectronics and precision optical components. In a unique manner the equipment of scia Systems integrate advanced source technologies with innovative sample movement for localized rate and process control.
	SIMetris support ultrasonic product development using our finite element simulation tool NACS. We provide analysis of piezoelectric, vibroacoustic, and magneto-mechanical interactions as well as product optimization.
	Sonic Concepts is the designer, developer and direct marketer of a variety of products which include standard and custom HIFU transducers, custom array transducers, instrumentation, hydrophones and calibration, acoustic lenses, and our transducer design modeling software package, PiezoCAD®.
	S-Sharp is dedicated to providing cutting edge ultrasound solutions to our customers with many years of passion and experiences in ultrasound research and development.
	The goal of TRS Technologies, Inc. is to utilize cutting edge R&D combined with extensive manufacturing knowledge to build and grow lasting and profitable business relationships making us the preferred supplier of high quality, specialty piezoelectrics and dielectrics to OEMs in the medical, sensor, and military markets.
	Ultrasonix diagnostic ultrasound systems are designed to make ultrasound easy to use in more areas of patient care. With high-resolution monitors and excellent image quality, our systems are ideal for point-of-care markets and procedure-driven applications. Analogic Ultrasound designs and manufactures ultrasound systems that are sold to medical practitioners under BK and Ultrasonix brands.
	As a leading structural engineering and applied mechanics consultant, we design and rehabilitate buildings, bridges, and infrastructure and develop advanced analysis software. We also offer special services in vulnerability assessment; risk analysis; forensic, earthquake, wind, and blast engineering; soil/structure interaction; and sustainability.

FUTURE CONFERENCE



2015 IUS

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The annual 2015 IEEE International Ultrasonics Symposium will be held at [Taipei International Convention Center](#), Taipei, Taiwan, from **October 21-24, 2015**. Oral and poster presentation formats will be used at the symposium. Papers are solicited for this conference describing original work in the field of ultrasonics from the following **subject classifications**:

Group 1: Medical Ultrasonics

MBB Medical Beamforming and Beam Steering
MBE Biological Effects & Dosimetry
MBF Blood Flow Measurement
MCA Contrast Agents
MEL Elastography
MIM Medical Imaging
MPA Medical Photoacoustics
MSD System & Device Design
MSP Medical Signal Processing
MTC Medical Tissue Characterization
MTH Therapeutics, Hyperthermia, and Surgery

Group 2: Sensors, NDE & Industrial Applications

NAF Acoustics Microfluidics
NAI Acoustic Imaging
NAM Acoustic Microscopy
NAS Acoustic Sensors
NDE General NDE Methods
NEH Energy Harvesting
NFM Flow Measurement
NMC Material & Defect Characterization
NPA Photoacoustics
NPC Process Control
NSP Signal Processing
NTD Transducers: NDE and Industrial
NUA Underwater Acoustics
NWP Wave Propagation

Group 3: Physical Acoustics

PAT Acoustic Tweezers and Particle Manipulation
PNL Nonlinear Acoustics
PGP General Physical Acoustics
POA Opto-acoustics
PPN Phononics
PTF Thin Films
PMI Magnetic/Electromagnetic Interactions
PUM Ultrasonic Motors & Actuators

Group 4: Microacoustics: SAW, FBAR, MEMS

ADA Device Applications
ADD Device Design
ADM Device Modeling
AMP Materials & Propagation
AMS Microacoustic Sensor Devices & Applications

Group 5: Transducers & Transducer Materials

TMC Materials Fabrication and Characterization
TMO Modeling (Analytical & Numerical)
TFT Thin and Thick Piezoelectric Films
TMU Micromachined Ultrasonic Transducers
TMI Biomedical Diagnostic and Imaging Transducers
TTT Biomedical Therapeutic Transducers
THF Front-end and Integrated Electronics
TFI High Frequency Transducers
TFP Applications of Piezoelectrics & Ferroelectrics

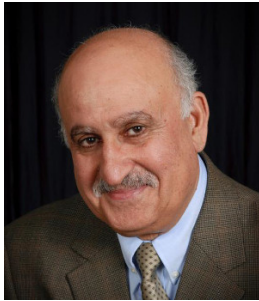
Sponsored by the IEEE Ultrasonics, Ferroelectrics & Frequency Control Society



IEEE ULTRASONICS, FERROELECTRICS,
AND FREQUENCY CONTROL SOCIETY



CONFERENCE ORGANIZING COMMITTEE



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Jafar Saniie

Illinois Institute of Technology
Chicago, IL, USA



Technical Program Chair:
Jan D'hooge

Catholic University of Leuven
Leuven, Belgium



Finance Chair:
Jacqueline Hines

Applied Sensor Research and Device
Corporation
Maryland, USA



Local Chair:
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Illinois Institute of Technology
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Chicago, IL, USA

SHORT COURSES

1A: 8:00am-12:00pm Instructors:	Ultrasound Imaging Systems: from Principles to Implementation Kai Thomenius, Massachusetts Institute of Technology, USA
1B: 8:00am-12:00pm Instructors:	Elasticity Imaging: Methods and Applications Kathy Nightingale and Mark Palmeri, Duke University, USA
1C: 8:00am-12:00pm Instructors:	Acoustic Microfluidics James Friend, Royal Melbourne Institute of Technology, Australia
1D: 8:00am-12:00pm Instructors:	Piezoelectric Ultrasonic Motors Jorg Wallaschek, Gottfried Wilhelm Leibniz Universitat at, Germany and Minoru Kuribayashi Kurosawa, Tokyo Institute of Technology, Japan
1E: 8:00am-12:00pm Instructors:	Radio Frequency Acoustic Resonators in Communications: Fundamentals, Applications and Characterization Ken-ya Hashimoto, Chiba University, Japan
1F: 8:00am-12:00pm Instructors	Piezoelectric Fundamentals - Materials and Transducers Susan Trolier-McKinstry Materials Research Lab, Penn State University, USA and Sandy Cochran Institute for Medical Science and Technology, University of Dundee, UK
2A: 1:00pm-5:00pm Instructors:	Ultrafast Imaging in Biomedical Ultrasound: Principles and Applications Mickael Tanter and Mathias Fink Institut Langevin, ESPCI, France
2B: 1:00pm-5:00pm Instructors:	Ultrasound Vector Velocity Imaging Jorgen Arendt Jensen, Technical University of Denmark, Denmark
2C: 1:00pm-5:00pm Instructors:	Nonlinear Ultrasonic Imaging for NDE: From Laboratory Experiments to R&D of a New Technology Igor Solodov, Institute for Polymer Technology, University of Stuttgart, Germany
2D: 1:00pm-5:00pm Instructors:	Acoustical Imaging; from Acoustic Field Equations to Imaging and Inversion Koen W.A. van Dongen, Delft University of Technology, The Netherlands
2E: 1:00pm-5:00pm Instructors:	A Modern Approach to Modelling and Simulation of Micro-acoustic Devices Alireza Baghai-Wadji, University of Cape Town, South Africa
2F: 1:00pm-5:00pm Instructors	Micromachined Ultrasonic Transducers: PMUTs and CMUTs Firas Sammoura, Masdar Institute of Science and Technology, United Arab Emirates and Amin Nikoozadeh, Stanford University, USA

TECHNICAL PROGRAM COMMITTEE

Group 1: Medical Ultrasonics



TPC Vice Chair

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Ruhr-Universität
Bochum, Germany

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Pai Chi Li, National Taiwan University, Taiwan
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Tom Thomas, Boston Scientific, US
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Hans Torp, University of Science and Technology, Norway
Piero Tortoli, University Firenze, Italy
Ton van der Steen, Erasmus Medical Centre, The Netherlands
Kendall Waters, Silicon Valley Medical Instruments, US
Keith Wear, Food and Drug Administration, US
Wilko G. Wilkening, Siemens Medical Solutions, US
Hairong Zheng, Shenzhen Institutes of Advanced Technology, China

Group 2: Sensors, NDE, and Industrial Applications



TPC Vice Chair

David Greve
Carnegie Mellon University
USA

Members

Robert C. Addison, Rockwell Science Center, USA
Walter Arnold, Fraunhofer Institute for NDT, Germany
Michal Bezdek, Endress+Hauser Flowtec AG, Switzerland
James Blackshire, Air Force Research Laboratory, USA
Ramazan Demirli, Villanova University, USA
James Friend, Monash University, Australia
Eric S. Furgason, Purdue University, USA
David Greve, Carnegie Mellon University, USA
Edward Haeggstrom, University of Helsinki, Finland
Jacqueline Hines, Applied Sensor R&D Corporation, USA
Patrick Johnston, NASA Langley Research Center, USA
Fabien J. Josse, Marquette University, USA
Lawrence W. Kessler, Sonoscan Inc., USA
Pierre T. Khuri-Yakub, Stanford University, USA
Mario Kupnik, Brandenburg University of Technology, Germany
Roman Maev, University of Windsor, Canada
Kentaro Nakamura, Tokyo Institute of Technology, Japan
Erdal Oruklu, Illinois Institute of Technology, USA
Massimo Pappalardo, University di Roma TRE, Italy
Jafar Saniie, Illinois Institute of Technology, USA
Gangbing Song, University of Houston, USA
Bernhard Tittman, Pennsylvania State University, USA
Jiromaru Tsujino, Kanagawa University, Japan
John F. Vetelino, University of Maine, USA
Paul Wilcox, University of Bristol, UK
William Wright, University College Cork, Ireland
Donald E. Yuhas, Industrial Measurement Systems, USA

Group 3: Physical Acoustics

TPC Vice Chair

Vincent Laude
Centre National de la Recherche
Scientifique, France

Members

Manabu Aoyagi, Muroran Institute of Technology, Japan
Arthur Ballato, Clemson University, USA
Anne Bernassau, University of Glasgow, UK
Jan Brown, JB Consulting, USA
Charles Courtney, University of Bath, UK
Emmanuel Defay, CEA LETI Minatec Campus, France
Jianke Du, Shanghai Jiaotong University, China
Tao Han, Ningbo University, China
Fred Hickernell, Motorola, Inc., USA
Takefumi Kanda, Okayama University, Japan
Yoonkee Kim, U.S. Army, USA
Eun Sok Kim, University of Southern California, USA
Minoru K. Kurosawa, Tokyo Institute of Technology, Japan
Amit Lal, Cornell University, USA
John Larson, Avago Technologies, USA
Vincent Laude, FEMTO-ST / CNRS, France
Andreas Mayer, Hochschule Offenburg, Germany
Roy H. Olsson III, Sandia National Laboratories, USA
Mihir Patel, Schlumberger-Doll Research,, USA
Yan Pennec, IEMN / Universite de Lille 1, France
Susan Schneider, Marquette University, USA
Bikash Sinha, Schlumberger-Doll Research,, USA
Takahiko Yanagitani, Nagoya Institute of Technology, Japan
Koen W.A. Van Dongen, Delft University of Technology, Netherlands
Jorg Wallaschek, Leibniz Universitat Hannover, Germany
Ji Wang, Ningbo University, China
Tsung-Tsong Wu, National Taiwan University, Taiwan
Yook-Kong Yong, Rutgers University, USA
Jiun Der Yu, Epson Research & Development Inc., USA

Group 4: Microacoustics - SAW, FBAR, MEMS



TPC Vice Chair

Karl Wagner
TDK Corporation
Munich, Germany

Members

Ben Abbott, Triquint Semiconductor, USA
Robert Aigner, Triquint Semiconductor, USA
Ivan Avramov, Institute of Solid State Physics, Bulgaria
Sylvain Ballandras, freq 'n' sys SAS, France
Kushal Bhattacharjee, RF Micro Devices, USA
Sunil Bhawe, Cornell University, USA
Sergey Biryukov, IFW Dresden, Germany
Paul Bradley, Avago Technologies, USA
Jidong Dai, Murata Electronics, Inc., USA
Omar Elmazria, Universite de Lorraine, France
Gernot Fattinger, Triquint Semiconductor, USA
Gerhard Fischerauer, University of Bayreuth, Germany
Ken-ya Hashimoto, Chiba University, Japan
Shitang He, IACAS, China
Chunyun Jian, Ericsson, Canada
Michio Kadota, Tohoku University, Japan
Jyrki Kaitila, Avago Technologies, Germany
Ilia Katardjiev, Uppsala University, Sweden
Takaharu Kawakatsu, Murata Manufacturing, Japan
Kimmo Kokkonen, Aalto University, Finland
Jan Kuypers, Sands 9, Inc., USA
Don Malocha, University of Central Florida, USA
Natalya Naumenko, Nat. University of Science & Technology MISIS, Russia
Hiroyuki Odagawa, Kumamoto National College of Technology, Japan
Takeo Oita, University of Tokyo, Japan
Tuomas Pensala, VTT, Finland
Mauricio Pereira da Cunha, University of Maine, USA
Maximilian Pitschi, TDK Corporation, Germany
Leonard Reindl, Albert-Ludwigs-University Freiburg, Germany
Richard Ruby, Avago Technologies, USA
Clemens Ruppel, TDK Corporation, Germany
Marc Solal, Triquint Semiconductor, USA
Masanori Ueda, Taiyo Yuden, Japan
Karl Wagner, TDK Corporation, Germany
Robert Weigel, University of Erlangen-Nuremberg, Germany

Sergei Zhgoon, National Research University, Russia

Group 5: Transducers and Transducer Materials



TPC Vice Chair

Sandy Cochran
University of Dundee
UK

Members

Sandy Cochran, University of Dundee, UK
David Cowell, University of Leeds, UK
Christopher Daft, River Sonic Solutions, USA
Loriann Davidsen, Philips Healthcare, USA
Levent Degertekin, Georgia Institute of Technology, USA
Christine Demore, University of Dundee, UK
Charles Emery, Ulthera Inc., USA
Arif Sanli Ergun, TOBB University, Turkey
Lynn Ewart-Paine, NUWC, USA
Xiaoning Jiang, North Carolina State University, USA
Reinhard Lerch, Friedrich-Alexander-Universitat Erlangen-Nuremberg, Germany
Richard O'Leary, University of Strathclyde, UK
Omer Oralkan, North Carolina State University, USA
Wei Ren, Xi'an Jiaotong University, China
Paul Reynolds, Cliqr, USA
Yongrae Roh, Kyungpook National University, Korea
Ahmad Safari, Rutgers University, USA
Jean-Francois Saillant, Areva, France
Mark Schafer, Sonic Tech Inc., USA
Scott Smith, GE Global Research, USA
Wallace Smith, Office of Naval Research, USA
Yasuhito Takeuchi, Kagoshima University, Japan
Susan Trolie-McKinstry, Pennsylvania State University, USA
Jian Yuan, Philips Shanghai Apex, USA
Qiming Zhang, Pennsylvania State University, USA
Shujun Zhang, Pennsylvania State University, USA
Qifa Zhou, University of Southern California, USA

PLENARY SPEAKER

Can Integrated Ultrasound/Photoacoustic Systems Deliver on the Promise of Molecular Medicine?

Matthew O'Donnell, Professor of Bioengineering at University of Washington
September 4th, 2014 Thursday 8:00am – 9:30am, Grand Ballroom, Hilton Chicago



Dr. O'Donnell has worked at General Electric CRD, the University of Michigan, where he was Chair of the BME Department from 1999-2006, and the University of Washington (UW), where he was the Frank and Julie Jungers Dean of Engineering from 2006-2012. He is now Professor of Bioengineering at UW. His most recent research has focused on elasticity imaging, optoacoustic arrays, photoacoustic contrast agents, thermal strain imaging, and catheter-based devices. He is a fellow of the IEEE and AIMBE and is a member of the Washington State Academy of Sciences and the National Academy of Engineering.

ABSTRACT

For over two decades, microbubble-based contrast agents have been used extensively in biomedical ultrasound. Recent advances in molecular engineering have produced microbubbles targeted to specific molecular biomarkers, especially in the vasculature. Over the same period, parallel advances have been made in the field of photoacoustics in which molecular processes can be directly probed using the mechanism of optical absorption with ultrasonic (US) readout similar to a conventional real-time imaging system. Photoacoustics (PA) brings molecular sensitivity to US imaging for many biomedical applications using nano-scale, bioconjugated contrast agents. In addition, both US and PA agents can potentially be used for molecularly-targeted therapies, opening the possibility for molecular theranostics using integrated US/PA systems.

Although much progress has been made in recent years, there is still not a routine clinical procedure using US/PA for molecular theranostics. If recent advances in molecular engineering and molecular biomarker discovery are to be exploited for real clinical applications, many US/PA technologies must be translated into clinical tools. In this talk, we will explore recent advances in the field and discuss current obstacles to clinical translation. Finally, we will discuss how US/PA molecular theranostic technologies can accelerate the transition to personalized medicine and effective healthcare delivery.

CLINICAL SPEAKERS

1A-1 Strain-derived Cardiac Assessment

Jan D'hooge, Associate Professor in the Department of Cardiovascular Disease of the Medical Faculty at the Catholic University of Leuven, Belgium

September 4th, 2014 Thursday 10:30am – 11:00am, Grand Ballroom

1C-1 Update on Contrast Ultrasound: Diagnostic and Therapeutic Applications

Steven Feinstein, M.D., Professor of Medicine at Rush University Medical Center, USA

September 4th, 2014 Thursday 3:30pm – 4:00pm, Grand Ballroom

1G-1 Three-Dimensional Echocardiography

Roberto Lang, M.D., Professor of Medicine at the University of Chicago, USA

September 5th, 2014 Friday 3:30pm – 4:00pm, Grand Ballroom

INVITED SPEAKERS

Group 1: Medical Ultrasonics

1B-5 Ultrasound for Molecular Imaging and Guided Drug Delivery

Juergen K. Willman, Professor of Radiology at Stanford University, USA

September 4th, Thursday 2:00pm-2:30pm, Grand Ballroom

1D-5 GPU Enabled Ultrasound Imaging Innovations

Alfred C. H. Yu, Professor of Electrical Engineering at The University of Hong Kong, Hong Kong

September 5th, Friday 9:00am-9:30am, Grand Ballroom

1E-5 Biogenic Nanostructures as Reporters for Ultrasound Imaging

Mikhail G. Shapiro, Professor of Chemical Engineering at California Institute of Technology, USA

September 5th, Friday 11:30am-12:00pm, Grand Ballroom

1F-1 Histotripsy: Recent Advances

Charles A. Cain, Professor of Biomedical Engineering at University of Michigan, USA

September 5th, Friday 1:00pm-1:30pm, Grand Ballroom

1H-1 Augmented Trans-esophageal Ultrasound for Guidance of Cardiac Interventions

Terry Peters, Professor of Biomedical Engineering at Robarts Research Institute, UK

September 6th, Saturday 8:00am-8:30am, Grand Ballroom

1J-1 Optical Coherence Tomography: The Optical Analogue to Ultrasound Imaging

Stephen A. Boppart, Professor of Engineering at University of Illinois, USA

September 6th, Saturday 1:00pm-1:30pm, Grand Ballroom

Group 2: Sensors, NDE & Industrial Applications

4B-1 Efficient Monitoring and Inspection of Plate-like Structures with Ultrasonic Guided Waves

Jennifer Michaels, Professor of Engineering at Georgia Institute of Technology, USA

September 4th, Thursday 1:00pm-1:30pm, Marquette

4E-1 Interaction of Microbubbles and Microdroplets with Ultrasound

Michel Versluis, Professor Physical and Medical Acoustics Physics of Fluids Group at University of Twente, Netherlands

September 5th, Friday 10:30am-11:00am, Marquette

4G-3 Biosensing using Contactless Quartz Resonators

Hirotsugu Ogi, Professor of Engineering at Osaka University, Japan

September 5th, Friday 4:00pm-4:30pm, Marquette

4I-5 High Temperature Piezoelectric Transducers

Makiko Kobayashi, Professor of Engineering at Kumamoto University, Japan

September 6th, Saturday 11:30am-12:00pm, Marquette

Group 3: Physical Acoustics

5C-5 Recent Advances in Nonlinear Modeling of Bulk Acoustic Wave Resonators

David Feld, Dong Shim, Siamak Fouladi, Farhad Bayatpur, AVAGO Technologies, USA

September 4th, Thursday 4:30pm-5:00pm, Williford A

5D-1 Ultrahigh Frequency Ultrasound and Its applications to Cellular Bioengineering

K. Kirk Shung, Professor of Biomedical Engineering at University of Southern California, USA

September 5th, Friday 8:00am-8:30am, Williford A

5H-3 Acoustic Filters Based on Thin Single Crystal LiNbO₃ Films: Status and Prospects

Alexandre Reinhardt, Research Engineer at CEA-Leti, France

September 6th, Saturday 8:30am-9:00am, Williford A

Group 4: Microacoustics: SAW, FBAR, MEMS

6C-3 Co-doped AlN Thin Films for Wideband FBAR Applications

Tsuyoshi Yokoyama, Taiyo-Yuden Company, Japan

September 4th, Thursday 4:00pm-4:30pm, Williford B

6F-3 Bulk Acoustic Wave Gyroscope

Farokh Ayazi, Professor of Engineering at Georgia Institute of Technology, USA

September 5th, Friday 1:30pm-2:00pm, Williford A

6I-3 Power Durable Electrode Metallization: Material Choice, Failure Mode, and Characterization

Ryoichi Takayama, Panasonic Corporation, Japan

September 6th, Saturday 11:00am-11:30am, Williford B

Group 5: Transducers & Transducer Materials

7A-5 The Evolution and Applications of High Frequency Ultrasound Transducers

Stuart Foster, Professor of Medical Biophysics at Sunnybrook Health Sciences Centre, Canada
September 4th, Thursday 11:30am-12:00pm, Williford C

7E-3 New Applications of Ultrabiosonics, - Feasibility Studies of Fish Growing by Ultrasonic Stimulation

Yohachi (John) Yamashita, Professor of Engineering at Toyama Prefectural University, Japan
September 5th, Friday 11:00am-11:30am, Williford C

7I-1 Piezoelectric Ceramics in Ultrasound - 3203HD and Beyond

Gerald Stranford, Thomas Vencill, David Williams, Lillian Gutierrez, and Bruce Johnson, CTS Electronic Components, USA
September 6th, Saturday 10:30am-11:00am, Williford C

STUDENT PAPER COMPETITION

Student Paper Competition Chairs:

Group 1 (Ralf Seip), Group 2 (David Greve), Group 3 (Vincent Laude), Group 4 (Karl Wagner), and Group 5 (Sandy Cochran)

PA-1 *Comparison of tumor microvasculature assessment via Ultrafast Doppler Tomography and Dynamic Contrast Enhanced Ultrasound*

Charlie Demene¹, Thomas Payen², Alexandre Dizeux², Jean Luc Gennisson¹, Lori Bridal², Mickaël Tanter¹

¹Institut Langevin, ESPCI ParisTech, CNRS UMR7587, Inserm U979, Paris, France,

²Laboratoire d'imagerie biomédicale, Université Pierre et Marie Curie, UMR S 1146 / UMR 7371, Paris, France

PA-2 *Ultrasound Quantification of Molecular Marker Concentration in Large Blood Vessels*

Shiying Wang¹, F William Mauldin Jr¹, Alexander L Klibanov^{1,2}, John A Hossack¹

¹Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA,

²Division of Cardiovascular Medicine, University of Virginia, Charlottesville, Virginia, USA

PA-3 *Ultrafast Plane Wave Imaging Based Pulsed Magnetomotive Ultrasound*

Pei-Hsien Ting¹, Yi-Da Kang², San-Yuan Chen², Meng-Lin Li^{1,3}

¹Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan,

²Department of Materials Science and Engineering, National Chiao Tung University, Taiwan,

³Institute of Photonics Technologies, National Tsing Hua University, Taiwan

PA-4 *Ultrafast vaporization dynamics of photoacoustic polymeric microcapsules*

Guillaume Lajoinie¹, Erik Gelderblom¹, Ceciel Chlon², Marcel Böhmer², Nico De Jong³, Wiendelt Steenbergen⁴, Srirang Manohar⁴, Michel Versluis¹

¹Physics of Fluids, University of Twente, Netherlands,

²Philips Research Laboratories Europe, High Tech Campus, Netherlands,

³Biomedical Engineering, Thoraxcenter, Erasmus mc, Netherlands,

⁴Biomedical Photonic Imaging Group, University of Twente, Netherlands

PA-5 *Pharmacodynamic analysis for efficient drug delivery through the FUS-induced BBB opening in Non-Human Primates in vivo*

Gesthimani Samiotaki¹, Shih-Ying Wu¹, Maria Eleni Karakatsani¹, Matthew Downs¹, Sachin Jambawalikar², Elisa Konofagou^{1,2}

¹Biomedical Engineering, Columbia University, USA,

²Department of Radiology, Columbia University, USA

PA-6 *Estimation of arterial wall motion using ultrafast imaging with transverse oscillations*

Sebastien Salles¹, Simon Lai², Damien Garcia³, Alfred Yu², Didier Vray¹, Hervé Liebgott¹

¹CNRS UMR 5220, INSERM U1044, Université de Lyon, Insa de Lyon, France,

²Biomedical Ultrasound Laboratory, University of Hong Kong, China, People's Republic of,

³RUBIC, CRCHUM, University of Montreal, Department of radiology, Canada

PA-7 *Application of Air-Coupled Ultrasound to Full-Scale Concrete Columns Using Tomography*
Hajin Choi¹, John S. Popovics²

¹University of Illinois at Urbana-Champaign, Champaign, IL, USA,

²Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

PA-8 *Microparticle manipulation and whole blood pre-treatment in surface acoustic wave counterflow devices*

Marco Travagliati^{1,2}, Richie Shilton², Marco Pagliazzi¹, Ilaria Tonazzini¹, Fabio Beltram^{1,2}, Marco Cecchini¹

¹Laboratorio NEST, Scuola Normale Superiore and Istituto Nanoscienze - CNR, Pisa, Italy,

²Center for Nanotechnology Innovation @ NEST, Istituto Italiano di Tecnologia, Pisa, Italy

PA-9 *Hardware-Software Co-design of 3D Data Compression for Real-Time Ultrasonic Imaging Applications*

Pramod Govindan¹, Jafar Saniie¹

¹Electrical and Computer Engineering, Illinois, Institute of Technology, USA

PA-10 *Cavity modes and optomechanic interactions in phoxonic crystals*

Said El-Jallal^{1,2}, Mourad Oudich³, Yan Pennec¹, Bahram Djafari-Rouhani¹, Abdelkader Makhoute⁴, Jordi Gomis-Bresco⁵, Daniel Navarro-Urrios⁵, Alejandro Martínez⁶, Clivia Sotomayor^{5,7}

¹Institut d'Electronique, de Microélectronique et de Nanotechnologie, Université Lille 1, Villeneuve d'Ascq, France,

²Physique du Rayonnement et de l'Interaction Laser Matière, Université Moulay Ismail, Meknes, Morocco,

³Institut Jean Lamour, Université de Lorraine, Vandoeuvre-lès-Nancy, Nancy, France,

⁴Physique du Rayonnement et de l'Interaction Laser Matière, Université de Moulay Ismail, Meknes, Morocco,

⁵ICN2 - Institut Catala de Nanociencia i Nanotecnologia, Campus UAB, 08193 Bellaterra, Barcelone, Spain,

⁶Nanophotonics Technology Center, Universitat Politècnica de València, Valencia, Spain,

⁷ICREA - Institutio Catalana de Recerca I Estudis Avançats, 08010, Barcelone, Spain

PA-11 *Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure*

Shoko Hiyama¹, Takahiko Yanagitani², Shinji Takayanagi¹, Yoshiya Kato¹, Mami Matsukawa¹

¹Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan,

²Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan

PA-12 *Non-linear cavitation cloud oscillations in high intensity focused ultrasound*

Keith Johnston¹, Bjoern Gerold¹, Sandy Cochran¹, Alfred Cuschieri¹, Paul Prentice¹

¹Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom

PA-13 *Ultrasonic assembly of short fibre reinforced composites*

Marc-S Scholz¹, Bruce W Drinkwater², Richard S Trask¹

¹ACCIS, Department of Aerospace Engineering, University of Bristol, Bristol, United Kingdom,

²Department of Mechanical Engineering, University of Bristol, Bristol, United Kingdom

PA-14 *Design of High Q Thin Film Bulk Acoustic Resonator Using Dual-Mode Reflection*

Ngoc Nguyen¹, Agne Johannessen¹, Ulrik Hanke¹

¹Micro and Nano Systems Technology, Buskerud and Vestfold University College, Borre, Vestfold, Norway

PA-15 *Influence of Dissipated Power Distribution on BAW Resonators' Behavior*

Andreas Tag¹, Dominik Karolewski², Bernhard Bader³, Maximilian Pitschi³, Robert Weigel¹, Amelie Hagelauer¹

¹Institute for Electronics Engineering, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany,

²IMMS Institut für Mikroelektronik- und Mechatronik-Systeme gemeinnuetzige GmbH, Ilmenau, Germany,

³Cellular · Systems, Acoustics, Waves Business Group, TDK Corporation, Munich, Germany

PA-16 *Chip Scale Reconfigurable Phased- Array Sonic Communication*

Jason Hoople¹, Justin Kuo², Serhan Ardanuç², Amit Lal²

¹Electrical and Computer Engineering, Cornell University, USA,

²Cornell University, USA

PA-17 *Dual frequency transducers for super harmonic intravascular ultrasound imaging*

Jianguo Ma¹, Karl Heath², Yang Li³, Paul Dayton², Qifa Zhou³, Kirk Shung³, Xiaoning Jiang¹

¹Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA,

²UNC/NCSU Joint Department of Biomedical Engineering, University of North Carolina, Chapel Hill, North Carolina, USA,

³Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA

PA-18 *An Ultrasound-Based Noninvasive Neural Interface to the Retina: Projection Algorithm and Frontend Integrated Circuit Architecture*

Xun Wu¹, Mohit Kumar¹, Omer Oralkan¹

¹Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA

PA-19 *Improved Performance CMUT-on- CMOS Devices Using ALD Hafnium Oxide Insulation Layer*

Toby Xu¹, Coskun Tekes¹, F. Levent Degertekin¹

¹Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA,

PA-20 *Integration of Pb(Zr,Ti)O₃ (PZT) Thin Films on a Complex Microfluidic System: Toward New Possibilities for Low Consumption Micropumps*

Pierre-Henri Cazorla¹, Olivier Fuchs¹, Martine Cochet¹, Sandrine Maubert¹, Gwenael Le Rhun¹, Stephane Fanget¹, Yves Fouillet¹, Emmanuel Defay¹

¹CEA-LETI, Minatec Campus, Grenoble, France

POSTER PRESENTATION GUIDE

Posters will be on display in the Poster Area located in the **Salon C** (lower level). This year we will have three full day poster sessions. Each poster session is divided into two time slots, as follows:

Mornings: 9:30am to 10:30am
Afternoons: 2:30pm to 3:30pm

Authors must be present during BOTH TIME SLOTS. Posters must be posted in the morning between 7:30am to 8:00am. They must be removed between 5:00pm to 5:30pm at the end of the day. THEREFORE each poster will be displayed for a full day.

Student Poster Competition (SPC) posters will be displayed in **Normandie Lounge** on the Second Floor. In recognition of their accomplishment, SPC posters will be on display for all THREE days of the conference. Student authors are required to be present for all six poster sessions to describe their work. Judges will review the SPC posters on Thursday only.

Poster Size and Instructions

- One poster board is allocated to each presentation. The recommended poster size is 36 inches high by 48 inches wide (92 cm x 122 cm).
- Posters must be mounted using tapes/pins provided by the organizing committee.
- Please note that there will be two poster sessions per day, therefore two posters will use the same board in the day, one in the morning and one in the afternoon. For this reason, be considerate and remove your poster in the designated time after your session is over, to allow enough time to the next authors to place their posters.
- Each poster presenter is required to defend his/her poster during the respective poster session slot for the paper to be included in the conference proceedings.
- Simply posting the pages of your written version of the proceedings paper is NOT effective and thus NOT acceptable for your Poster Paper Presentation.
- The title of your poster paper should be done in block letters which are AT LEAST 8 to 10 cm (3 to 4 inches) high.
- All text must be easily readable from a distance of 1 to 2 meters. Make the lettering at least 1 cm high, smaller lettering will not be legible from a distance of 1 to 2 meters.
- All graphs and charts should be AT LEAST 25 X 30 cm (approximately 8.5 x 11 inches) or larger.
- It is a good idea to sequentially number your materials in the poster. This will indicate to the viewer a logical progression through your Poster Paper Presentation.
- Provide an introduction (outline) and a summary or conclusion for your Poster Paper Presentation.
- Prepare your Poster Paper Presentation carefully so that it can be used as the basis to explain and answer questions from the viewers.
- It is helpful to have copies of the written version of your paper available for those viewers who may want to study specifics of your work in more detail.
- Have your business cards available for those who may wish to contact you at a later date.
- Bring along a tablet of blank paper that you may use for a discussion of technical details relating to your poster paper.

ORAL PRESENTATION GUIDE

Observing Your Allotted Time

- The total time allotted to each speaker is 15 minutes. You should plan to speak for 12 minutes and leave 3 minutes for questions.
- Invited speakers have twice this time, 30 minutes in total, and they should plan to speak for about 25 min, leaving 5 min. for questions.
- There is NO EXCUSE for using more than your allotted time. Rehearse your presentation several times; projecting slides and doing anything else you would otherwise expect to do at the meeting. It is a discourtesy to your audience, the Session Chair and the other speakers to exceed your allotted time. The Session Chairs are instructed to adhere to the printed schedule for the session. With parallel sessions this is critical to the overall success of the conference.

Organization of Oral Sessions

- There are seven parallel sessions in the conference and the Technical Program Committee will ensure minimal conflicts of topics between the parallel sessions.
- Audio and Video Equipment Provided at the Conference: The conference will be equipped with a computer video projector and a computer that is connected to the projector for each oral presentation room. Normal audio equipment such as microphones will be provided.
- Software Used in the Conference: The computers are equipped with Windows 7 as well as **Microsoft PowerPoint 2010 (Office 2010)** and **Adobe Acrobat Reader**. The PowerPoint 2010 is the preferred projection software offered at the conference.
- It is strongly recommended to all authors to check their presentation in the Speaker Ready Room for compatibility and proper operation.
- Avoid Font Problems: Since your computer may have sophisticated fonts (such as special equation symbols) that the conference computers do not have, it is suggested that when you save your PowerPoint presentations, use "Save As" from your "File" pull-down menu. When a dialog box pops up, click on the "Tools" menu on that dialog box and select "Save Options". Then, check the option "Embed true type fonts". Click "OK" and then click "Save". This allows you to include the fonts you are using in your presentations to minimize the font incompatibility problems. Otherwise, any fonts that are not recognized by the conference computers would be incomprehensible. In addition to the default ".pptx" file format, we suggest that you also save a copy of your presentations in the ".ppsx" (PowerPoint Show) format for safe (the ".ppsx" version may also include some of the special fonts in your presentations). If you have a full version of Adobe Acrobat, we suggest you also save (or print) your presentations into a ".pdf" format and thus you will be able to use the free Adobe Reader software to present in case nothing else would work.
- Movies or Videos: If you have movies or videos, the best way to present them properly is to use your own laptop computers since the conference computers may not have the Code/Decode (Codec) software that is necessary to play your movies or videos. If you do not wish to bring your own computers, you may have to convert all of your movies and videos to the Moving Picture Experts Group 1 (MPEG1) format to ensure a cross-platform compatibility. In addition, the movie or video files should be placed where the links in your presentations are pointing to. To make it easy, you could place the movies and videos in the same folder as your ".pptx" or ".ppsx" files when you

prepare your presentations and then copy all these files together to a folder or the desktop of the conference computers.

- **USB Thumb Drives:** Nowadays it is convenient to save your PowerPoint presentations in a USB 2.0 thumb drive. The conference computers will be equipped with the USB 2.0 interfaces. However, some USB drives may have security or driver issues that may prevent the drives from being recognized by the conference computers. Please scan your USB drives to remove viruses if there are any before you bring them to the conference.
- **CD or DVD Backup:** You could also save a copy of your presentation on a CD-R, CD-RW, DVD+/-R, or DVD+/-RW as a backup in case your USB thumb drives do not work with the conference computers (such as missing drivers or having security protections). When you use CD or DVD media, you should "close" (not be able to add any more files) them to increase the chance that these media could be read by the conference computers. If you use DirectCD to save your presentations, please make sure they are readable in a computer without DirectCD software installed.
- **VGA Adapters:** The conference computer projectors will be equipped only with a standard 15-pin analog Video Graphic Array (VGA) connector. If you decide to bring your laptop computers that do not have a VGA port, it is your responsibility to bring all necessary video output adapters with you so that your computers can be connected to the projectors (your computer vendors usually sell or ship such converters with your computers). In addition, the highest resolution of the computer projectors is 1024 x 768 pixels and the resolution of your laptop computers may need to be adjusted properly.
- **230V-110V Voltage Converters:** Chicago uses 110V/60Hz as its power standard. If your laptop computers do not work with 110V/60Hz, it is your responsibility to bring all necessary power converters. In addition, please plug the power adapters into the power strips so that your laptop computers will not run out of power during your presentations. Please also notice that the plug of the power adapter of your laptop computer may not necessarily fit with the 110V power strip. In this case, international converters/adaptors may be needed for you to use the power strips.
- **Backup Your Laptop Computers:** We suggest you make a copy of your presentations on a USB thumb drive in case your computers are damaged, lost, or cannot be used for whatever reasons.

Good Practices

- Show no more than 1 slide per minute of speaking time. This means approximately 10-12 slides MAXIMUM for the 12 minutes of presentation at the symposium. Remember, the last three minutes of the presentation are for questions from the audience. It detracts from the quality of the presentation to flash numerous graphs, equations, or tables on the screen in rapid sequence in an effort to squeeze a presentation into its allotted time.
- Make the letters on your slides BIG ENOUGH. Suggested minimum font is 14.
- Put no more than 12 lines of text or 4 curves on any slide.
- Avoid lengthy tabulations of numerical data and limit equations to those for which the terms can be properly defined.
- Your audience needs time to interpret the data that you present. While you are very familiar with the data displayed, the audience is not. Describe the abscissa, coordinates, units and the legend for each curve.
- When you display a curve, tell the audience what they should be looking for in order to grasp the point you are trying to make. The audience will not have time to figure it out for themselves.
- Use repetition in your talk to ensure the facts are understood by the audience.

- In addition to the body of the talk, present an introduction and a summary or conclusion.
- Include only information or data that can be properly explained in the allotted time.
- Repeat any questions that are posed to you.
- If a question requires a lengthy reply, suggest that you and the person asking the question meet after the presentation. Then take the discussion out of the meeting room.

SPEAKER READY ROOM

Speakers' Ready Room, **Room PDR4**, is located on the 3rd Floor of the Hilton Chicago Hotel. **Please submit your presentation in person to the Speakers' Ready Room at least 1 ½ hour** before the beginning of session. For the morning sessions please submit power point presentations by the end of the prior day.

The Speaker ready hours for submitting presentations are:
Wednesday-Saturday: 7:00am–5:00pm.

CONDENSED IUS SESSIONS PROGRAM

Condensed Program: Wednesday, September 3, 2014						
	Location and Rooms for Short Courses Will be Announced Later					
8:00am-12:00pm	Short Course 1A. Ultrasound Imaging Systems: from Principles to Implementation	Short Course 1B. Elasticity Imaging: Methods and Applications	Short Course 1C. Acoustic Microfluidics	Short Course 1D. Piezoelectric Ultrasonic Motors	Short Course 1E. Radio Frequency Acoustic Resonators in Communications: Fundamentals, Applications and Characterization	Short Course 1F. Piezoelectric Fundamentals - Materials and Transducers
12:00pm-1:00pm	Lunch					
1:00pm-5:00pm	Short Course 2A. Ultrafast Imaging in Biomedical Ultrasound: Principles and Applications	Short Course 2B. Ultrasound Vector Velocity Imaging	Short Course 2C. Nonlinear Ultrasonic Imaging for NDE: From Laboratory Experiments to R&D of a New Technology	Short Course 2D. Acoustical Imaging; from Acoustic Field Equations to Imaging and Inversion	Short Course 2E. A Modern Approach to Modelling and Simulation of Micro-acoustic Devices	Short Course 2F. Micromachined Ultrasonic Transducers: PMUTs and CMUTs

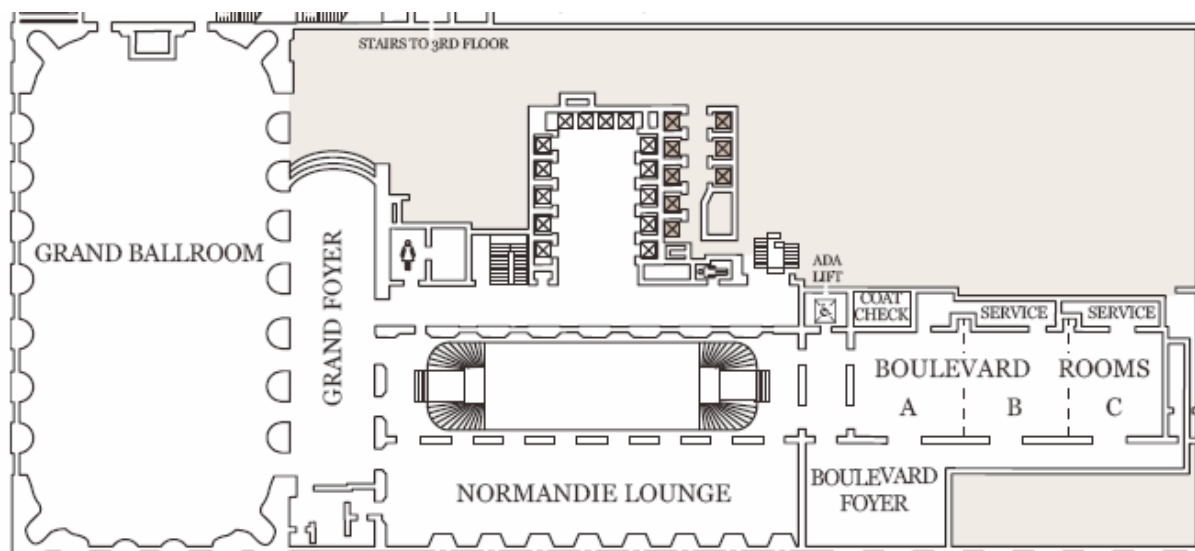
Condensed Program: Thursday, September 4, 2014							
8:00am-9:30am	Opening & Plenary Talk (Grand Ballroom)						
9:30am-10:30am	Poster Session and Refreshments (Salon C)						
	Grand Ballroom	Waldorf	Boulevard	Marquette	Williford A	Williford B	Williford C
10:30am-12:00pm	Session 1A. MEL: Cardiac Strain Imaging	Session 2A. MTH: Drug delivery and novel treatment approaches	Session 3A. MPA: Photoacoustics I	Session 4A. Arrays	Session 5A. General Physical Acoustics I	Session 6A. RF frontend devices and oscillators	Session 7A. High Frequency Transducers
12:00pm-1:00pm	Lunch Break						
1:00pm-2:30pm	Session 1B. MCA: Molecular Imaging	Session 2B. MEL: Cardiovascular Elasticity Imaging	Session 3B. MBB: Beamforming I	Session 4B. Structural Health Monitoring	Session 5B. Models in Physical Acoustics	Session 6B. Sensors and Field Characterization	Session 7B. CMUTs (1)
2:30pm-3:30pm	Poster Session and Refreshments (Salon C)						
3:30pm-5:00pm	Session 1C. MCA: Outlook for Contrast Imaging	Session 2C. MEL: Elastography: Clinical Applications	Session 3C. MTC: Low Frequency Tissue Characterization	Session 4C. Materials Characterization	Session 5C. Nonlinear Acoustics I	Session 6C. Characterization of materials	Session 7C. Micromachined Ultrasound Transducer Modeling
6:00pm- 8:00pm	Reception (Grand Ballroom)						

Condensed Program: Friday, September 5, 2014							
	Grand Ballroom	Waldorf	Boulevard	Marquette	Williford A	Williford B	Williford C
8:00am-9:30am	Session 1D. MSD: Advanced Multi-Channel and Multi-Modality Systems	Session 2D. MBF: Vector Velocity Techniques	Session 3D. MPA: Photoacoustics II	Session 4D. NDE	Session 5D. Particle Manipulation and Acoustic Tweezing 2	Session 6D. Sensors and ID tags	Session 7D. Therapeutic Ultrasound Transducers
9:30am-10:30am	Poster Session and Refreshments (Salon C)						
10:30am-12:00pm	Session 1E. MCA: Contrast Agents: New Investigations	Session 2E. MBF: Novel Flow Techniques	Session 3E. MSP: Medical Signal Processing	Session 4E. Acoustic Microfluidics	Session 5E. Particle Manipulation and Acoustic Tweezing 3	Session 6E. Innovations for microacoustic devices	Session 7E. Applications of Piezoelectrics
12:00pm-1:00pm	Lunch Break						
1:00pm-2:30pm	Session 1F. MTH: Histotripsy and Lithotripsy	Session 2F. MEL: Vascular Strain Imaging	Session 3F. MBB: Beamforming II	Session 4F. Signal Processing		Session 6F. Novel microacoustic devices	Session 7F. CMUTs (2)
2:30pm-3:30pm	Poster Session and Refreshments (Salon C)						
3:30pm-5:00pm	Session 1G. MIM: New Developments in Volumetric Ultrasound	Session 2G. MTC: High Frequency Tissue Characterization	Session 3G. MEL: Elasticity Imaging Methods I	Session 4G. Sensing			Session 7G. Diagnostic and Imaging Transducers
6:30pm -11:00pm	Banquet (Grand Ballroom)						

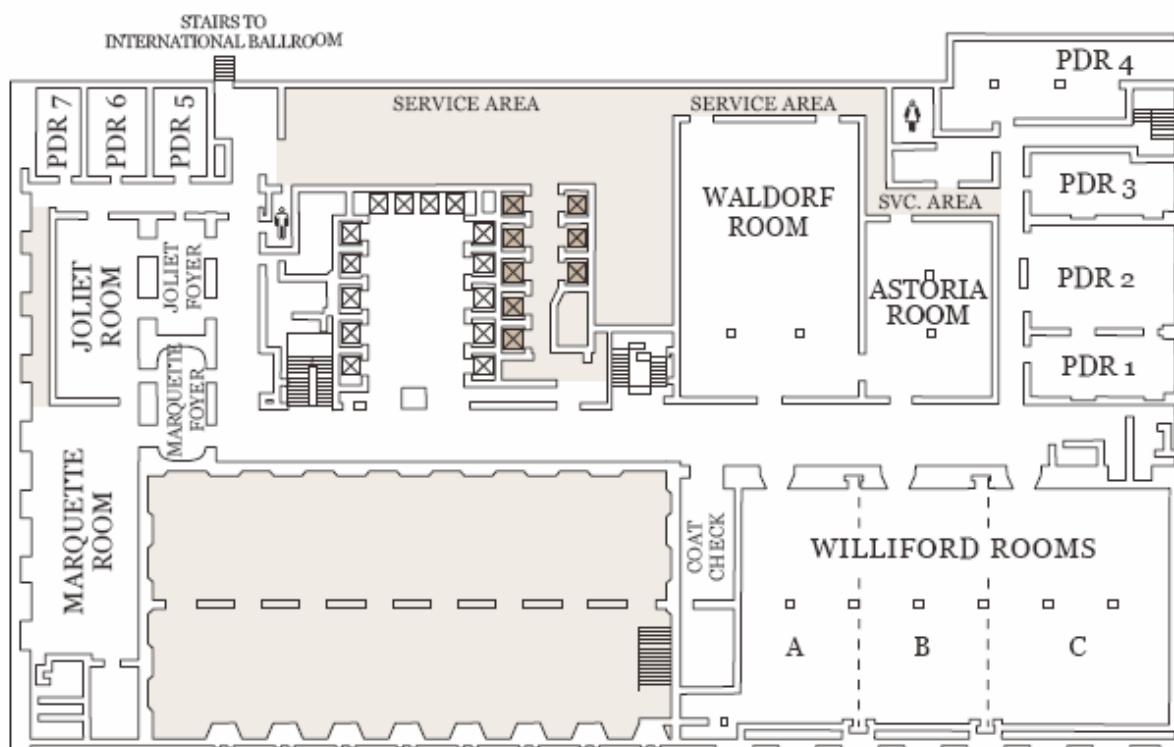
Condensed Program: Saturday, September 6, 2014							
	Grand Ballroom	Waldorf	Boulevard	Marquette	Williford A	Williford B	Williford C
8:00am-9:30am	Session 1H. MIM: Ultrasound Tools to Guide Cardiac Interventions	MEL: Elasticity Imaging Methods II	Session 3H. MSD: Special Applications of Advanced Ultrasound Systems	Session 4H. Wave Propagation	Session 5H. Thin-Films 1	Session 6H. Nonlinearity and Tunability	Session 7H. Electronic Control and Needle Actuation
9:30am-10:30am	Poster Session and Refreshments (Salon C)						
10:30am-12:00pm	Session 1I. MCA: Contrast Agents: New Technologies	Session 2I. MPA: Photoacoustics III	Session 3I. MTH: Blood- brain barrier and sonoporation	Session 4I. Transducers	Session 5I. Ultrasonic Motors and Multi- Modal Thin Film Transducers	Session 6I. Materials for SAW and BAW applications	Session 7I. Piezoelectric Materials
12:00pm-1:00pm	Lunch Break						
1:00pm-2:30pm	Session 1J. MIM: Vascular Imaging	Session 2J. MTH: Tumor treatment and monitoring	Session 3J. MTC: Bone	Session 4J. Industrial Applications and Flow Sensing	Session 5J. Phononics 1		Session 7J. Photoacoustics and other topics
2:30pm-3:30pm	Poster Session and Refreshments (Salon C)						
3:30pm-5:00pm	Session 1K. MEL: Liver Elasticity Imaging	Session 2K. MBB: Beamforming III	Session 3K. MBE: Ultrasound Induced Biological Effects	Session 4K. Airborne Ultrasound	Session 5K. Opto-Acoustics		

HILTON CHICAGO HOTEL FLOOR PLANS

Second floor map: (Oral Sessions, Student Poster Competition)

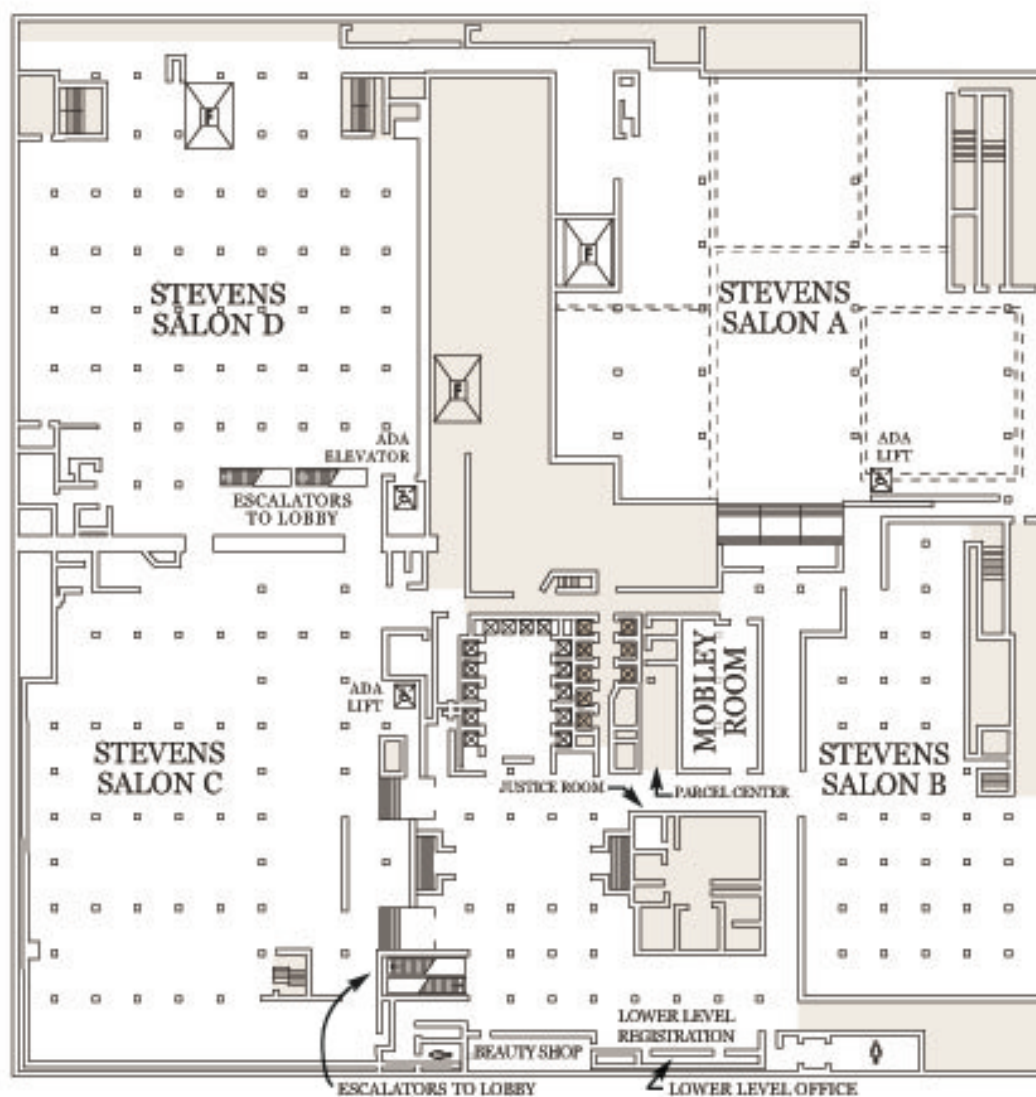


Third Floor Map: (Oral Sessions)



HILTON CHICAGO HOTEL FLOOR PLANS

Salon C Map– Lower Level (Registration, Exhibits, Poster Sessions)



Thursdays 8:00 am - 5:00 pm Session PA. Student Paper Competition Chair:		- Posters of Student Paper Competition -			Normandy
PA-4 Ultrafast vaporization dynamics of photoacoustic polymeric microcapsules Guillaume Lajoinie ¹ , Erik Gelderblom ¹ , Ceciel Chlon ² , Marcel Böhm ² , Nico De Jong ³ , Wiendelt Steenberg ⁴ , Strang Manohar ⁴ , Michel Versluis ¹ , ¹ Physics of Fluids, University of Twente, Netherlands, ² Philips Research Laboratories Europe, High Tech Campus, Netherlands, ³ Biomedical Engineering, Thoraxcenter, Erasmus mc, Netherlands, ⁴ Biomedical Photonic Imaging Group, University of Twente, Netherlands	PA-8 Microparticle manipulation and whole blood pre-treatment in surface acoustic wave counterflow devices Marco Travagliati ^{1,2} , Richie Shilton ² , Marco Pagliazzi ¹ , Iara Tonazzini ¹ , Fabio Beltrami ^{1,2} , Marco Cecchini ¹ , ¹ Laboratorio NEST, Scuola Normale Superiore and Istituto Nanoscienze - CNR, Pisa, Italy, ² Center for Nanotechnology Innovation @ NEST, Istituto Italiano di Tecnologia, Pisa, Italy	PA-12 Non-linear cavitation cloud oscillations in high intensity focused ultrasound Keith Johnston ¹ , Bjorn Gerold ¹ , Sandy Cochran ¹ , Alfred Cuschieri ¹ , Paul Prentice ¹ , ¹ Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom	PA-16 Chip Scale Reconfigurable Phased-Array Sonic Communication Jason Hoople ¹ , Justin Kuo ² , Serhan Ardanuç ² , Amit Lal ² , ¹ Electrical and Computer Engineering, Cornell University, USA, ² Cornell University, USA	PA-17 Dual frequency transducers for super harmonic intravascular ultrasound imaging Jianguo Ma ¹ , Karl Heath ² , Yang Li ² , Paul Dayton ² , Qifa Zhou ¹ , Kirk Shung ³ , Xiaoning Jiang ¹ , ¹ Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA, ² UNC/NCSSU Joint Department of Biomedical Engineering, University of North Carolina, Chapel Hill, North Carolina, USA, ³ Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA	PA-18 An Ultrasound-Based Noninvasive Neural Interface to the Retina: Projection Algorithm and Frontend Integrated Circuit Architecture Xun Wu ¹ , Mohit Kumar ¹ , Omer Oralkan ¹ , ¹ Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA
PA-5 Pharmacodynamic analysis for efficient drug delivery through the FUS-induced BBB opening in Non-Human Primates in vivo Gesthimani Samiotaki ¹ , Shih-Ying Wu ¹ , Maria Eleni Karakatsani ¹ , Matthew Downs ¹ , Sachin Jambawalkar ¹ , Elisa Konoigou ^{1,2} , ¹ Biomedical Engineering, Columbia University, USA, ² Department of Radiology, Columbia University, USA	PA-9 Hardware-Software Co-design of 3D Data Compression for Real-Time Ultrasonic Imaging Applications Pramod Govindan ¹ , Jafar Saniee ¹ , ¹ Electrical and Computer Engineering, Illinois Institute of Technology, USA	PA-13 Ultrasonic assembly of short fibre reinforced composites Marc-Scholz ¹ , Bruce W Drinkwater ² , Richard S Trask ¹ , ¹ ACCIS, Department of Aerospace Engineering, University of Bristol, Bristol, United Kingdom, ² Department of Mechanical Engineering, University of Bristol, Bristol, United Kingdom	PA-14 Design of High Q Thin Film Bulk Acoustic Resonator Using Dual-Mode Reflection Ngoc Nguyen ¹ , Agne Johannessen ¹ , Ulrik Hanke ¹ , ¹ Micro and Nano Systems Technology, Buskerud and Vestfold University College, Borre, Vestfold, Norway		
PA-6 Estimation of arterial wall motion using ultrafast imaging with transverse oscillations Sebastien salles ¹ , Simon Lai ² , Damien Garcia ³ , Alfred Yu ² , Didier Vray ¹ , Hervé Liebgott ¹ , ¹ CNRS UMR 5220, INSERM U1044, Université de Lyon, Insa de Lyon, France, ² Biomedical Ultrasound Laboratory, University of Hong Kong, China, ³ People's Republic of, RUBIC, CRCHUM, University of Montreal, Department of radiology, Canada	PA-10 Cavity modes and optomechanic interactions in phoxonic crystals Said EL-JALLAL ^{1,2} , Mourad Oudich ³ , Yan Pennec ⁴ , Bahram Djafari-Roudhani ¹ , Abdelkader Makhoue ² , Jordi Gomis-Bresco ⁵ , Daniel Navarro-Urios ⁵ , Alejandro Martinez ⁶ , Clivia Sotomayor ^{5,7} , ¹ Institut d'Electronique, de Microelectronique et de Nanotechnologie, Université Lille 1, Villeneuve d'Ascq, France, ² Physique du Rayonnement et de l'Interaction Laser Matière, Université Moulay Ismail, Meknes, Morocco, ³ Institut Jean Lamour, Nancy, France, ⁴ Physique du Rayonnement et de l'Interaction Laser Matière, Université de Moulay Ismail, Meknes, Morocco, ⁵ CN2 - Institut Català de Nanociencia i Nanotecnologia, Campus UAB, 08193 Bellaterra, Barcelona, Spain, ⁶ Nanophotonics Technology Center, Universitat Politècnica de València, Valencia, Spain, ⁷ CREA - Institut Català de Recerca i Estudis Avançats, 08010, Barcelona, Spain				
PA-1 Comparison of tumor microvasculature assessment via Ultrafast Doppler Tomography and Dynamic Contrast Enhanced Ultrasound Charlie Domene ¹ , Thomas Paver ² , Alexandre Dizeux ² , Jean Luc Geminon ¹ , Lori Bridal ² , Mickael Tancet ¹ , ¹ Institut Langevin, ESPCI ParisTech, CNRS UMR7587, Inserm U979, Paris, France, ² Laboratoire d'imagerie biomédicale, Université Pierre et Marie Curie, UMR S 1146 / UMR 7371, Paris, France	PA-2 Ultrasound Quantification of Molecular Marker Concentration in Large Blood Vessels Shiyang Wang ¹ , F William Mauldin Jr ¹ , Alexander L Klibanov ^{1,2} , John A Hossack ¹ , ¹ Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA, ² Division of Cardiovascular Medicine, University of Virginia, Charlottesville, Virginia, USA				

PA-3 Ultrafast Plane Wave Imaging Based Pulsed Magnetomotive Ultrasound Pei-Hsien Ting¹, Yi-Da Kang², San-Yuan Chen², Meng-Lin Li^{1,2} ¹Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan, ²Department of Materials Science and Engineering, National Chiao Tung University, Taiwan, ³Institute of Photonics Technologies, National Tsing Hua University, Taiwan	PA-7 Application of Air-Coupled Ultrasound to Full-Scale Concrete Columns Using Tomography Hajin Choi¹, John S. Popovics² ¹University of Illinois at Urbana-Champaign, Champaign, IL, USA, ²Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA	PA-11 Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure Shoko Hiyama¹, Takahiko Yanagitani², Shinji Takayanagi¹, Yoshiya Kato¹, Mami Matsukawa¹ ¹Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan, ²Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan	PA-15 Influence of Dissipated Power Distribution on BAW Resonators' Behavior Andreas Tag¹, Dominik Karolewski², Bernhard Bader¹, Maximilian Pfischl³, Robert Weigel¹, Amel Hagelauer¹ ¹Institute for Electronics Engineering, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany, ²IMMS Institut für Mikroelektronik- und Mechatronik-Systeme gemeinnützige GmbH, Ilmenau, Germany, ³Cellular Systems, Acoustics, Waves Business Group, TDK Corporation, Munich, Germany	PA-19 Improved Performance CMUT-on-CMOS Devices Using ALD Hafnium Oxide Insulation Layer Toby Xu¹, Coskun Tekes², F. Levent Degerekim³ ¹Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA, ²Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, ³Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA	PA-20 Integration of Pb(Zr,Ti)O₃ on a Complex Microfluidic System: Toward New Possibilities for Low Consumption Micropumps Pierre-Henri Cazorla¹, Olivier Fuchs¹, Martine Cochet¹, Sandrine Maubert¹, Gwenael Le Rhun¹, Stephane Fanget¹, Yves Fouillet¹, Emmanuel Delay¹ ¹CEA-LETI, Minatec Campus, Grenoble, France

Oral --- Thursday, September 4, 2014											
10:30 am - 12:00 pm	Session 1A. MEL: Cardiac Strain Imaging <i>Chair: Georg Schmitz</i> Ruhr-Universität Bochum	Session 2A. MTH: Drug delivery and novel treatment approaches <i>Chair: Cheri Deng</i> University of Michigan, Ann Arbor	Session 3A. MPA: Photoacoustics I <i>Chair: Michael Kolios</i> Ryerson University, Toronto	Session 4A. Arrays <i>Chair: David Greve</i> Carnegie Mellon University	Session 5A. General Physical Acoustics 1 <i>Chair: Koen Van Dongen</i> Delft University of Technology	Session 6A. RF frontend devices and oscillators <i>Chair: Clemens Ruppel</i> TDK Corporation	Session 7A. High Frequency Transducers <i>Chair: Qifa Zhou</i> University of Southern California				
Grand Ballroom											
10:30 am	Waldorf		Boulevard		Marquette		Williford A	Williford B	Williford C		
	2A-1 Blocking Vascular Rebounds Following Radiation and Microbubble Treatments Using a DII4 Notch Signalling Antibody. Ahmed El Kafkas ^{1,2} , Anaja Giles ¹ , Gregory Czarnota ^{1,2} ¹ Departments of Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, Canada, ² Departments of Medical Biophysics and Radiation Oncology, University of Toronto, Canada		3A-1 Spatially Adaptive Autofocusing Approach for Automatic Speed of Sound Selection in Photoacoustic Tomography K. Heath Martin ¹ , Richard Lam ² , Robert Kruger ² , Paul A Dayton ¹ ¹ Joint Dept of Biomedical Engineering, University of North Carolina/North Carolina State University, Chapel Hill, North Carolina, USA, ² Optosonics, Inc., Oriental, North Carolina, USA		4A-1 Determining Array Element Pitch for NDE Applications Paul Wilcox ¹ ¹ Mechanical Engineering, University of Bristol, Bristol, United Kingdom		5A-1 Simple Acoustic Microfluidics Devices using Lamb Waves with Planar AI Electrodes Amgad Rezh ¹ , Leslie Yeo ² , James Friend ¹ ¹ MicroNano Research Facility, RMIT University, Melbourne, Victoria, Australia, ² School of Environmental and Civil Engineering, RMIT University, Melbourne, Victoria, Australia		6A-1 Co-design of SAW duplexer and LNA in RF transceiver IC for reducing total noise figure in RF front-end of cellular systems Masafumi Iwaki ¹ , Jun Tsutsumi ¹ , Masanori Ueda ¹ , Yoshio Satoh ¹ ¹ MICRODEVICE R&D Dept., TAIYO YUDEN CO.,LTD., Japan		7A-1 Dual Element Needle Transducer for Intravascular Ultrasound Imaging Sangpil Yoon ¹ , Min Gon Kim ¹ , Bong Jin Kang ¹ , Changhan Yoon ¹ , Nestor Cabrera-Munoz ¹ , Jay Williams ¹ , K. Kirk Shung ¹ , Hyung Ham Kim ¹ ¹ Biomedical Engineering, University of Southern California, Los Angeles, California, USA
10:45 am	2A-2 Effect of cavitation on ultrasound and microbubble-mediated gene knockdown in squamous cell carcinoma Jonathan A. Kopechek ¹ , Andrew R. Carson ¹ , Xueci Chen ¹ , Charles F. McTiernan ¹ , Bima Hasjim ¹ , Malabika Sen ² , Jennifer R. Grandis ² , Floridella S. Villanueva ¹ ¹ Dept. of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, USA, ² Dept. of Otolaryngology, University of Pittsburgh, Pittsburgh, Pennsylvania, USA		3A-2 Spectroscopic photoacoustic microscopy in the 1064 - 1300 nm range using a pulsed multi-color source based on stimulated Raman scattering Takashi Buma ¹ ¹ ECE Department, Union College, USA		4A-2 A Rapid Approach to Speckle Noise Reduction in Ultrasonic Non-Destructive Evaluation Using Matched Filters Minghui Li ¹ , Gordon Hayward ² ¹ School of Engineering, University of Glasgow, Glasgow, United Kingdom, ² Alba Ultrasound Ltd, Glasgow, United Kingdom		5A-2 Ultrasonically induced dynamics of fluid interfaces in gravity and microgravity environments Andrei Brysev ¹ , Pavel Shirkovskiy ² , Farzam Zoushtigh ² , Vladimir Preobrazhensky ^{2,3} , Philippe Pernod ² ¹ International Laboratory LEMAC/LICS - Wave Research Center, Prokhorov General Physics Institute (RAS), Moscow, Russian Federation, ² International Laboratory LEMAC/LICS - Institute of Electronics, Microelectronics and Nanotechnology, Villeneuve d'Ascq Cedex, France, ³ Wave Research Center, Prokhorov General Physics Institute (RAS), Russian Federation		6A-2 A Fully Matched Quadplexer Based on BAW-SAW Technology for the LTE-A Carrier Aggregation Application Mingdong Li ¹ , Andreas Link ¹ , Mohamed El-Hakki ¹ , Tae-young Kim ¹ , Danish Kalim ¹ , Bert Schumann ¹ , Robert Aigner ² ¹ TruQuint Semiconductor, Munich, Germany, ² TruQuint Semiconductor, Apopka, USA		7A-2 Development of Focused IVUS Transducer Using PMN-0.33PT Single Crystal Feifei Guo ^{1,2} , Cheng Liu ¹ , Yaoheng Yang ¹ , Yan Chen ¹ , Bin Yang ² , Jiyun Dai ² , Lei Sun ¹ ¹ Interdisciplinary Division of Biomedical Engineering, Faculty of Engineering, The Hong Kong Polytechnic University, HONG KONG, China, People's Republic of ² Department of Physics, Condensed Matter Science and Technology Institute, Harbin Institute of Technology, Harbin, Heilongjiang, China, People's Republic of ³ Department of Applied Physics, Faculty of Applied Science and Textiles, The Hong Kong Polytechnic University, HONG KONG, China, People's Republic of

11:00 am	1A-2 Phase rotation in correlation coefficient filtering and multi-pass tracking for 3-D speckle echocardiography Emily Wong¹, Colin Compas², Ben Lin³, Albert Simas⁴, James Duncan⁵, Matthew O'Donnell¹ ¹University of Washington, USA, ²Yale University, USA	2A-3 Neointima reduction with IVUS and rapamycin microbubbles: <i>in vivo</i> swine model results Joseph P. Kilroy¹, Ali H. Dhanidivala¹, Brian R. Wamhoff², Alexander L. Klibanov³, Douglas K. Bowles⁴, John A. Hossack¹ ¹Department of Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA, ²HemoShear, LLC, Charlottesville, Virginia, USA, ³Department of Medicine - Cardiovascular Division, University of Virginia, Charlottesville, Virginia, USA, ⁴Department of Biomedical Sciences, University of Missouri, Columbia, Missouri, USA	3A-3 Simulation and experimental detection of radiation-induced acoustic waves from a radiotherapy linear accelerator Susannah Hickling¹, Pierre Leger², Issam El Naqa² ¹McGill University, Montreal, Quebec, Canada, ²McGill University Health Centre, Montreal, Quebec, Canada	4A-3 Air-based Synthetic Aperture Sonar Tomography using Compressive Sensing Josiah Judeani¹, Andrew Wilkison² ¹Material Science and Manufacturing, Council for Scientific and Industrial Research (CSIR), Pretoria, Gauteng, South Africa, ²Electrical Engineering, University of Cape Town, Cape Town, Western Cape, South Africa	5A-3 Radiation force-induced cavitation cloud migration in high intensity focused ultrasound Bjoern Gerold¹, Keith Johnston¹, Paul Prentice¹ ¹Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom	6A-3 Quality Factor Enhancement in Lamb Wave Resonators Utilizing Butterfly-Shaped AIN Plates Jie Zou¹, Albert P. Pisano² ¹Department of Mechanical Engineering, University of California, Berkeley, Berkeley, California, USA, ²Department of Mechanical and Aerospace Engineering, Department of Electrical and Computer Engineering, University of California, San Diego, USA	7A-3 Vacuum Deposition of Mass-Spring Matching Layers for High-Frequency Ultrasound Transducers Jeremy Brown¹, Srikantha Sharma², Andra Bezanon¹, Sandy Cochran², Rob Adamson¹ ¹Biomedical Engineering, Dalhousie University, Canada, ²Dundee University, United Kingdom
11:15 am	1A-3 Single-Heartbeat Myocardial Elastography in human subjects with Coronary Artery Disease Julien Grondin¹, Alok Gambhir², Stanley J. Otkavinski¹, Ethan Bunting¹, Elisa E. Konofagou^{1,3} ¹Department of Biomedical Engineering, Columbia University, New York, NY, USA, ²Department of Medicine, Columbia University, New York, NY, USA, ³Department of Radiology, Columbia University, New York, NY, USA	2A-4 High-Speed Fluorescence Imaging of Ultrasound-Triggered Drug Release from Phase-Change Droplets Tsung-Lun Chang¹, Shih-Tsung Kang¹, Chih-Kuang Yeh¹ ¹Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan	3A-4 Iterative photoacoustic reconstruction in heterogeneous media using the Kaczmarz method Hans-Martin Schwab¹, Martin F. Beckmann², Georg Schmitz² ¹Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany	4A-4 Multi-layer Ultrasonic Imaging for Non-destructive Testing Applications Nasim Moalleml¹, Shahram Shahbazzapanahi¹ ¹University of Ontario Institute of Technology, Canada	5A-4 Fabrication of an optical lens array using ultraviolet light and ultrasound vibration Satoki Taniguchi^{1,2}, Daisuke Koyama^{2,3}, Kenaro Nakamura⁴, Mami Matsukawa^{2,3} ¹Faculty of Life and Medical Sciences, Doshisha University, Kyoto, Japan, ²Wave Electronics Research Center, Doshisha University, Japan, ³Faculty of Science and Engineering, Doshisha University, Kyoto, Japan, ⁴Precision and Intelligence Laboratory, Tokyo Institute of Technology, Yokohama, Japan	6A-4 Low Jitter FBAR based chip scale precision oscillator Suresh Sridaran¹, Julie Fouquet¹, Reed Parker¹, Martha Small¹, Steve Ortiz¹, Frank Bi¹, Stephen R. Gilbert¹, Lori Callaghan¹, Rich Ruby¹ ¹Avago Technologies, USA	7A-4 Angled and Press-Focused 40 MHz PMN-PT Single Element Transducers for Intravascular Ultrasound Imaging Hyung Ham Kim¹, Sangpil Yoon¹, Nestor Cabrera-Munoz¹, Jay Williams¹, Bong Jin Kang¹, Changhan Yoon¹, K. Kirk Shung¹ ¹Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA
11:30 am	1A-4 A New Ultrasound Imaging Indicator for Evaluating Vulnerability of Carotid Atherosclerotic Plaques Lingyun Huang¹, Xihai Zhao², Manwei Huang², Jianwen Luo² ¹Philips Research China, China, People's Republic of China, ²Department of Biomedical Engineering, Tsinghua University, China, People's Republic of China, ³Ultrasound Department, China Meitan General Hospital, China, People's Republic of China	2A-5 Dual thermal therapeutic method for selective treatment of deep-lying tissue Heamin Kim¹, Jin Ho Chang^{1,2} ¹Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of, ²Department of Electronic Engineering, Sogang University, Seoul, Korea, Republic of	3A-5 Improved contrast in laser-diode-based photoacoustic images with short-lag spatial coherence beamforming Muyinatu Lediju Bell¹, Xiaoyu Guo¹, Hyun-jae Kang¹, Alexis Cheng¹, Behnoosh Tavakoli¹, Emad Boctor¹ ¹Johns Hopkins University, USA	4A-5 Simulation of Full-Angle Ultrasound Process Tomography with Two-Phase Media Using a Ray-Tracing Technique Sascha Langenecker¹, Thomas Musch¹, Helmut Erment¹, Michael Vogt¹ ¹Dept. of Electrical Engineering and Information Technology, Ruhr-University Bochum, Germany	5A-5 Attenuation of ultrasound in heterogeneous media by relaxation processes Allan Pierce¹ ¹Retired, East Sandwich, Massachusetts, USA	6A-5 Manufacturing and Reliability of Chip-Scale Packaged FBAR Oscillators Stephen Gilbert¹, Martha Small¹, Reed Parker¹, Lori Callaghan¹, Steve Ortiz², Frank Bi², Lexie Kekoa¹, Rich Ruby¹, Jackie Tan¹, Norshahz Bin Alias³, Gerald Ong¹, Choon Chow Chien³ ¹Avago Technologies, San Jose, CA, USA, ²Avago Technologies, Fort Collins, CO, USA, ³Avago Technologies, Penang, Malaysia	7A-5 The Evolution and Applications of High Frequency Ultrasound Transducers Stuart Foster¹ ¹Sunnybrook Health Sciences Centre and Dept of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada

Oral --- Thursday, September 4, 2014

10:30 am - 12:00 pm

11:45 am

1A-5 A Pilot Study on AAA Growth vs. Ultrasound Elastography

Tim M. Vonk¹, V. Lai Nguyen^{2,3},
 Goert-Willem H. Schurink², Frans
 Lopata¹
¹Biomedical Engineering,
 Eindhoven University of
 Technology,
 Netherlands, ²Vascular Surgery,
 Maastricht University Medical
 Center, Netherlands, ³Radiology,
 Erasmus MC, Netherlands

2A-6 In-vivo HIFU atrial and ventricular ablation and monitoring using a dual-mode high-frequency intracardiac catheter

Wojciech Kwiecinski¹, Jean
 Provost¹, Mathieu Legros², An
 Nguyen-Dinh², Rémi Dubois³,
 Frédéric Sacher², Rémi Dubois³,
 Mickaël Tanter¹, Mathieu Pernot¹
¹Institut Langevin, ESPCI
 ParisTech, CNRS UMR7587,
 INSERM U797, Paris,
 France, ²VERMON SA, Tours,
 France, ³LJRYC Institute,
 INSERM 1045, Université de
 Bordeaux, Bordeaux, France

3A-6 Photoacoustic Clutter Reduction Using Short-Lag Spatial Coherence Weighted Imaging

Erwin Allen¹, Michael Jaeger²,
 Jeffrey C Bamber¹
¹The Joint Department of Physics
 and CRUK Cancer Imaging
 Centre, The Institute of Cancer
 Research and the Royal Marsden
 NHS Foundation Trust, London,
 United Kingdom, ²Institute of
 Applied Physics, University of
 Bern, Bern, Switzerland

4A-6 A framework for the optimisation of ultrasonic phased array inspections using statistical forward modelling

Youssef Huneida¹, Paul D.
 Wilcox¹, Michael D. Todd²,
 Bruce W. Drinkwater¹
¹University of Bristol, United
 Kingdom, ²The University of
 California, San Diego, USA

5A-6 Stress and Temperature Compensated Orientations for Thickness-Shear Langasite Resonators for High Temperature High Pressure Environment

Mihir Patel¹, Bikash Sinha¹
¹Mathematics and Modeling
 Department, Schlumberger-Doll
 Research, Cambridge, MA, USA

6A-6 Effects of FBAR Resonator Dissipated Power on Discrete Oscillator Phase Noise

Reed Parker¹, Lori Callaghan¹,
 Frank Bi¹, Steve Ortiz¹, Frank
 Ha¹, Nitesh Kumbhat¹, Jeff
 LaTourrette¹, Mark Unkrich¹,
 Choon Choue Chen¹, Khang Hoe
 Gerald Ong¹
¹Avago Technologies, Inc., USA

Oral --- Thursday, September 4, 2014					
1:00 pm - 2:30 pm	Session 1B. MCA: Molecular Imaging Chair: Paul Dayton University North Carolina/NCSCU, Chapel Hill	Session 2B. MEL: Cardiovascular Elasticity Imaging Chair: Jan D'hooge Catholic University of Leuven	Session 3B. MBB: Beamforming I Chair: Pat Li National Taiwan University, Taipei	Session 4B. Structural Health Monitoring Chair: Paul Wilcox University of Bristol	Session 5B. Models in Physical Acoustics Chair: Andreas Mayer HS Offenburg - University of Applied Sciences
Grand Ballroom					
1:00 pm	7B-1 CD276 Expression in Human Breast Cancer Tissues and Early Detection Evaluation using Ultrasound Molecular Imaging in A Transgenic Mouse Model Sunitha Bachawal ¹ , Kristin Jensen ¹ , Anelie Lutz ¹ , Ferdinand Kneiding ¹ , Katherine Wilson ¹ , Lu Tian ¹ , Juergen Willmann ¹ ¹ Stanford University, Stanford, CA, USA	2B-1 Full 3D ultrafast shear wave imaging jean-luc gennisson ¹ , jean provost ¹ , clement papadacci ¹ , thomas defieux ¹ , Juan-Esteban Arango Ossa ¹ , marion imbault ¹ , mathieu pernot ¹ , mickael tanter ¹ ¹ ESPCI ParisTech CNRS UMR7587 INSERM U979, Institut Langevin, PARIS, France	3B-1 Recursive Fourier-Based High-Frame Rate Imaging Jian-yu Lu ¹ ¹ Bioengineering, The University of Toledo, Toledo, Ohio, USA	4B-1 Efficient Monitoring and Inspection of Plate-like Structures with Ultrasonic Guided Waves Jemifer Michaels ¹ ¹ School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA	5B-1 A new Use of the Elastodynamic Reciprocity Theorem Jan Achenbach ¹ , Oluwaseyi Balogun ¹ ¹ Northwestern University, USA
Waldorf					
1:15 pm	7B-2 Feasibility and Reproducibility of Three-dimensional Ultrasound Molecular Imaging of Tumor Angiogenesis using a Clinical Matrix Array Ultrasound Transducer Hualijun Wang ¹ , Osamu Kaneko ¹ , Vijay Shandasani ² , Lu Tian ³ , Dimitre Hristov ⁴ , Juergen Willmann ¹ ¹ Department of Radiology, Molecular Imaging Program at Stanford, Stanford University, Stanford, USA, ² Philips Healthcare, Bothell, USA, ³ Department of Health, Research & Policy, Stanford University, Stanford, USA, ⁴ Department of Radiation Oncology, Stanford University, Stanford, USA	2B-2 In Vivo Transthoracic Measurement of End-diastolic Left Ventricular Stiffness with Ultrasound Shear Wave Elastography: A Pilot Study Pengfei Song ¹ , Matthew W. Urban ¹ , Shigao Chen ¹ , Armando Manduca ¹ , Heng Zhao ¹ , Ivan Z. Nenadic ¹ , Sorin V. Pislaru ² , Cristina Pislaru ¹ , James F. Greenleaf ¹ ¹ Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, ² Cardiovascular Diseases, Mayo Clinic College of Medicine, Rochester, Minnesota, USA	3B-2 Beamforming strategies for plane wave vascular elastography Prashant Verma ¹ , Jollannah Kohl ¹ , Steven Hunzicker ¹ , Rohit Nayak ¹ , Marvin Doyley ¹ ¹ Electrical and Computer Engineering, University of Rochester, Rochester, NY, USA		
Boulevard					
Marquette					
Williford A					
Williford B					
Williford C					
				6B-1 Full-Field Characterization of Surface Vibrations in Microacoustic Components by Supercontinuum Laser Stroboscopic White-Light Interferometry Lauri Lipiäinen ¹ , Kimmo Kokkonen ¹ , Steffen Novotny ² , Igor Shavrin ² , Hanne Ludvigsen ² , Matti Kaivola ¹ ¹ Department of Applied Physics, Aalto University School of Science, Espoo, Finland, ² Department of Micro and Nanosciences, Aalto University School of Electrical Engineering, Espoo, Finland	7B-1 Bandwidth and Sensitivity Optimization in CMUTs for Airborne Applications Nikhil Apte ¹ , Kwan Kyu Park ² , Amin Nikoozadeh ¹ , Butrus T. Khuri-Yakub ¹ ¹ Edward L. Ginzton Laboratory, Stanford University, Stanford, California, USA, ² Hanyang University, Korea, Republic of
				6B-2 Linear and non linear acoustic wave intensity mapping by micro-Brillouin spectroscopy Brice Vincent ¹ , omar elmazria ¹ , Keltouma Ali Aissa ¹ , Didier Rouxel ¹ ¹ Institut Jean Lamour, UMR 7198, Université de Lorraine - CNRS, Vandœuvre les Nancy, France	7B-2 Rotation Capacitive Micromachined Ultrasonic Transducers Michael Kuntzman ¹ , Neal Hall ¹ ¹ Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, USA

1:30 pm	1B-3 Ultrasound Molecular Imaging using P- and E-selectin targeted microbubbles in a murine chronic inflammatory bowel disease model Steven Machter ¹ , Ferdinand Knieling ¹ , Thierry Bettinger ² , Richard Luong ³ , Lu Tian ⁴ , Huijun Wang ⁵ , Sumitha Bachawal ¹ , John Higgins ⁵ , Juergen Willmann ¹ ¹ Radiology, Stanford University, Stanford, California, USA; ² Bracco Imaging, Switzerland; ³ Stanford University, USA	2B-3 Ultrafast Harmonic Compounding for cardiac shear wave imaging Mafalda Correia ¹ , Simon Chatelet ¹ , Clément Papadacci ¹ , Jean Provost ¹ , Olivier Villenain ¹ , Mickael Tanter ¹ , Mathieu Pernot ¹ ¹ INSITU Languevin, ESPCI ParisTech, CNRS UMR 7587, INSERM U979, Université Paris 7, France	3B-3 Nonlinear Compressibility and Mass Density Reconstruction under Plane Wave Excitation using Raw Data with Noise Markus Hesse ¹ , Georg Schmitz ² ¹ Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany	4B-2 Calibration-Free Lamb Wave Source Localization for Structural Health Monitoring Joel Harley ¹ , José M.F. Moura ¹ ¹ Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA	5B-3 A wave-vector-frequency-domain method for linear/nonlinear wave modeling in heterogeneous media Yun Jing ¹ ¹ Mechanical Engineering, NC State University, Raleigh, NC, USA	6B-3 Evaluation of Viscoelastic Properties of Protein Layers by RAMNE-Q Biosensors Tomohiro Shigawa ¹ , Hirotsugu Ogi ¹ , Fumihito Kato ¹ , Masahiko Hirao ¹ ¹ Department of Mechanical Science and Bioengineering, Graduate School of Engineering, Osaka University, Toyonaka, Osaka, Japan	7B-3 The Influence of Eliminating Fixed Electrode from an Air-Coupled Dual Deflectable Membrane Capacitive Micromachined Ultrasonic Transducer Tahereh Arezoo Ennadi ¹ , Douglas Buchanan ¹ ¹ Electrical and Computer Engineering, University of Manitoba, Winnipeg, Manitoba, Canada
1:45 pm	1B-4 Improved Ultrasound-Mediated Molecular Imaging of Previously Ischemic Mouse Myocardium Using Dual-Targeted Microbubbles and Constant Infusion Dan Lin ¹ , Yikui Tian ¹ , Alexander Klibanov ¹ , Brent French ¹ , John Hossack ¹ ¹ University of Virginia, USA	2B-4 M-mode ARFI Imaging Demonstrates the Effect of Coronary Perfusion on Cardiac Stiffness Maryam Vajdani-Jahromi ¹ , Annette Kiplagat ¹ , Gregg Trahey ¹ , Patrick Wolf ¹ ¹ Biomedical Engineering, Duke University, USA	3B-4 High spatio-temporal resolution imaging of the heart using multi-line transmit beam forming: experimental validation and in-vivo application Ling Tong ¹ , Alessandro Ranalli ² , Piero Tortoli ³ , Jan Dhoege ⁴ ¹ Dept. of Cardiovascular Imaging, KU Leuven, Leuven, Belgium; ² Dept. of Information Engineering, University of Florence, Firenze, Italy	4B-3 Passive flaw detection and localization in thin plate from ambient noise cross-correlation Lynda Chehami ^{1,2} , Julien de Rosny ¹ , Claire Prada ¹ , Emmanuel Moulin ³ ¹ Institut Langevin, ESPCI-CNRS, UMR 7587, Paris, France; ² EMN Valenciennes et du Hainaut-Cambrésis, Valenciennes, France	5B-4 Acoustic hyperfocusing in solid metamaterials for subwavelength imaging Badreddine Asouar ¹ , Xiaoming Zhou ¹ , Mourad Oudich ¹ ¹ CNRS - University of Lorraine, France	6B-4 Distinguishing chemicals using CMUT chemical sensor arrays and artificial neural networks Quintin Stedman ¹ , Kwan Kyu Park ² , Butrus T. Khuri-Yakub ¹ ¹ Stanford University, Stanford, California, USA; ² Hanyang University, Seoul, Korea, Republic of	7B-4 Polymeric capacitive transducers and arrays for gas coupled operation Richard O'Leary ¹ , Gerald Harvey ² ¹ University of Strathclyde, United Kingdom; ² Weidinger Associates, Glasgow, United Kingdom
2:00 pm	1B-5 Ultrasound for Molecular Imaging and Guided Drug Delivery Juergen Willmann ¹ ¹ Stanford University, Stanford, CA, USA	2B-5 In Vivo Results Comparing ARFI-derived Plaque Stiffness With Composition Determined Using an MRI Gold Standard in Humans Joshua Doherty ¹ , Jeremy Dahl ¹ , Peter Kranz ² , Nada El Hussein ³ , Hing-Chiu Chang ⁴ , Nan-kuai Chen ⁵ , Jason Allen ¹ , Gregg Trahey ^{1,2} ¹ Biomedical Engineering, Duke University, Durham, NC, USA; ² Radiology, Duke University Medical Center, Durham, NC, USA; ³ Neurology, Duke University Medical Center, Durham, NC, USA; ⁴ Community and Family Medicine, Duke University Medical Center, Durham, NC, USA	3B-5 Ultrafast echocardiography using full aperture diverging circular beams Daniel Posada ¹ , Guy Cloutier ¹ , Damien Garcia ¹ ¹ University of Montreal Hospital, Montreal, Canada	4B-4 Estimation of the Flexural Stiffness of Thin Plates Using a Single Low-Cost Passive Sensor Erika Svansson ¹ , Tugba Özge Onur ² , Johan E. Carlsson ¹ ¹ Computer Science, Electrical and Space Engineering, Lulea University of Technology, Sweden; ² Electrical and Electronics Engineering, Bülent Ecevit University, Turkey	5B-5 Elastic switch composed of a 1D phononic crystal with a nonlinear resonator Pierre-Yves Guerdet ^{1,2} , Olivier Bou Matar ¹ , Jérôme Vasseur ³ , Pierre Deymier ² ¹ International Associated Laboratory LEMAC: IEMN, UMR CNRS 8520, PRES Lille Nord de France, Ecole Centrale de Lille, 59652 Villeneuve d'Ascq, France; ² Department of Materials Science and Engineering, The University of Arizona, Tucson, Arizona, USA; ³ Institut d'Electronique, de Microélectronique et de Nanotechnologie (IEMN, UMR CNRS 8520), PRES Lille Nord de France, 59652 Villeneuve d'Ascq, France	6B-5 Vacuum pressure sensor available beyond atmospheric pressure using leaky attenuation of ball surface acoustic wave sensor Toshihiro Tsuji ¹ , Toru Ozumi ¹ , Nobuo Takeda ¹ , Tsunao Ohgi ² , Takayuki Yamagisawa ² , Shingo Akao ^{3,4} , Noritaka Nakaso ⁵ , Kazushi Yamakita ¹ ¹ Tohoku University, Japan; ² Toppan Printing Co. Ltd., Japan	7B-5 Fabrication and Characterization of Water-Bonded cMUT Arrays dedicated to Ultrasound-Image-guided FUS Dominique Gross ¹ , Caroline Coutier ² , Mathieu Legros ³ , Marie Perroteau ¹ , Dominique Ceron ¹ ¹ Université François-Rabelais de Tours, GREMAN, UMR-CNRS 7347, Tours, France; ² CEA, LETI, MINATEC Campus, Grenoble, France; ³ Vernon S.A., Tours, France

1:00 pm - 2:30 pm		Oral --- Thursday, September 4, 2014				
2:15 pm	2B-6 Carotid plaque assessment using non-invasive shear strain elastography	Maarten H.G. Heusinkveld ^{1,2} , Marie-Hélène Roy-Cardinal ¹ , Yang Ju ¹ , Zhao Qin ¹ , Richard G.P. Lopata ¹ , Gilles Soulez ¹ , Guy Cloutier ¹ ¹ University of Montreal Hospital, Canada; ² Eindhoven University of Technology, Netherlands	3B-6 Ultrasound Fourier Slice Imaging: a novel approach for ultrafast imaging technique	4B-5 Generation of ultrasonic edge waves for localised inspection of composite plate stiffeners	5B-6 Highly Tunable Fabry-Perot resonators and filters using piezoelectric phononic crystals	6B-6 Design of fast and high sensitivity Pirani pressure sensor based on S0 lamb mode measurement of heater temperature
		Olivier Bernard ¹ , Miaomiao Zhang ¹ , François Varray ¹ , Jean-Philippe Thiran ¹ , Hervé Liebgott ¹ , Denis Triboulet ¹ ¹ CREATIS; CNRS UMR5220; Inserm U630; University of Lyon; INSA-Lyon; University of Lyon1, Villeurbanne, France; ² Ecole Polytechnique fédérale de Lausanne (EPFL), Signal Processing Laboratory (LTS5), Switzerland	Charles Courtney ¹ , Harry Chui ¹ ¹ Mechanical Engineering, University of Bath, Bath, United Kingdom	Bertrand Dubus ¹ , Marie-Fraise Ponge ¹ , Jérôme Vasseur ¹ , Mai Phamhir ¹ , Anne-Christine Hladky ¹ ¹ ISEN Department, IEMN UMR 8520 CNRS, Lille, France; ² Thales Research Technology, Palaiseau, France	Abdelkrim Tuli ¹ , Mohamed Moutaouakil ¹ , Jean Claude Gerbedon ¹ , Romain Viard ¹ , Thibault Roux Marchand ¹ , Frédéric Sarry ² , Olivier Boumatar ¹ , Alain Merlen ³ , Omar Elmazria ² , Philippe Pernod ¹ ¹ LIA LEMAC/LICS - IEMN UMR CNRS 8520, ECLille - USTL, PRES Université Lille Nord de France, Cite, France; ² Université de Lorraine, Institut Jean Lamour, UMR CNRS 7198, France; ³ ONERA, chemin de la hunière 91123, Palaiseau, France, France	Lawrence Wong ¹ , Shuai Na ¹ , Albert Chen ¹ , John Yeow ¹ ¹ University of Waterloo, Canada

3:30 pm - 5:00 pm		Oral --- Thursday, September 4, 2014					
Session 1C. MCA: Outlook for Contrast Imaging	Session 2C. MEL: Elastography: Clinical Applications	Session 3C. MTC: Low Frequency Tissue Characterization	Session 4C. Materials Characterization	Session 5C. Nonlinear Acoustics 1	Session 6C. Characterization of materials	Session 7C. Micromachined Ultrasound Transducer Modeling	
Chair: James Miller Washington University, St. Louis	Chair: Mickael Tanter INSERM, Paris	Chair: William O'Brien Univ. of Illinois, Urbana- Champaign	Chair: Lawrence Kessler Sonoscan, Inc.	Chair: John Larson Avago Technologies	Chair: Karl Wagner TDK Corporation	Chair: Omer Oralkan North Carolina State University	
Grand Ballroom		Boulevard		Marquette		Williford C	
Waldorf		Boulevard		Marquette		Williford B	
1C-1 Update on Contrast Ultrasound: Diagnostic and Therapeutic Applications Steven Feinstein ¹ ¹ Cardiology, Rush University Medical Center, Chicago, USA	2C-1 Intra-operative quantitative measurement of brain tumour stiffness and intracranial pressure assessment using ultrasound shear wave elastography marion imbault ¹ , dorian chauvet ² , laurent capelle ² , charlie demeas ¹ , mathieu mossad ¹ , jean- luc gemisson ¹ , mickael tanter ¹ ¹ ESPCI ParisTech CNRS UMR7587 INSERM U979, Institut Langevin, PARIS, France, ² Hôpital La Pitié Salpêtrière, Service de Neurochirurgie, paris, France	3C-1 Characterizing the Pulley Tissues of Trigger Finger with Statistical Parameters of Ultrasonic Backscattering Signals Yi-Hsun Lin ¹ , Tai-Hua Yang ² , Shyh-Hau Wang ³ , Hsiao-Bai Yang ³ , Fong-Chin Su ² ¹ Computer Science and Information Engineering, National Cheng Kung University, Taiwan, ² Biomedical Engineering, USA, ³ Biomedical Engineering, National Cheng Kung University, Taiwan, ³ Ton Yen General Hospital, Taiwan	4C-1 Effects of Graphite Porosity and Anisotropy on Measurements of Elastic Modulus using Laser Ultrasonics James B Spicer ¹ , Fan W Zeng ¹ , Karen Han ¹ , Lauren R Olaso ¹ , Nidia C Gallego ² , Cristian I Contescu ² ¹ Materials Science and Engineering, The Johns Hopkins University, Baltimore, MD, USA, ² Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA	5C-1 Reduction of frequency deviations in quartz resonators by electric potentials of plate electrodes Jian Feng Chen ¹ , Yook-Kong Yong ¹ , Randall Kubena ² , Deborah Kirby ² ¹ Civil and Environmental Engineering, Rutgers University, Piscataway, New Jersey, USA, ² HRL Laboratories, Malibu, CA, USA	6C-1 Determination of Full Material Constants of ScAin Thin Film from Bulk and Leaky Lamb Waves in MEMS-based Samples Akira Komro ¹ , Michio Kadota ¹ , Jun-ichi Kushibiki ¹ , Yui Ohashi ¹ , Masayoshi Esashi ¹ , Yasuo Yamamoto ^{1,2} , Shuji Tanaka ¹ ¹ Tohoku University, Japan, ² DENSO CORPORATION, Japan	7C-1 Simulation model for CMUT with rapid structure fluid interaction in time domain Markus Klemm ¹ , Anartz Unamuno ¹ ¹ Fraunhofer IPMS, Dresden, Germany	
3:30 pm							
3:45 pm							
	2C-2 Quantitative Ultrasound Spectroscopy and Elastography: Assessing Chemotherapy Response in Breast Cancer Patients by Monitoring Alterations in Tumour Bio- Acoustic and Bio- Mechanical Properties Ali Sadeghi-Naini ^{1,2} , Gregory Cramola ^{1,2} ¹ Imaging Research Radiation Oncology, Sunnybrook Health Sciences Centre, Toronto, ON, Canada, ² Medical Biophysics Radiation Oncology, University of Toronto, Toronto, ON, Canada	3C-2 3D Ultrasound Backscatter Tensor Imaging (BTI): analysis of the full spatial coherence on a 2D matrix array probe Clement Papadacci ¹ , Jean Provost ¹ , Jean-Luc Gernisson ¹ , Juan-Esteban Arango Ossa ¹ , Marion Imbault ¹ , Mathias Fink ¹ , Mickael Tanter ¹ , Mathieu Pernot ¹ ¹ Institut Langevin-ESPCI ParisTech, CNRS UMR 7587, INSERM U979, Paris 7, Paris, France	4C-2 Studies on Frequency Selective Iterative Deconvolution Algorithms Applied to Concrete Imaging and Characterization Alberto Rodriguez ² , Svilainis Linas ¹ , Addison Salazar ¹ , Luis Vergara ¹ , Darius Klybaitas ¹ , Dobilas Laukonis ² ¹ Communications Engineering, Universidad Miguel Hernández, Elche, Alicante, Spain, ² Signal Processing, Kaunas University of Technology, Kaunas, Lithuania, ³ Institute of Telecommunications and Multimedia Applications, Polytechnical University of Valencia, Valencia, Valencia, Spain	5C-2 Dynamic Nonlinear Probe Utilizing Traveling Multiwave Interaction Thomas Szabo ¹ , Thomas Gallot ² , Alison Malcolin ² , Dan Burns ² , Stephen Brown ² , Michael Fehler ² ¹ Biomedical Engineering, Boston University, Boston, MA, USA, ² Earth Resources Laboratory, Massac-husets Institute of Technology, Cambridge, MA, USA	6C-2 A refined method to determine the elastic constants of PVD SiO ₂ thin films Matthias Kuapp ^{1,2} , Philipp Jäger ¹ , Werner Ruile ¹ , Ingo Bley ¹ , Leonhard M. Reindl ² ¹ TDK Corporation, Munich, Germany, ² Department of Microsystems Engineering IMTEK, University of Freiburg, Freiburg, Germany	7C-2 Resonances and Nonuniformities in CMUT Elements or Arrays Abdullah Atalar ¹ , Hayretin Koymen ¹ ¹ Electrical and Electronics Engineering, Bilkent University, Ankara, [Please select], Turkey	

4:00 pm	1C-2 4D Harmonic and Subharmonic Contrast-Enhanced Ultrasound for the Characterization of Breast Masses: Update on a Multi-center Prospective Study John Eisenbrey ¹ , Priscilla Machado ¹ , Anush Sridharan ^{1,2} , Haydee Ojeda-Fournier ¹ , Amina Wilkes ¹ , Alexander Sevrukov ¹ , Robert Mattray ³ , Flemming Forsberg ¹ ¹ Department of Radiology, Thomas Jefferson University, USA; ² Department of Electrical and Computer Engineering, Drexel University, USA; ³ Department of Radiology, University of California, San Diego, USA	2C-3 Comparison of SWS Estimates in Ex vivo non-pregnant cervix vs. In vivo pregnant cervix Lindsey Carlson ¹ , Helen Felovich ^{1,2} , Mark Palmer ^{1,3} , Alejandro Munoz Del Rio ¹ , Timothy Hall ¹ ¹ Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA; ² Maternal Fetal Medicine, Intermountain Healthcare, Provo, Utah, USA; ³ Biomedical Engineering, Duke University Pratt School of Engineering, Durham, North Carolina, USA	3C-3 Acousto-electric speckle pattern in Lorentz force electrical impedance tomography Pol Grasland-Mongrain ¹ , François Destremes ¹ , Jean-Martial Maré ² , Rémi Souchoir ² , Stefan Catheline ² , Jean-Yves Chapelon ² , Cyril Lafon ² , Guy Cloutier ¹ ¹ University of Montreal Hospital, Canada; ² University Claude-Bernard Lyon 1, France	4C-3 Numerical and analytical investigation of the influence of porosity on the frequency response of GLARE composite Istvan Veres ^{1,2} , Robert A. Smith ² ¹ Recendo, Linz, Austria; ² Faculty of Engineering, University of Bristol, Bristol, United Kingdom	5C-3 Nonlinear shear wave propagation in water-saturated granular media Javier Bru ¹ , Jean-luc gémisson ¹ , mathias fnk ¹ , mickael lanter ¹ , xiaoping jia ^{1,2} ¹ ESPCI ParisTech CNRS UMR7587 INSERM U979, Institut Langevin, PARIS, France; ² Université Paris-Est, Marne la vallée, France	6C-3 Highly Piezoelectric co-doped AlN Thin Films for Wideband FBAR applications Tsuyoshi Yokoyama ¹ , Yoshiaki Iwazaki ¹ , Yosuke Onda ¹ , Tokihiro Nishihara ¹ , Yuichi Sasajima ¹ , Masanori Ueda ¹ ¹ Taiyo Yuden Co., Ltd, Japan	7C-3 An Equivalent Circuit Model for Curved Piezoelectric Micromachined Ultrasonic Transducers with Spherical-shape Diaphragms Sina Akhbari ¹ , Firas Sammoura ^{1,2} , Liwei Lin ¹ ¹ Mechanical Engineering, UC Berkeley, Berkeley, CA, USA; ² Electrical Engineering and Computer Science, Masdar Institute, Abu Dhabi, United Arab Emirates	7C-4 Multiple Electrode Piezoelectric Micromachined Ultrasound Transducers with enhanced Electromechanical Coupling Firas Sammoura ^{1,2} , Liwei Lin ² ¹ Electrical Engineering and Computer Science, Masdar Institute of Science and Technology, Abu Dhabi, Abu Dhabi, United Arab Emirates; ² Mechanical Engineering, UC Berkeley, Berkeley, CA, USA
4:15 pm	1C-3 Characterization of Renal Masses with Harmonic and Subharmonic Contrast-Enhanced Ultrasound John Eisenbrey ¹ , Priscilla Machado ¹ , Colette Shaw ¹ , Andrej Lyshchik ¹ , Cosmas Lallas ² , Edouard Traubis ² , Daniel Merton ¹ , Traci Fox ³ , Ji-Bin Liu ¹ , Daniel Brown ¹ , Flemming Forsberg ¹ ¹ Department of Radiology, Thomas Jefferson University, USA; ² Department of Urology, Thomas Jefferson University, USA; ³ Department of Radiological Sciences, Thomas Jefferson University, USA	2C-4 Sensitivity of 3D ARFI In vivo imaging in Prostate Cancer (PCA) Detection Zachary Miller ¹ , Mark Palmer ¹ , Tyler Glass ¹ , Stephen Rosenzweig ¹ , Thomas Polascik ² , Andrew Buck ³ , John Madden ¹ , Kathryn Nightingale ¹ ¹ Biomedical Engineering, Duke University, Durham, NC, USA; ² Department of Surgery, Duke University Medical Center, USA; ³ Department of Pathology, Duke University Medical Center, USA	3C-4 Quantitative Ultrasound Backscatter Parameters in the Human Cervix Quinton Guerrero ¹ , Lindsey Carlson ¹ , Helen Felovich ^{1,2} , Timothy Hall ¹ ¹ Medical Physics Department, University of Wisconsin-Madison, Madison, WI, USA; ² Maternal Fetal Medicine Department, Intermountain Healthcare, Provo, Utah, USA	4C-4 Response of ultrasound to aluminum alloys sensitization Gabriela Petculescu ¹ , Chukwuonye Chukwuonye ¹ ¹ University of Louisiana, USA	5C-4 Estimation of Depletion- or Injection-Induced Changes in Reservoir Stresses using Time-lapse Sonic Data Bikash Sinha ¹ , Ergun Simsek ² ¹ Schlumberger-Doll Research, Cambridge, MA, USA; ² Department of Electrical and Computer Engineering, The George Washington University, Washington, DC, USA			

Oral --- Thursday, September 4, 2014					
3:30 pm - 5:00 pm					
4:30 pm	1C-4 Plane-wave contrast imaging in transplanted kidney patients Matthew Bruce ¹ , Kejian Wang ² , Thomas Frappart ¹ , Jean-Michel Correas ^{2,3} , Thanasis Loupas ¹ , Aline Criton ¹ , Jeremy Bercoff ¹ , Olivier Couture ² , Mickael Tanter ² ¹ Supersonic Imagine, Aix en Provence, France; ² Institut Languevin (ESPCI-CNRS/INSERM, Paris Diderot), Paris, France; ³ Radiology, Necker University Hospital, France	2C-5 Comb-Push Ultrasound Shear Elastography of Thyroid: Preliminary In Vivo Human Study Mohammad Mehromohammadi ¹ , Max Denis ¹ , Pengfei Song ¹ , Shigao Chen ¹ , Mostafa Fatemi ¹ , Azra Alizad ¹ ¹ Physiology and Biomedical Engineering, Mayo Clinic, Rochester, MN, USA	3C-5 Non-Invasive Characterization of Breast Cancer Using Textural Analysis of Ultrasound Spectral Parametric Images Hadi Tadayyon ^{1,2} , Ali Sadeghi-Naimi ^{1,2} , Gregory Czarnota ^{1,2} ¹ Medical Biophysics, University of Toronto, Canada; ² Physical Sciences and Radiation Oncology, Sunnybrook Health Sciences Centre, Toronto, Canada	4C-5 Nonlinear Resonant Acoustic Detection of Cracks in Multilayer Ceramic Capacitors Ward Johnson ¹ , Sudook Kim ¹ , Jacmi Herzberger ^{2,3} , Grady White ¹ ¹ NIST, Boulder, Colorado, USA; ² GSFC, NASA Greenbelt, Maryland, USA; ³ University of Maryland, College Park, Maryland, USA	5C-5 Recent Advances in Nonlinear Modeling of Bulk Acoustic Wave Resonators David Feld ¹ , Dong Shim ¹ , Siamak Fouladi ¹ , Farhad Bayatpour ¹ ¹ Wireless Semiconductor Division, AVAGO Technologies, San Jose, CA, USA
	1C-5 Tumor perfusion and vascular morphology measurements using dynamic contrast-enhanced ultrasound imaging Kenneth Hoyt ¹ , Heidi Umphrey ¹ , Mark Lockhart ¹ , Michelle Robbin ¹ , Andres Forero-Torres ¹ ¹ University of Alabama at Birmingham, USA	2C-6 Shear wave elastography of ex vivo human corneas using phase-sensitive optical coherence tomography Thu-Mai Nguyen ¹ , Tueng T. Shan ² , Shaozhen Song ^{1,3} , Lei Shi ¹ , Zhong Huang ¹ , Ruikang K. Wang ^{1,2} , Matthew O'Donnell ¹ ¹ Department of Bioengineering, University of Washington, Seattle, WA, USA; ² Department of Ophthalmology, University of Washington, Seattle, WA, USA; ³ School of Engineering, Physics and Mathematics, University of Dundee, Dundee, United Kingdom	3C-6 Viscoelastic characterization of transverse isotropic tissue mimicking phantoms and muscle Sara Aristizabal ¹ , Carolina Amador ¹ , Bo Qiang ¹ , Ivan Z. Nenadic ¹ , James F. Greenleaf ⁴ , Matthew W. Urban ¹ ¹ Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA	4C-6 Ultrasonic Propagation and Damage Sensing in a Bonded PMC/SiC-Foam James Blackshire ¹ ¹ AFRL/RXCA, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA	6C-5 A New Method for Fast and Accurate Determination of the Temperature Coefficients of Material Constants up to 700°C. Application to LGS. Pascal Nicolay ¹ , Jocelyn Bardong ¹ , Gudrun Bruckner ¹ ¹ Carinthian Tech Research (CTR AG), Villach, Austria
				6C-4 Determination Method of Acoustical Physical Constants and Their Temperature Coefficients for Crystal System Yuji Ohashi ¹ , Motoaki Arakawa ¹ , Jun-ichi Kushibiki ¹ , Masatoshi Adachi ² ¹ Tohoku University, Sendai, Japan; ² Toyama Prefectural University, Toyama, Japan	7C-5 LUMPED ELEMENT MODELING OF CMUT ARRAYS IN COLLAPSED MODE Elif Aydogdu ¹ , Alper Ozgurluk ² , Abdullah Atalar ¹ , Hayrettin Koymen ¹ ¹ Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey; ² Electrical Engineering and Computer Sciences, University of California Berkeley, Berkeley, CA, USA
				7C-6 A Computationally Efficient Nonlinear System Model for CMUT Arrays Sarp Satir ¹ , F. Levent Degertekin ¹ ¹ Georgia Institute of Technology, USA	

Poster --- Thursday, September 4, 2014

8:00 am - 5:00 pm

Salon C

Session P1A1. MEL: Shear Wave Imaging Methods 1

Chair: James Greenleaf
Mayo Clinic, Rochester

P1A1-8 Distinguishing Viscous from Elastic Properties in Viscoelastic Response (VisR) Ultrasound

Mallory R. Setz¹, Caterina M. Gallippi¹
¹Joint Department of Biomedical Engineering,
University of North Carolina at Chapel Hill, Chapel
Hill, NC, USA

P1A1-1 Displacement Underestimation Correction by Shearwave-Induced Displacement Tracking in Viscoelastic Response (VisR) Ultrasound

Mallory R. Setz¹, Tomasz J. Czernuszewicz¹,
Caterina M. Gallippi¹
¹Joint Department of Biomedical Engineering,
University of North Carolina at Chapel Hill, Chapel
Hill, NC, USA

P1A1-9 Shear wave elasticity imaging using inverse filtering and multiple-point shear wave generation

Tomoaki Kitazaki¹, Kengo Kondo², Makoto Yamakawa³, Tsuyoshi Shima⁴
¹Graduate School of Medicine, Kyoto University,
Kyoto, Japan, ²Center for the Promotion of
Interdisciplinary Education and Research, Kyoto
University, Kyoto, Japan

P1A1-2 Recovering Shear Wave Velocity in Boundary Sensitive Media with Two-Dimensional Motion Tracking

Ivan Nenadic¹, Miguel Bernal², Javier Brum², Jean-Luc Gennisson², Mathieu Pernot², James Greenleaf¹,
Michael Tanter², Matthew Urban¹
¹Mayo Clinic, Rochester, MN, USA, ²ESPCI
ParisTech CNRS UMR7587 INSERM U979, Institut
Langevin - Ondes et Images, Paris, France

Session P1A2. MEL: (Pre-)Clinical Applications of Elasticity Imaging

Chair: Guy Cloutier

University of Montreal Hospital Research Center

P1A1-3 Shear wave vibro magneto acoustography for measuring tissue mimicking phantom elasticity and viscosity

Thiago Almeida^{1,2}, Diego Sampaio¹, Theo Pavan¹,
Antonio Adilson Carneiro¹
¹Department of Physics, University of Sao Paulo,
Ribeirao Preto, Sao Paulo, Brazil, ²R&D, FIGLABS
Pesquisa e Desenvolvimento S/A, Ribeirao Preto,
Sao Paulo, Brazil

P1A2-1 AdipoScan™ - A novel transient elastography based tool to assess subcutaneous adipose tissue stiffness in morbidly obese patients

Magali Sasso¹, Meriem Addemour^{1,2}, Yuejun Liu^{1,2}, Michel Clot¹, Jean-Luc Bouillot³, Gilles Le Naour⁴, Pierre Bedossa⁵, Jean Tordjman², Karine Clement², Veronique Miettinen⁶
¹R&D, Echoscans, Paris, France, ²CAN Institute of
Cardiometabolism and Nutrition, UMR
INSERM/UPMC 1166, Pitié Salpêtrière hospital,
Paris, France, ³Department of General, Digestive
and Metabolic Surgery, Ambroise Paré Teaching
Hospital, Boulogne, France, ⁴Department of
Anatomic Pathology, Pitié Salpêtrière hospital,
Paris, France, ⁵Department of Anatomic Pathology,
Beaumont hospital, Clichy, France

P1A2-6 Comb-Push Ultrasound Shear Elastography (CUSE) Noninvasive Assessment of Pre-Biopsy Breast Patients

Max Denis¹, Mohammad Mehroozmadi¹, Azra Altaz^{1,2}, Duane Melner¹, Penlei Song¹, Robert Fazio¹, Shigao Chen¹, Mostafa Fatemi¹
¹Physiology and Biomedical Engineering, Mayo
Clinic, Rochester, MN, USA, ²Internal Medicine,
Mayo Clinic, Rochester, Minnesota,
USA, ³Radiology-Diagnostic, Mayo Clinic,
Rochester, MN, USA

P1A2-7 Measurement of Propagation Wave Velocity of Thyroid Induced by Pulsation

Ryo Nagaoaka¹, Kazuto Kobayashi², Shin Yoshizawa³, Shin-ichiro Umemura³, Yoshitomi Saito⁴
¹Graduate School of Biomedical Engineering,
Tohoku University, Sendai, Japan, ²Division of
Research and Development, Honda Electronics Co.
Ltd., Toyohashi, Japan, ³Graduate School of
Biomedical Engineering, Tohoku University,
Sendai, Japan

P1A2-8 Shear Wave Elastography of a Liver Fibrosis Mouse Model Using a High Frequency Ultrasound System with Mechanical Scanning

Chia-Lun Yeh¹, Bo-Rong Chen¹, Pai-Chi Li¹
¹National Taiwan University, Taiwan

P1A3-4 Quantification of Tumor Vascularity Using Acoustic Angiography Ultrasound Imaging

Sarah E. Shelton¹, James M. Dunleavey², Mike Lee³, Stuart Foster¹, Andrew C. Dudley², Paul A. Dayton¹
¹BME, UNC-NCSU, USA, ²UNC, USA, ³University
of Toronto, Canada

P1A3-5 Three-dimensional (3d) parametric maps for visualization of breast lesion vasculature using subharmonic imaging

Anush Sridharan^{1,2}, John Eisenbrey³, Priscilla Machado², Kelly Dulin¹, Samantha Jaffe¹, Daniel Merton¹, Haydee Ojeda-Fourmer¹, Robert Mattrey¹, Kirk Wallace², Carl Chalek², Kai Thomenius¹,
Fleming Forsberg¹
¹Drexel University, USA, ²Thomas Jefferson
University, USA, ³University of Pittsburgh,
USA, ⁴University of California San Diego,
USA, ⁵GE Global Research, USA

P1A3-6 Comparing Subharmonic Imaging and Immunohistochemical Markers of Angiogenesis

Aditi Gupta^{1,2}, Mark Forsberg³, Kelly Dulin⁴,
Samantha Jaffe¹, Jaydev Dave¹, Manasi Dabhabkar^{1,2}, Valgerdur Halldorsdottir^{1,2}, Andrew Marshall^{1,2}, Anya Forsberg², Priscilla Machado¹,
Traci Fox⁶, Ji-Bin Liu¹, Fleming Forsberg¹
¹Radiology, Thomas Jefferson University,
Philadelphia, PA, USA, ²School of Biomedical
Engineering, Sciences and Health Systems, Drexel
University, Philadelphia, PA, USA, ³Yale
University, New Haven, CT, USA, ⁴University of
Pittsburgh, Pittsburgh, PA, USA, ⁵Plymouth
Whitman High School, Plymouth Meeting, PA,
USA, ⁶Radiological Sciences, JSHIP, Thomas
Jefferson University, Philadelphia, PA, USA

P1A3-7 Tumour Response Evaluation of Concomitant Ultrasound Driven Microbubbles and Radiation in Breast Cancer in vivo

Priscilla Lai^{1,2}, Anjoa Giles¹, William Tran¹, Azza Al-Mahroukh¹, Gregory Czarnota^{1,2}
¹Department of Radiation Oncology, Sunnybrook
Health Sciences Centre, Canada, ²Departments of
Medical Biophysics and Radiation Oncology,
University of Toronto, Canada

P1A4-1 Simulation and Efficient Measurements of Intensities for Complex Imaging Sequences

Jorgen Arndt Jensen¹, Morten Fischer Rasmussen¹, Matthias Bo Stuart¹, Borislav G. Tomov¹
¹Dept. of Elec. Eng., Technical University of
Denmark, Lyngby, Denmark

P1A4-2 Suppression of Pressure Measurement Artifacts from Fiber Optic Hydrophones Using Complex Deconvolution of Sensitivity

Keith Wear¹, Paul Gammell², Subha Maruvada¹,
Yunbo Liu¹, Gerald Harris¹
¹Food and Drug Administration, USA, ²Gammell
Applied Technologies, USA

P1A4-3 In Vivo Measurement of Temperature Rise in Living Rabbit's Liver Exposed to Ultrasound with Acoustic Radiation Force

Naotaka Nitta¹, Yasunao Ishiguro², Hideki Sasamura², Nobuyuki Taniguchi¹, Iwaki Akiyama³
¹National Institute of Advanced Industrial Science
and Technology (AIST), Japan, ²Jichi Medical
University, Japan, ³Doshisha University, Japan

P1A4-4 Simulation of Temperature Fields in Soft Tissue Caused by Nonlinear Propagation of Ultrasound Pulses

Alexander Domikov¹, Anthony Novell¹, Pierre Calmon², Ayache Bouakaz²
¹INSERM U930, Université François Rabelais,
Tours, France, ²CEA LIST, Saclay, France

P1A1-4 Shear Wave Elastography on the GE LOGIQ E9 with Comb-push Ultrasound Shear Elastography (CUSE) and Time Aligned Sequential Tracking (TAST) Pengfei Song¹, Michael Macdonald², Russell Behler², Justin Lanning², Michael Wang², Matthew Urban¹, Armando Manduca¹, Hong Zhao¹, Matthew Callstrom³, James Greenleaf⁴, Shigao Chen¹ ¹Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, ²GE Healthcare, Wauwatosa, Wisconsin, USA, ³Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA	P1A2-2 Monitoring Radio Frequency Ablation for Liver Tumors with Electrode Displacement Strain Imaging Wenjun Yang¹, Marci Alexander², Atul Ingole¹, Nicholas Rubert¹, Meghan Lubner², Timothy Ziemelewiec², James Louis Hinshaw², Fred T. Lee Jr.², James A. Zagzebski¹, Tony Varghese¹ ¹Medical Physics, University of Wisconsin-Madison, Madison, WI, USA, ²Radiology, University of Wisconsin-Madison, Madison, WI, USA	Session P1A3. MCA: Contrast Imaging Applications <i>Chair: Georg Schmitz</i> <i>Ruhr-Universität Bochum</i>	P1A3-8 Four-dimensional molecular ultrasound imaging of tumor angiogenesis in a preclinical animal model of prostate cancer Kenneth Hoyt¹, Marshall Mahoney¹, Anna Sorace¹ ¹University of Alabama at Birmingham, Birmingham, USA	P1A4-5 Safety of fast cardiac imaging using multiple transmit beams: experimental verification Alessandro Ramalho¹, Ling Tong^{2,3}, Jianwen Luo³, Jan Dhooge², Piero Tortoli¹ ¹Information Engineering Dept., University of Florence, Firenze, Italy, ²Dept. of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ³Dept. of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of
P1A1-5 Dependence of shear wave spectral content on acoustic radiation force excitation duration and spatial bandwidth Mark Palmer¹, Yufeng Deng¹, Ned Rouze¹, Manal Abdelmalek², Kathy Nightingale¹ ¹Biomedical Engineering, Duke University, Durham, NC, USA, ²Gastroenterology-Hepatology, Duke University Medical Center, Durham, NC, USA	P1A2-3 In Vivo Measurements of Bladder Mechanical Properties using Ultrasound Bladder Vibrometry (UBV) Method in Patients and Volunteers Ivan Nenadic¹, Mohammad Mehrmohammadi¹, Matthew Urban¹, James Greenleaf², Douglas Husmann², Lance Mynderse¹, Mostafa Fatemi¹ ¹Mayo Clinic, USA, ²Mayo Clinic, USA	P1A3-1 Complementarity of shear wave elastography and dynamic contrast-enhanced ultrasound to discriminate tumor modifications during antiangiogenic and cytotoxic therapy Alexandre Dizeux¹, Thomas Payen¹, Guillaume Barrois¹, Capucine baldini¹, Delphine Le Guillou-Buffelo¹, Jean-Luc Gemisson², Mickael Tanter², S. Lori Bridal¹ ¹Laboratoire d'Imagerie Biomédicale UPMC, CNRS UMR7371, INSERM U1146, France, ²Institut Langevin ESPCI ParisTech, CNRS UMR7587, INSERM U979, France	P1A4-6 Ultrasound-Stimulated Microbubble-based Radiation Enhancement Dependence on Endothelial Ceramide Production. Ahmed El Kafas^{1,2}, Anur Hashmi¹, Anuja Giles¹, Gregory Czarnota² ¹Departments of Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, Canada, ²Departments of Medical Biophysics and Radiation Oncology, University of Toronto, Canada	P1A4-7 Sonoporation-induced Heterogeneous Plasma Membrane Potential Depolarization in HeLa Cervical Cells Peng Qin¹, Ping Cai¹, Yaxin Hu², Wenjing Zhong², Lifang Jin³, Liantang Du³, Alfred C.H. Yu³ ¹Department of Instrumentation Science and Engineering, Shanghai Jiaotong University, China, People's Republic of, ²Medical Engineering Program, The University of Hong Kong, Hong Kong, ³Department of Ultrasound, Shanghai Jiaotong University Affiliated the First People's Hospital, China, People's Republic of
P1A1-6 Dual-Frequency Shear Wave Detection for Large Range-of-depth Shear Wave Elastography Pengfei Song¹, Heng Zhao¹, Matthew W. Urban¹, Armando Manduca¹, Daniel C. Mellema¹, James F. Greenleaf⁴, Shigao Chen¹ ¹Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA	P1A2-4 Stiffness Dynamics of Rabbit's Achilles Tendons Evaluated by Shear Wave Elastography in vivo Chia-Lun Yeh¹, Po-Ling Kuo¹, Pai-Chi Li¹ ¹National Taiwan University, Taiwan	P1A3-2 Ultrasound Molecular Imaging of Pancreatic Cancer Neovasculature Using VEGFR2-Targeted Microbubbles in a Transgenic Mouse Model Steven Machtaler¹, Marybeth Pysz¹, Scott Seely², John Lee³, Teresa Brenna¹, Jarrett Rosenberg¹, Francois Tranquart⁴, Philip Beuchy¹, Juergen Willmann¹ ¹Radiology, Stanford University, Stanford, California, USA, ²UCSF, USA, ³Developmental Biology, Stanford University, USA, ⁴University of Washington, USA, ⁵Stanford University, USA, ⁶Bracco Imaging, Switzerland	P1A3-9 Molecular Imaging of Inflammation with Ultrasound: Feasibility and Reproducibility using a Clinically Translatable Contrast Agent in a Porcine Acute Terminal Ileitis Model Huajun Wang¹, Stephen Felt², Ismayil Guracar³, Steven Machtaler¹, Thierry Bettinger¹, Richard Luong², Juergen Willmann¹ ¹Department of Radiology, Molecular Imaging Program at Stanford, Stanford University, Stanford, USA, ²Department of Comparative Medicine, Stanford University, Stanford, USA, ³Ultrasound Business Unit, Siemens Healthcare, Mountain View, USA, ⁴Bracco Suisse SA, Geneva, Switzerland	P1A4-8 Evaluation of the effects of clinical diagnostic ultrasound in combination with ultrasound contrast agents on cell stress: Single cell analysis of intracellular phospho-signaling pathways in blood cancer cells and normal blood leukocytes Spiros Kotopoulos^{1,2}, Ragnhild Hauge^{3,4}, Maja Mujic⁵, Andre Sulen⁵, Emmet McCormack^{3,5}, Odd Helge Gilja⁶, Michael Postema⁷, Bjorn Tore Gjertsen^{1,5} ¹National Center for Ultrasound in Gastroenterology, Haukeland University Hospital, Bergen, Norway, ²Department of Physics and Technology, University of Bergen, Bergen, Norway, ³Department of Clinical Science, University of Bergen, Bergen, Norway, ⁴Sjukhusapoteka Vest HF, Bergen, Norway, ⁵Department of Medicine, Haukeland University Hospital, Bergen, Norway, ⁶Department of Clinical Medicine, University of Bergen, Bergen, Norway
P1A1-7 New shear wave velocity estimation using arrival time differences in orthogonal directions Sua Bae¹, Jin Ho Chang^{1,2}, Tai-Kyong Song¹ ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of, ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Korea, Republic of	P1A2-5 A Microchannel Flow Model of Liver Viscosity Kevin Parker¹ ¹Electrical & Computer Engineering, University of Rochester, Rochester, New York, USA	Session P1A4. MBE: Biological Effects and Dosimetry <i>Chair: Jørgen Jensen</i> <i>Technical University Denmark, Kgs. Lyngby</i>		

8:00 am - 5:00 pm

Poster --- Thursday, September 4, 2014

Salon C

P144-9 Improving DNA Fragmentation Yield by Enhancing Cavitation using Ultrasonically Activated Microbubbles Sandeep Kasoji¹, Connor Puett¹, Sam Pattenden¹, Jim Tsuruta¹, William Janzen¹, Paul A. Dayton¹ ¹University of North Carolina Chapel Hill, USA	P145-1 Selecting the Number and the Values of the Steering Angles in Coherent Compounded Plane-Wave Imaging and the Effect of that on the Imaging Quality Zainab Alomari¹, Sevan Harput¹, Safer Hyder¹, Steven Freear¹ ¹Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom	P145-9 Wide-angle tissue Doppler imaging at high frame rate using multi-line transmit beamforming: an in-vivo pilot study Ling Tong^{1,2}, Alessandro Ramalli³, Chengyu Huang², Piero Tortoli³, Jianwen Luo², Jan D'hooge¹ ¹Dept. of Cardiovascular Imaging, KU Leuven, Leuven, Belgium, ²Dept. of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of, ³Dept. of Information Engineering, University of Florence, Firenze, Italy	P146-7 High Frame Rate, High Resolution 3D Plane Wave Imaging Ming Yang¹, Richard Sampson², Siyuan Wei¹, Thomas Weisenk², Brian Fowlkes³, Oliver Krupins³, Chaitali Chakraborti¹ ¹School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, Arizona, USA, ²Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, Michigan, USA, ³Department of Radiology, University of Michigan, Ann Arbor, Michigan, USA	P147-1 Imaging 3D Cell Culture Systems Using an Optical Resolution Photoacoustic Microscope Ming-jian Sun^{1,2}, Pai-Chi Li¹ ¹National Taiwan University, Taiwan, ²Harbin Institute of Technology, China, People's Republic of
P144-10 Rapid Localization of Annexin-A1 Phospholipid Binding Proteins at Sonoporation Sites Wenjing Zhong¹, Yaxin Hu¹, Jennifer M. F. Wan², Alfred C. H. Yu¹ ¹Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong, ²School of Biological Sciences, The University of Hong Kong, Hong Kong	P145-2 Fast volumetric cardiac ultrasound: a comparison of different multi-line transmit setups by computer simulation Alejandro Ortega¹, Ling Tong², Pedro Santos¹, Jan D'hooge¹ ¹Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ²Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of	Session P146. MSD: Design and Test of Medical Systems & Devices Chair: Steven Freear University of Leeds	P146-8 A Real-time Streaming DAQ for Ultrasonix Research Scanner Matczak Walczak¹, Marcin Lewandowski¹, Norbert Zolek¹ ¹Ultrasonix Department, Institute of Fundamental Technological Research PAS, Warsaw, Poland	P147-2 Image Optimization Method for Joints Photoacoustic Tomography Jie Yuan¹, Wenchao Li¹, Xiaojun Liu¹, Xuoding Wang², Paul Carson² ¹Nanjing University, China, People's Republic of, ²University of Michigan, USA
P144-11 Single-Cell Analysis of Cytomechanical Response in Neuroblastoma Cells during Low Intensity Ultrasound Pulsing Yaxin Hu¹, Jennifer M. F. Wan², Alfred C. H. Yu¹ ¹Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong, ²School of Biological Sciences, The University of Hong Kong, Hong Kong	P145-3 Safety of Multi-Line Transmit beam forming for fast cardiac imaging – A simulation study Pedro Santos¹, Ling Tong¹, Alejandra Ortega¹, Egit Samset^{2,3}, Jan D'hooge¹ ¹Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ²GE Vingmed Ultrasound AS, Horten, Norway, ³Center for Cardiological Innovation, Oslo, Norway	P146-1 A Low-cost High-SNR Ultrasonic Imager: Modified Hadamard Synthetic Aperture Imaging (MH-SAI) System with a Sparse Receiving Array Ping Gong¹, Michael Kolos¹, Yuan Xu¹ ¹Physics, Ryerson University, Toronto, ON, Canada	P146-9 Model-driven Engineering Applied to the Development of Embedded Software for B-mode Ultrasound Imaging Systems - A Case Study Haroldo J. Onisto¹, Tiago M. Machado¹, Ramon C. Fernandes¹, Johannes D. Medeiros Jr.¹, Iliezer Tamagno¹, Tiago C. Dezotti¹, Jose E. Bertuzzo¹ ¹Services & Hardware Engineering (DHS), Eldorado Research Institute (ELDORADO), Campinas, São Paulo, Brazil	P147-3 In vivo Photoacoustic Oxygen Saturation Imaging Without the Need for Fluence Estimation Erwin J. Alles¹, Elthymia Papaevangelou¹, Jeffrey C. Bamber¹ ¹The Joint Department of Physics and CRUK Cancer Imaging Centre, The Institute of Cancer Research and the Royal Marsden NHS Foundation Trust, London, United Kingdom
P144-12 Lipid Kinetics on the Plasma Membrane During Sonoporation: Correlation with Sonopore Size Yaxin Hu¹, Jennifer M. F. Wan², Alfred C. H. Yu¹ ¹Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong, ²School of Biological Sciences, The University of Hong Kong, Hong Kong	P145-4 Speckle Decorrelation of Motion in Ultrasound Fourier Images Miaomiao Zhang¹, Hervé Liebgott¹, François Varay¹, Denis Friboulet¹, Olivier Bernard¹ ¹CREATIS, CNRS UMR5220, Inserm U630, University of Lyon, INS4-Lyon, University of Lyon1, Villeurbanne, France	P146-2 GPU Acceleration of Acoustic Radiation Force Impulse Imaging System using Scanning-mode Congzhi Wang¹, Bo Zeng¹, Yang Xiao¹, Weibao Qu¹, Hairong Zheng¹ ¹Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, Guangdong, China, People's Republic of	P146-10 A new powerful system to test ultrasonograph quality Ladislav Doležal¹, Jaromir Vachutka¹, Jiri Mazura¹ ¹Faculty of Medicine and Dentistry, Palacký University in Olomouc, Olomouc, Czech Republic	P147-4 Monitoring and quantification of oxygen saturation in placenta by photoacoustic imaging during rat pregnancy Chloe Arthuis^{1,2}, Anthony Novell¹, Florian Raes³, Stephanie Lerondel³, Alain Lepape², Ayache Boukazi¹, Franck Perrotin^{1,2} ¹UMR Inserm U 930, University Francois Rabelais Tours, France, ²Department of Obstetrics and Gynecology CHRU Tours, France, ³CNRS – TAAM UPS44, Centre d'Imagerie du Petit Animal, Orleans, France

P1A4-13 Systematic study on ultrasonically accelerated aggregation phenomenon of amyloid-β peptides Kichitaro Nakajima¹, Kentaro Noi¹, Hirotsugu Ogi¹, Hisashi Yagi¹, Yuji Goto², Masahiko Hirao¹ ¹Graduate school of Engineering Science, Osaka University, Japan, ²Institute for Protein Research, Osaka University, Japan	P1A5-5 Blood Flow Visualization with High Speed Ultrasound Cooper Moore¹, Zainab Samad², John Castellucci¹, Joseph Kisslo¹, Olaf von Kann¹ ¹Biomedical Engineering, Duke University, Durham, North Carolina, USA, ²Division of Cardiovascular Disease, Duke University Medical Center, USA	P1A6-3 Fast Minimum Variance Beamformer for Broad View Ultrasound Imaging Paradigms: A Multi-GPU Approach Billy Y. S. Yiu¹, Alfred C. H. Yu¹ ¹Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong	P1A6-11 A Real-time Realization of an Automatic Dynamic Range Adjustment Method on a Smart Mobile Device for Point-of-Care Ultrasound Imaging Jeewoo Kim¹, Yeonhwa Lee¹, Yangmo Yoo^{1,2} ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of, ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Korea, Republic of	P1A7-5 Multispectral Photoacoustic Coded Excitation with Low PRF High Power Laser Diodes Martin F Beckmann¹, Hans-Martin Schwab¹, Georg Schmitz¹ ¹Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany
P1A4-14 The alteration of protein profile of HepG2 cells during the apoptotic process induced by low intensity pulsed ultrasound YI FENG¹, Lu ZHAO¹, Mingxi WAN¹ ¹The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an city, Shaanxi, China, People's Republic of	P1A5-6 In Vivo Synthetic Aperture and Plane Wave High Frame Rate Cardiac Imaging Matthias Bo Stuart¹, Andreas Hjelm Brandt^{1,2}, Svetoslav Ivanov Nikolov¹, Michael Bachmann Nielsen¹, Jørgen Arendt Jensen¹ ¹Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark, ²Radiology, Copenhagen University Hospital, Denmark, ³BK Medical, Denmark	P1A6-4 Rapid Prototyping of Real-Time FPGA Beamformers for Synthetic Aperture Imaging Based on High Level Synthesis Joao Amaro¹, Billy Y. S. Yiu², Gabriel Falcao¹, Marco Gomes¹, Alfred C. H. Yu² ¹Instituto de Telecomunicações, The University of Coimbra, Coimbra, Portugal, ²Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong	P1A6-12 Design of a multiple-rail high-voltage power supply for ultrasound scanners Enrico Boni¹, Luca Bassi¹, Monica Scaringella¹, Alessandro Ramalli¹, Piero Tortoli¹ ¹Dipartimento di Ingegneria dell'Informazione, Università di Firenze, Firenze, Italy	P1A7-6 Simultaneous measurement of erythrocyte aggregation and oxygen saturation under <i>in vitro</i> pulsatile blood flow by high-frequency photoacoustics Tae-Hoon Bok¹, Eno Hysi¹, Michael Kolios¹ ¹Physics, Ryerson University, Toronto, Ontario, Canada
P1A4-15 Modulation of cartilage metabolism by low-intensity ultrasound via controlled oxidant production Kee W. Jang¹, Joseph A. Buckwalter², James A. Martin¹ ¹Orthopaedics and Rehabilitation, The University of Iowa, Iowa City, Iowa, USA, ²Veterans Affairs Medical Center, USA	P1A5-7 Tri-State Hadamard Non-Repeating Interval Codes for Parallel Synthetic Aperture Imaging and SNR Enhancement Roger Zemp¹, Tarek Kaddoura¹ ¹Electrical & Computer Engineering, University of Alberta, Edmonton, Alberta, Canada	P1A6-5 Compact Hardware for Real-Time Multi-Line Beamforming Valentino Meacci¹, Luca Bassi¹, Stefano Ricci¹, Enrico Boni¹, Piero Tortoli¹ ¹Information Engineering, University of Florence, Firenze, FI, Italy	P1A6-13 A transcranial device and method for detecting cerebellar brain motion Sheronica James^{1,2} ¹Department of Chemical and Biomedical Engineering, Cleveland State University, Cleveland, Ohio, USA, ²Department of Biomedical Engineering, Cleveland Clinic, Lerner Research Institute, Cleveland, Ohio, USA	P1A7-7 Enhancement of photoacoustic imaging quality by using cMUT technology: experimental study Maëva Vallet¹, François Varray¹, Mohammad Azizan Kalkhoran¹, Jérôme Boulet², Didier Vray¹ ¹Université de Lyon, CREATIS ; CNRS UMR5220 ; Inserm U1044 ; INSALyon ; Université Lyon 1, France, ²CEA-LETI, MINATEC, Grenoble Cedex 9, France
Session P1A5. MBB: Beamforming I <i>Chair: Jian-yu Lu</i> Univ. of Toledo, Toledo	P1A5-8 Tissue Harmonic Images obtained with Parallel Transmit Beamforming by means of Orthogonal Frequency Division Multiplexing Libertario Demi¹, Jacopo Viti², Gabriele Giannini², Alessandro Ramalli², Piero Tortoli², Massimo Misch¹ ¹Lab. of Biomedical Diagnostics, Eindhoven University of Technology, Netherlands, ²Information Engineering Dept, Università degli Studi di Firenze, Italy	P1A6-6 Design of a Reconfigurable Phase Controller for Focused Ultrasound Therapeutic Device Minkyung Kim¹, Hi Yuen Song¹, Yanghun Lee², Mingyu Cho², Im-yeol Oh¹, Chul Soon Park¹ ¹Department of Electrical Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea, Republic of, ²Samsung Electronics Co., Yongin-si, Gyeonggi-do, Korea, Republic of	Session P1A7. MPA: Light and Sound I <i>Chair: Jeffrey Bamber</i> Institute of Cancer Research, Sutton, UK	P1A7-8 Photoacoustic - Acoustic Radiation Force Impulse (PA-ARFI) Microscopy Bong Jin Kang¹, Jae Youn Hwang², Changyang Lee¹, Hyung Ham Kim¹, Jinhyoung Park¹, Qifa Zhou¹, K. Kirk Shung¹ ¹Department of Biomedical Engineering, University of Southern California, USA, ²Department of Information and Communication Engineering, Daegu Gyeongbuk Institute of Science & Technology, Korea, Republic of

P1A7-9 Assessment of HIFU-induced tissue damage using multi-wavelength photoacoustic imaging Joshua Gray^{1,2}, Nicholas Dana³, Florian Maier¹, Ogozhan Ege¹, Trevor Mitcham¹, Jason Stafford^{1,2}, Stanislav Emelianov^{1,2}, Richard Bouchard^{1,2} ¹Department of Imaging Physics, University of Texas MD Anderson Cancer Center, USA, ²University of Texas Graduate School of Biomedical Sciences, USA, ³Department of Biomedical Engineering, University of Texas Austin, USA	P1A8-3 Small calcification depiction in ultrasonography using frequency domain interferometry Hirofumi Takai¹, Guillaume Hatai², Makoto Yamakawa³, Tsuyoshi Shina¹, Toru Sato¹ ¹Graduate School of Informatics, Kyoto University, Kyoto, Japan, ²Faculté des Sciences et Technologie, Université Paris-Est Créteil Val de Marne, Paris, France, ³Advanced Biomedical Engineering Research Unit, Kyoto University, Kyoto, Japan, ⁴Graduate School of Medicine, Kyoto University, Kyoto, Japan	P1A9-2 Obstructing Propagation of Interfering Modes Improves Detection of Guided Waves in Coated Bone Models Vaunte Kilappa¹, Petro Molianen¹, Ari Salmi², Zuomin Zhao¹, Risto Mäylä¹, Edward Häggström¹, Jussi Timonen¹ ¹Department of Physics, University of Jyväskylä, Jyväskylä, Finland, ²Department of Physics, University of Helsinki, Helsinki, Finland, ³Department of Electrical Engineering, University of Oulu, Oulu, Finland	P1A10-1 Serum influence on in-vitro Gene Delivery using Microbubble-Assisted Ultrasound Aya Zeghimi¹, Anthony Novell^{1,2}, Rose-Anne Therault¹, Ayache Boukazi¹, Jean-Michel Escoffre^{1,2} ¹UMR Inserm U 930 Imagerie & Cerveau, Université Française de la Santé, France, ²Joint Department of Biomedical Engineering, The University of North Carolina and North Carolina State University, Chapel Hill, NC 27599, USA, ³Imaging Division, University Medical Center Utrecht, Utrecht, Netherlands	P1A10-9 Ultrasound-Stimulated Microbubble Effects on Cell Membrane Damage: UDP glycosyltransferase 8 (UGT8) Involvement in vitro and in vivo Azza Al-Mahrouk^{1,2}, Anoja Giles^{1,2}, Amir Hashim^{1,2}, Hyunjung Christina Kim^{1,2}, Ahmad El-Falou^{1,2}, Gregory Czamota^{1,2} ¹Department of Radiation Oncology and Imaging Research, Sunnybrook Health Sciences Centre, Toronto, ON, Canada, ²Physical Sciences, Sunnybrook Health Sciences Centre, Toronto, ON, Canada
P1A7-10 All-optical photoacoustic imaging and detection of early-stage dental caries Ashwin Sampathkumar¹, David Hughes², Christopher Longbottom³, Katherine Kirk² ¹Biomedical Engineering, Riverside Research, New York City, New York, USA, ²School of Engineering, University of the West of Scotland, Paisley, United Kingdom, ³Dental Innovation and Translation Centre, London, United Kingdom	P1A8-4 Improved FL-IVUS Imaging with Low Voltage Single-chip CMUT-on-CMOS Array Using Temporally Coded Excitation Coskun Tekes¹, Toby Xu¹, F. Levent Degertekin¹ ¹Mechanical Engineering, Georgia Institute of Tech, Atlanta, Georgia, USA	P1A9-3 Ultrasonic wave propagation in the distal end of adult human radius model Takuma Hachiken¹, Yuka Matsura¹, Fuminori Fujita¹, Isao Mano¹, Toshiro Hata¹, Yoshiki Nagatani², Mami Matsukawa¹ ¹Wave electronics research center, Laboratory of ultrasonic electronics, Doshisha university, Kyotanabe, Japan, ²Kobe city college of technology, Department of Electronics, Japan	P1A10-2 Development of an ultrasound-sensitive antimicrobial platform for reducing infection after spinal stabilization surgery Flemming Forsberg¹, John Eisenbroy¹, Keith Fitzgerald², Alex Sevi³, Steven Kurtz³, Chris Kepler³, Noreen Hickok³ ¹Department of Radiology, Thomas Jefferson University, USA, ²Department of Orthopaedic Surgery, Thomas Jefferson University, USA, ³School of Biomedical Engineering, Science & Health Systems, Drexel University, USA	P1A10-10 Ultrasound-enhanced Delivery of Ophthalmic Drugs into the Eye Marjan Nabili¹, Aditi Shenoy¹, Shawn Chawla¹, Sankaranarayanan Mahesh², Ji Lu², Craig Geis², Vesna Zelenic¹ ¹Department of Electrical and Computer Engineering, The George Washington University, USA, ²Department of Ophthalmology, The George Washington University, USA
P1A7-11 Multi-modal acoustic-optic/ultrasound imaging of ex vivo liver tumors at 790 nm by wavefront adaptive holography Jean-Baptiste laudureau¹, Emilie Benoit a la guillaume¹, Vincent servois², Pascale Mariani¹, Alexander Grabar¹, mickael lanter¹, jean-luc gémisson¹, francois ramaz¹ ¹ESPCI ParisTech CNRS UMR7587 INSERM U979, Institut Langevin, PARIS, France, ²Institut Curie, France, ³Institute of Solid State Physics and Chemistry, Uzhgorod, Ukraine	P1A8-5 Focal Liver Pathology Imaging combining Synthetic Aperture Sequential Beamforming and Tissue Harmonic Imaging Andreas Hjeltn Brandt^{1,2}, Martin Christian Hemmisen³, Peter Moller Hansen³, Theis Lange³, Michael Bachmann Nielsen³, Jørgen Arendt Jensen² ¹Radiology, Copenhagen University Hospital, Denmark, ²Center for Fast Ultrasound Imaging, Technical University of Denmark, Denmark, ³Biostatistics, University of Copenhagen, Denmark	P1A9-4 Estimation of cortical thickness and axial bulk longitudinal velocity from axial transmission measurements on ex vivo tibiae Jean-Gabriel Minonzi¹, Melanie Daugschies², Simon Bernard¹, Johannes Schneider¹, Reinhard Barkmann¹, Quentin Grimal¹, Kay Raum¹, Claus-Christian Gluer¹, Pascal Laugier¹ ¹Laboratoire d'Imagerie Biomédicale, Sorbonne Universités, UPMC Univ Paris 06, INSERM, CNRS, Paris, France, ²Diagnostic Radiology Quantitative ultrasound, Christian-Albrechts-Universität zu Kiel, Kiel, Germany, ³Julius Wolff Institute for Biomechanics and Musculoskeletal Regeneration, Charité Universitätsmedizin Berlin, Berlin, Germany	P1A10-3 Ultrasound-mediated gene delivery by using folic acid-modified cationic microbubbles En-ling Chang¹, Chien-Yu Ting¹, Chih-Kuang Yeh¹ ¹Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan	P1A10-11 New Drug Delivery System with Acousto-Chemical Manipulation of Drug Distribution Ken-ichi Kawabata¹, Takashi Maruoka², Rei Asami¹, Reiko Ashida¹ ¹Medical Systems Research Department, Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo, Japan, ²Medical Systems Research Department, Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo, Japan, ³Department of Hepatobiliary and Pancreatic Oncology, Osaka Medical Center for Cancer and Cardiovascular diseases, Japan
P1A7-12 Focusing the light within the scattering media for photoacoustic tomography in a limited-view-angle tomography setting Hiroshi Abe^{1,2}, Tsuyoshi Shina¹ ¹Graduate school of medicine, Kyoto University, Kyoto, Japan, ²R&D Headquarters, Med. Imaging Project, Canon Inc., Tokyo, Japan	P1A8-6 On the feasibility of speckle reduction in echocardiography using strain compounding Yuxin Guo¹, Wei-Ning Lee¹ ¹EEE, HKU, Hong Kong	P1A9-5 Clinical Ultrasonic Assessment at the 1/3 Radius Jonathan Kaufman^{1,2}, Emily Stein³, Gangming Luo¹, Fernando Rosete², Zvi Schocher¹, Mariana Bucoşky³, Elizabeth Shane³, Robert Sifert² ¹CyberLogic, Inc., New York, NY, USA, ²Orthopedics, The Mount Sinai School of Medicine, New York, NY, USA, ³Medicine, Columbia University College of Physicians and Surgeons, New York, NY, USA	P1A10-4 Ultrasonic monitoring of skeletal muscle response to electrical stimulation of peripheral nerve Andy Huang¹, Yui Ono¹ ¹Carleton University, Ottawa, Ontario, Canada	P1A10-11 Session P1A11. MSP: Medical Signal Processing Chair: Svetoslav Nikolov BK Medical, Herlev

P1A7-13 Compressive-Sensing Like Grating-Lobe Suppressed Image Reconstruction for Photoacoustic Linear Array Imaging Chien-Hao Chien¹, Meng-Lin Li^{1,2} ¹Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan, ²Institute of Photonics Technologies, National Tsing Hua University, Taiwan	P1A8-7 A New Feature-enhanced Speckle Reduction Method based on Multiscale Analysis and Synthesis for Ultrasound B-mode Imaging Jinbum Kang¹, Yangmo Yoo^{1,2} ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of, ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of	P1A9-6 Ex vivo measurement of guided waves in human radius: Experimental and simulated results Bruno Fain¹, Jean-Gabriel Minonzio¹, Emmanuel Bossy², Maryline Talmant¹, Pascal Laugier¹ ¹Laboratoire d'Ingénierie Biomédicale, Sorbonne Universités, UPMC Univ Paris 06, INSERM, CNRS, Paris, France, ²Institut Langevin, ESPCI ParisTech, CNRS UMR 7587, Paris, France	P1A10-5 Ultrasound Stimulation Of Insulin Release From Pancreatic Beta Cells Ivan Suarez¹, Aleksandar Jeremic², Vesna Zderic¹ ¹Department of Electrical and Computer Engineering, The George Washington University, Washington, District of Columbia, USA, ²Department of Biological Sciences, The George Washington University, Washington, District of Columbia, USA	P1A11-1 Realtime automatic detection of heart failure in echocardiography Sigurd Storrve¹, Jahn Frederik Grue¹, Håvard Daker², Bjørn Olav Haugen³, Hans Torp¹ ¹Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Sor-Trondelag, Norway, ²Levanger Hospital, Nord-Trøndelag Health Trust, Levanger, Norway, ³Department of cardiology, St Olav University Hospital, Norway
Session P1A8. MIM: Technologies for Enhanced Imaging Chair: Lasse Lovstakken Norwegian University of Science and Technology	P1A8-8 Multiscale Nonlocal Means method for Ultrasound despeckling Lars Hofsay Breivik¹, Sten Roar Snares¹, Hani Nozari Mirakolaei¹, Erik Normann Steen², Anne H Schistad Solberg¹ ¹Department of Informatics, University of Oslo, Oslo, Norway, ²GE Vingmed Ultrasound, Norway	P1A9-7 Ultrasonic Wave-field Reconstruction of Bone Fractures: Numerical Modelling and In-vitro Studies Tho N.H.T. Tran¹, Kim-Cuong T. Nguyen^{1,2}, Mauricio D. Sacchi³, Edmond Lou⁴, Lawrence H. Le^{1,3} ¹Department of Radiology & Diagnostic Imaging, University of Alberta, Edmonton, Alberta, Canada, ²Department of Biomedical Engineering, Ho Chi Minh City University of Technology, Vietnam, ³Department of Physics, University of Alberta, Edmonton, Alberta, Canada, ⁴Department of Surgery, University of Alberta, Edmonton, Alberta, Canada	P1A10-6 Active induction of microbubbles in flow at T-form bifurcation through acoustic focal points with phase variation Kohji Masuda¹, Naoto Hosaka¹, Ren Koda¹, Shinya Miyazawa¹, Takashi Mochizuki¹ ¹Tokyo Univ. of A&T, Japan	P1A11-2 Compressive Sensing-based multidimensional Doppler signal analysis for fetal activity monitoring Adrian Basarab¹, Céline Quinsac¹, Jean-Marc Girault², Denis Kouame² ¹IRIT, UMR CNRS 5505, University of Toulouse, Toulouse, France, ²Isirem U930, University of Tours, Tours, France
P1A8-1 Orthogonal Golay Pair for Range Side Lobe Elimination in Harmonic Imaging Che-Chou Shen¹, Jun-Kai Peng¹, Chi Wu¹ ¹National Taiwan University of Science and Technology, Taiwan	Session P1A9. MTC: Bone Chair: Keith Wear Food and Drug Administration, Silver Spring	P1A9-8 Characterization of transcranial ultrasonic passage in the Gottingen minipig Amit Mulgaonkar^{1,2}, Meghedi Babakhanian^{1,2}, Martin Culjat^{1,3}, Bryan Nowroozi^{1,2}, William Melega¹, Warren Grundfest^{1,3} ¹Center for Advanced Surgical and Interventional Technology (CASIT), University of California, Los Angeles (UCLA), Los Angeles, California, USA, ²Biomedical Engineering, University of California, Los Angeles (UCLA), Los Angeles, California, USA, ³Surgery, University of California, Los Angeles (UCLA), Los Angeles, California, USA, ⁴Department of Molecular and Medical Pharmacology, University of California, Los Angeles (UCLA), Los Angeles, California, USA	P1A10-7 Molecular-Targeted Nanorods for the Localised Destruction of Cancer Cells James McLaughlin¹, Sevan Harput¹, David Cowell¹, Steven Freear¹ ¹School of Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom	P1A11-3 Beamforming with sparse prior in ultrasound medical imaging Teodora Szasz¹, Adrian Basarab¹, Denis Kouame¹ ¹IRIT, UMR CNRS 5505, University of Toulouse, France
P1A8-2 An Interleaved Data Acquisition to Reduce Common Noise in Coronary Doppler Vibrometry Daebyeon Lee¹, Jongin Park¹, Jeesu Kim¹, Sungjoo Yoo¹, Hong-June Park¹, Jin S. Lee², Jong-Seon Park¹, Ung Kim³ ¹Department of Electrical Engineering, Pohang University of Science and Technology, Korea, Republic of, ²Department of Creative IT Excellence Engineering, Pohang University of Science and Technology, Korea, Republic of, ³Division of Cardiology, Yeungnam University Medical Center, Korea, Republic of	P1A9-1 Finite-Difference Time-Domain Analysis of Ultrasound Backscattering in Cancellous Bone Atsushi Hosokawa¹ ¹Department of Electrical and Computer Engineering, Akashi National College of Technology, Akashi, Japan	Session P1A10. MTH: Drug Delivery and stimulation Chair: Tom Matula Univ. of Washington, Seattle	P1A10-8 Inhalation Delivery of Surface Acoustic Wave-Nebulised Monoclonal Antibodies, siRNA, and Stem Cells for Treatment of Lung Disease Leslie Yeo¹, James Friend² ¹School of Environmental and Civil Engineering, RMIT University, Melbourne, Victoria, Australia, ²Micro/Nano Research Facility, RMIT University, Melbourne, Victoria, Australia	P1A11-4 A Two Dimensional Sub-Sample Estimator Based on Zero Phase Crossing in Ultrasound Fei Zheng¹, Enad Ebbini¹ ¹Electrical and Computer Engineering, University of Minnesota, Twin Cities, Minneapolis, MINNESOTA, USA

Poster --- Thursday, September 4, 2014

8:00 am - 5:00 pm

Salon C

P1A11-5 Fast characterization of the fast and slow ultrasound waves in cancellous bone using frequency domain interferometry Hirofumi Taki¹, Yoshiaki Nagatani², Mami Matsukawa³, Katsunori Mizuno⁴, Toru Sato¹ ¹Graduate School of Informatics, Kyoto University, Kyoto, Japan, ²Department of Electronics, Kobe City College of Technology, Kobe, Japan, ³Graduate School of Engineering, Doshisha University, Kyoto, Japan, ⁴Institute of Industrial Science, the University of Tokyo, Tokyo, Japan	P2A1-4 Stress Measurement with Ultrasonic LFM LCR Wave : Theoretical Verification and Numerical Simulation Han ZHANG¹ ¹Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of	P2A2-4 Characterization of the spatio-temporal response of optical fiber sensors to incident spherical waves Istvan Veres¹, Amir Rosenthal², Peter Burgholzer^{1,3}, Georg Wissmeyer², Vasilis Ntziachristos³, Thomas Berer^{1,3} ¹Recendo, Linz, Austria, ²Institute for Biological and Medical Imaging (IBMI), Technical University of Munich and Helmholtz Center Munich, Neuherberg, Germany, ³Christian Doppler Laboratory for Photoacoustic Imaging and Laser Ultrasonics, Linz, Austria	P2A3-2 Fundamental Study on Guided Wave Testing of Cylindrical Bars Embedded in Soil Masanari Shoji¹, Yasuhiro Higashi¹ ¹NTT Energy and Environment Systems Laboratories, Nippon Telegraph and Telephone Corporation, Japan	Session P3A1. Particle Manipulation and Acoustic Tweezing 1 Chair: Anne Bernassau University of Glasgow	P3A1-1 Influence of Nonlinear Effects on the Acoustic Levitation of Small Spheres Tiago Ramos¹, Marco Andrade², Julio Adamowski¹ ¹Mechanical Engineering, University of Sao Paulo, Sao Paulo, Brazil, ²Institute of Physics, University of Sao Paulo, Sao Paulo, Brazil	P3A1-2 Acoustic filtering of particles in a flow regime Kristoffer Johansen¹, Spiros Kotopoulos^{1,2}, Michiel Postema¹ ¹Department of physics and technology, University of Bergen, Bergen, Norway, ²National Center for Ultrasound in Gastroenterology, Haukeland University Hospital, Bergen, Norway	P3A1-3 FPGA Embedded Systems for Ultrasound Particle Manipulation with Sonotweezers Han Wang¹, Yongqiang Qiu¹, Christine Demore¹, Sandy Cochran¹ ¹Institute for Medical Science and Technology, University of Dundee, United Kingdom
	P2A1-5 Generalization of the k-space Method for Elastic Wave Propagation in Heterogeneous Anisotropic Media Kamyar Firouzi¹, Amin Nikoozadeh², Butrus T. Khuri-Yakub² ¹Mechanical Engineering, Stanford University, Stanford, California, USA, ²Electrical Engineering, Stanford University, Stanford, California, USA	P2A2-5 Non-recursive Synthetic Aperture Imaging for Multilayered Media with Irregular Boundary Shiwei Wu¹, Jianxin Meng¹ ¹Zhejiang University, Hangzhou, Zhejiang, China, People's Republic of	P2A3-3 Application of one-bit time reversal technique to mechanical strain monitoring in plates Alan Kubrusky¹, Nicolas Perez², Julio Cesar Adamowski¹, Timoteo Francisco Oliveira³, Arthur Braga⁴, Jean Pierre von der Weid¹ ¹Pontifical Catholic University of Rio de Janeiro, Brazil, ²Polo Agroalimentario Agroindustrial de Paysandu, Universidad de La Republica, Uruguay, ³Department of Mechatronic and Mechanical Systems Engineering, University of Sao Paulo, Brazil				
	P2A1-6 Application of SLM-generated patterns for laser-ultrasound in f3-space Clemens Grünsteidl¹, Istvan Veres¹, Thomas Berer¹, Peter Burgholzer¹ ¹Research Center for Non Destructive Testing, Linz, Austria		P2A2-6 Three dimensional mapping of aquatic plants at shallow lakes using 1.8 MHz high-resolution acoustic imaging sonar and image processing technology. Katsunori Mizuno¹, Akira Asada¹ ¹Institute of Industrial Science, The University of Tokyo, Japan				
	P2A1-7 Accurate Finite Element Model of Equiaxed Coarse-grained Engineering Material for Ultrasonic Inspection Bo Xiao¹, Richard O'Leary², Anthony Gachagan², Wenqi Li³, Timothy Burnett⁴ ¹Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom, ²University of Strathclyde, United Kingdom, ³University of Nottingham, United Kingdom, ⁴University of Manchester, United Kingdom		P2A2-7 Wide 3D Ultrasound Palmprint for Biometric Recognition Antonio Iula¹, Gabriel Hine¹ ¹University of Basilicata, Italy				

Session P2A1. Wave Propagation <i>Chair: David Greve</i> <i>Carnegie Mellon University</i>	Session P2A2. Imaging <i>Chair: David Greve</i> <i>Carnegie Mellon University</i>	P2A2-8 A novel method of evaluating surface properties of tempered glasses by the ultrasonic microspectroscopy technology Mototsuka Arakawa¹, Jun-ichi Kishibiki¹, Yuji Ohashi¹, Kuniko Kawaguchi¹, Nobuo Takeda¹ ¹Electrical Engineering, Tohoku University, Sendai, Japan	P2A2-9 Non-contact measurement of ultrasonic propagation characteristics in human tissues using pass-through airborne ultrasound Shinnosuke Hirata¹, Lailia Haritaipan¹, Kotaro Hoshiba¹, Hiroyuki Hachiya¹, Nobuo Nimi² ¹Tokyo Institute of Technology, Japan, ²NIPPON SIGMAX CO.,LTD., Japan	P2A2-1 Resonant acoustic nonlinearity of defects for nonlinear and thermosonic imaging and NDE Igor Solodov¹ ¹University of Stuttgart, Stuttgart, Germany	P2A2-2 Iterative Photoacoustic Image Reconstruction Based on Calculating Optimum Acoustic Sound-Speed Distribution Using B-mode Images Bing Cong¹, Kengo Kondo¹, Makoto Yamakawa¹, Tsuyoshi Shiina¹ ¹Kyoto University, Japan	P2A2-3 3D Synthetic Aperture Imaging Using a Water-Jet Coupled Large-Aperture Single Transducer Johan E. Carlsson¹, Miguel Castaño Arranz¹, Matti Rantatalo², Robert Risberg³, Miles Weston⁴ ¹Computer Science, Electrical and Space Engineering, Lulea University of Technology, Sweden, ²Civil, Environmental and Natural Resources Engineering, Lulea University of Technology, Sweden, ³Creo Dynamics AB, Linköping, Sweden, ⁴TWT Technology Centre Wales, Port Talbot, United Kingdom	P2A1-1 Temperature distribution of Piezoelectric Transformer with Heat Couple Component Using Finite Element Method Weiwei Shao¹, Zhile Han¹, Yongjia Xiang¹, Peiyang Li¹, Yaoyao Cui¹ ¹Sichou Institute of Biomedical Engineering and Technology (SIBET), Chinese Academy of Sciences (CAS), China, People's Republic of	P2A1-2 The study of broadband acoustic metamaterials in air Stefano Laureti^{1,2}, Marco Ricci², David Arthur Hutchins¹, Lee Andrew John Davis¹ ¹School of Engineering, University of Warwick, Coventry, United Kingdom, ²Polo scientifico e didattico di Terni, Università degli Studi di Perugia, Terni, Italy	P2A1-3 Time-causal material modeling in the simulation of guided waves in circular viscoelastic waveguides Fabian Bause¹, Hauke Gravenkamp², Andreas Schröder¹, Jens Rautenberg¹, Bernd Henning¹ ¹Measurement Engineering Group, University of Paderborn, Paderborn, Germany, ²Federal Institute for Materials Research and Testing, Berlin, Germany	P2A1-4 Micropatterning based on single-beam acoustic trapping Changhan Yoon¹, Bongim Kang¹, Changyang Lee¹, Hyung Ham Kim¹, K. Kirk Shung¹ ¹Biomedical engineering, University of Southern California, USA	P2A1-5 Temperature-dependent Displacement Modulation at Acoustic Trap Jungwoo Lee¹, Jae Youn Hwang² ¹Kwangju University, Korea, Republic of, ²Daegu Gyeongbuk Institute of Science and Technology, Korea, Republic of	P2A3-6 Methodology for the 3-Dimensional Model-Assisted Evaluation of Polycrystalline Materials Darius Johnson¹, James Blackshire¹ ¹AFRL/RXCA, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA	P2A3-7 High-performance Nondestructive Inspection Method for High-attenuation Billet: Ultrasonic Computerized Tomography Using Time-of-flight Yoko Norose¹, Koichi Mizutani¹, Naoto Wakatsuki¹, Tadashi Ebihara¹ ¹University of Tsukuba, Japan	P2A3-8 Characterization of Natural Fibre-Reinforced Composites with Advanced Ultrasonic Techniques Inna Seviaryna¹, Elena Maeva¹, Jimi Tyong² ¹Physics Department, University of Windsor, Canada, ²Ford Motor Company, Canada	P2A3-9 Guided Waves in Material Characterization for 3D-printed Parts Chao-Kuo Chan¹, Che-Hua Yang¹ ¹Department of Mechanical Engineering, National Taipei University of Technology, Taiwan	P2A3-1 Celerity and thickness measurements by ultrasound in protons exchange membranes Julien Fortincau¹, François Vander Meulen¹, Laurianne Blanc¹, Janick Bigarré², Jérôme Fortincau¹, Guy Feuillard¹ ¹GREMAN UMR 7347, Université François Rabelais de Tours, Blois, France, ²CEA, DAM, Moins, France, ³GREMAN UMR 7347, INSA Centre Val de Loire, Blois, France	Session P3A2. Nonlinear Acoustics 2 <i>Chair: David Feld</i> <i>AVAGO Technologies</i>	P3A2-1 Evolution of Nonlinear Acoustics during Creep in Welded Joint for High Cr Ferritic Heat Resisting Steels Toshihiro Ohtani¹, Yuki Kusnagi², Yutaka Ishi², Masaaki Tabuchi¹, Hiromichi Hongo¹, Masahiko Hirao³ ¹Mechanical Engineering, Shonan Institute of Technology, Fujisawa, Japan, ²Graduate School of Engineering, Shonan Institute of Technology, Fujisawa, Japan, ³National Institute for Material Science, Tsukuba, Japan, ⁴Graduate school of engineering science, Osaka University, Toyonaka, Japan
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P3A2-2 Measurement of Convergence Ultrasound in Cone-like Bubble Structure Using Light Deflection Method Takanobu Kuroyama¹, Koichi Mizutani², Naoto Wakatsuki³, Takeshi Ohbuchi³ ¹Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, Ibaraki, Japan; ²Faculty of Engineering, University of Tsukuba, Tsukuba, Ibaraki, Japan; ³Department of Applied Physics, National Defense Academy, Yokosuka, Kanagawa, Japan	P4A1-1 The Influence of Acoustic Reflectors on the Temperature Coefficient of Frequency of Solidly Mounted Resonators Mario DeMiguel-Ramos¹, Girish Rughobur², Jimena Olivas³, Luis Garcia-Gancedo⁴, Teona Mirea⁵, Enrique Iborra¹, Andrew J. Flewitt² ¹GMME-CEMDATC-ETSIT, Universidad Politécnica de Madrid, Spain; ²University of Cambridge, United Kingdom	P4A2-2 Full Analysis of the Mixed Matrix parameters for a SAW Transducer Having Aperiodic Multi-Electrode Cells Pascal Ventura¹, Pierre Duffilé², Frédéric Hecht³ ¹Laboratoire LEM3, Université de Lorraine, Metz, France; ²Phonon Corporation, Connecticut, USA; ³Laboratoire Jacques Louis Lions, Université Pierre et Marie Curie, Paris, France	P4A3-5 A single-chip biosensing platform integrating FBAR sensor with digital microfluidic device Mengjun Zhang¹, Weiwei Cui¹, Daihua Zhang¹, Wei Pang¹, Hao Zhang¹ ¹Tianjin University, Tianjin, China, People's Republic of	Session P5A2. Films and Devices Chair: David Cowell University of Leeds
P3A2-3 Shear elastic properties of 1-D model granular unconsolidated media Natalia Shirgina¹, Alexandr Korobov¹ ¹Physics Department, M.V. Lomonosov Moscow State University, Moscow, Russian Federation	P4A1-2 High volume production system for piezoelectric multi-material depositions Michael Gutkin¹, Sergey Mishin¹ ¹Advanced Modular Systems, Goleta, CA, USA	P4A2-3 A Lateral Modes Model for Membrane BAW Resonators Eduard Rocas¹, Carlos Collado¹, Jordi Mateu^{1,2}, Jordi Verdú¹, Alberto Hueltes¹, Robert Aigner³ ¹Universitat Politècnica de Catalunya (UPC), Spain; ²Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain; ³TriQuint Semiconductor, USA	P4A3-6 AIN solidly mounted resonators for high temperature applications Teona Mirea¹, Mario DeMiguel-Ramos¹, Venislav Yantchev², Marta Clement¹, Jimena Olivas³, Enrique Iborra¹, Iliia Katardjiev² ¹GMME-CEMDATC, Universidad Politécnica de Madrid, Madrid, Spain; ²Uppsala University, Sweden	P5A2-1 Ultrasonic Micromotor Control Using Self-Actuated Micro-Structures Sarvani Piratla¹, Amit Lai² ¹Cornell University, Ithaca, New York, USA; ²Cornell University, USA
P3A2-4 Temperature Dependence of Harmonics Generated by Nonlinear Ultrasound Beam Propagation in Water. A Simulation Study Borna Maraghechi¹, Mojtaba H. Hasani², Michael C. Kolos¹, Jahan Tavakkoli¹ ¹Physics, Ryerson University, Toronto, Ontario, Canada; ²Biomedical Engineering, AmirKabir University of Technology, Tehran, Iran	P4A1-3 Carbon Nanotubes Forests as Top Electrode for AIN-Based Electroacoustic Resonators Teona Mirea¹, Jimena Olivas¹, Santiago Esconjauregui², Mario DeMiguel-Ramos¹, Marta Clement¹, Jesús Sangrador¹, Enrique Iborra¹ ¹GMME-CEMDATC-ETSIT, Universidad Politécnica de Madrid, Madrid, Spain; ²University of Cambridge, United Kingdom	P4A2-4 Fast Full-FEM Computation of COM Parameters. Application to Multilayered SAW Structures. Kirill Shaposhnikov¹, Manfred Kaltenbacher², Pascal Nicolay² ¹Institute of Mechanics and Mechatronics, Vienna University of Technology, Vienna, Austria; ²Carinthian Tech Research (CTR AG), Villach, Austria	P4A3-7 Label-free Detection of Protein Released during Platelet Activation by CNT-Enhanced Love Mode SAW Sensors Huiyan Wu¹, Guangyi Zhao², Honglei Zu¹, James H-C Wang², Qing-Ming Wang¹ ¹Mechanical Engineering and Materials Science, University of Pittsburgh, USA; ²MechanoBiology Laboratory, Department of Orthopaedic Surgery, University of Pittsburgh, USA	P5A2-2 A New Piezoelectric Motor using d14 Actuator Yung Ting¹, Chih Hao Lin¹, Hao Ping Lin¹ ¹Mechanical Engineering, Chung Yuan Christian University, Chung Li, Taiwan
P3A2-5 Influence of pulse polarity to nonlinear ultrasonic wave propagation Darius Kybartas¹, Dobilas Liaukonis¹, Linas Sviliams¹, Andrus Chazachmetovas¹ ¹Electronics Engineering Department, Kaunas University of Technology, Kaunas, Lithuania	P4A1-4 Langatate and langasite microacoustic gyro sensors Gobong Choi¹, Yook-Kong Yong¹ ¹Civil and Environmental Engineering, Rutgers University, Piscataway, New Jersey, USA	Session P4A3. Acoustic Sensors 1 Chair: Omar Elmazria Université de Lorraine	Session P5A1. Front End Transducer Electronics Chair: David Cowell University of Leeds	P5A2-3 Performance Evaluation of PVDF Single-Element Transducers with Different Backing Materials for Photoacoustic Microscopy Jun Su Lee¹, Jin Ho Chang^{1,2} ¹Department of Electronic Engineering, Sogang University, Seoul, Korea, Republic of; ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of

P3A2-6 Bifurcation Structure of Nonlinear Modal Coupling in Quartz Crystal Resonator Exhibiting Internal Resonance Christopher Kirkendall¹, Jae Kwon¹ ¹University of Missouri-Columbia, USA	P4A1-5 ZnO/AlN Stacked BAW Resonators with Double Resonance Mario DeMiguel-Ramos¹, Girish Rughoobur², Marta Clement¹, Jimena Olivares¹, Teona Mical¹, Andrew J. Flaviot¹, Enrique Iborra¹ ¹GAMME-CENDATIC-ETSIT, Universidad Politécnica de Madrid, Spain, ²University of Cambridge, United Kingdom, ³University of Cambridge, Spain	P4A3-1 Choice of quartz cut for sensitive wireless SAW temperature sensor Alexander Shvetsov¹, Sergei Zhigoun¹, Ivan Antsev², Sergei Bogoslovsky², Gennadiy Supozhnikov², Konstantin Trokhimets², Mikhail Derkach³ ¹National Research University MPEI, Moscow, Moscow, Russian Federation, ²Radar-mms, Russian Federation	P5A1-1 An Integrated Beamforming Driver for CMUT based Ultrasound Catheter Ablation System Hasan Yetik¹, Arif Sanli Ergun¹, Ayhan Bozkurt² ¹Faculty of Engineering, TOBB University of Economics and Technology, Ankara, Turkey, ²Faculty of Engineering and Natural Sciences, Sabanci University, Istanbul, Turkey	P5A2-4 High Frequency Transducer Based on Hydrothermal PZT Film for Ultrasound Imaging and Trapping benpeng zhu^{1,2}, Ying Li², Yang Li², Michihisa Shiba³, Shinichi Takeuchi³, qifa zhou², Keping Sheng² ¹Huazhong University of Science and Technology, Wuhan, China, ²People's Republic of, ³Department of Biomedical Engineering and NIH Transducer Resource Center, University of Southern Cali, USA, ⁴Medical Engineering Course, Graduate School of Engineering, Toei University of Yokohama, Yokohama 225, Japan
P3A2-7 Comparison between two different full-wave methods for the computation of nonlinear ultrasound fields in inhomogeneous and attenuating tissue Bradley Treeby¹, Liberto Domí, Martin Verweij³ ¹Dept. of Medical Physics and Bioengineering, University College London, London, United Kingdom, ²Lab. of Biomedical Diagnostics, Eindhoven University of Technology, Eindhoven, Netherlands, ³Lab. of Acoustical Wavefield Imaging, Delft University of Technology, Delft, Netherlands	P4A1-6 Equivalent Parameters for Microwave HBAR based on Al/AlN/Mo/(100) Diamond Piezoelectric Layered Structure Boris Sorokin^{1,2}, Vladimir Blank¹, Gennadiy Kvashnin¹, Alexander Volkov¹, Vitaliy Bormashov¹, Mikhail Kuznetsov¹, Arseniy Telchko^{1,2}, Georgy Gordsev^{1,2}, Sergey Burkov³ ¹Technological Institute for Superhard and Novel Carbon Materials, Troitsk, Moscow, Russian Federation, ²Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russian Federation, ³Siberian Federal University, Krasnoyarsk, Russian Federation	P4A3-2 Online real-time monitoring method of methanol concentration for direct methanol fuel cell using shear horizontal surface acoustic wave Jun Kondoh¹, Takuya Nozawa¹ ¹Shizuoka University, Japan	P5A1-2 Design of a Driver IC for an Ultrasound Catheter Ablation System Ayhan Bozkurt¹, Omid Farhanieh¹, Rupak Bardhan Roy¹, Arif Ergun² ¹Electronics Engineering, Sabanci University, Tuzla, Istanbul, Turkey, ²TOBB University of Economics and Technology, Ankara, Turkey	P5A2-5 A Novel Wireless Power Transmission Scheme Based on Ultrasonic Phased Array Transducers Jinyang Zhang¹, Gang Han¹, Xi Ning¹, Shuming Chen¹ ¹National University of Defense Technology, China, People's Republic of
P3A2-8 Nonlinear reflection of elastic waves from the boundary of solids Natalia Shirgina¹, Aleksey Kokshanski², Alexandr Korobov¹ ¹Physics Department, M.V. Lomonosov Moscow State University, Russian Federation, ²M.V. Lomonosov Moscow State University, Russian Federation	Session P4A2: Acoustic Modeling Chair: Maximilian Pitschi TDK Corporation	P4A3-3 Design and characterisation of a combined pressure, temperature, ID sensor for harsh environment Alfred Binder¹, Jochen Bardong¹, Gudrun Bruckner¹ ¹CTR Carinthian Tech Research AG, Austria	P5A1-3 Design of Frequency-Division Multiplexing Front-End Receiver Electronics for CMUT-on-CMOS Based Intracardiac Echocardiography M Wasequr Rashid¹, Coskun Tekes², Maysam Ghovanloo¹, F. Levent Degertekin² ¹School of Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, ²G. W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, USA	P5A2-6 Effect of pre-deposition rf plasma etching on water surface morphology and crystal orientation of piezoelectric AlN thin films Valeriy Felmetger¹, Mikhail Mikhov¹, Pavel Laptev¹ ¹PTD, OEM Group Incorporated, Gilbert, AZ, USA
Session P4A1: Innovations for Resonators and Sensors 1 Chair: Robert Aigner Triquint Semiconductor	P4A2-1 A Novel Ab-initio Finite Difference-based Method for Convenient Implementation of the Mass-loading Effect in Micro-acoustic Devices Ireka Ikema E¹, Mebratu Fenta Wakeni², Alireza Baghai-Wadji³ ¹Department of Mathematics and Applied Mathematics, Western Cape, South Africa, ²Centre for Research in Computational and Applied Mechanics, University of Cape Town, Rondebosch, Western Cape, South Africa, ³Electrical Engineering, University of Cape Town, Rondebosch, Western Cape, South Africa	P4A3-4 Dual Rayleigh and Love surface acoustic wave structures based on ZnO thin film for Microfluidic applications Frederic Sarry¹, Thibaut Roux-Marchand¹, Denis Beyssen¹, Omar Elmazria¹ ¹Université de Lorraine, ILL UMR7198 CNRS, Vandœuvre-les-Nancy, France	P5A1-4 Optimized Thermal Design for ASICs-embedded Clinical Ultrasound Probes Using Phase-change Materials Toru Watanabe¹, Kazuya Motoki¹ ¹Probe R&D, Hitachi Aloka Medical, Ltd., Kokubunji, Tokyo, Japan	P5A2-7 Preparation of (K, Na)NbO₃-CaTiO₃ Film by RF Magnetron Sputtering Shinsuke Ikuchi¹, Toshimaro Yoneda¹, Yoshitaka Matsuki¹, Naoyuki Endo¹, Yutaka Takeshima¹, Hideya Horuchi¹, Yutaka Kishimoto¹, Kansho Yamamoto¹, Katsumi Fujimoto¹ ¹Murata Manufacturing Co., Ltd., Nagakakyō-shi, Kyoto, Japan

8:00 am - 5:00 pm					Poster --- Thursday, September 4, 2014					Salon C				
PSA2-8 PVDF Cylindrical Film Device Influenced by Axial Film length Minoru Toda ¹ ¹ Measurement Specialties Inc, Lawrenceville, NJ, USA														
PSA2-9 PVDF copolymer transducers used to evaluate microparticle suspensions Sanat Wagle ¹ , Adit Decharat ¹ , Michael Wegener ² , Frank Melandso ³ ¹ Department of Physics and Technology, Norway, ² Sensors and Actuators, Fraunhofer Institute for Applied Polymer Research, Germany														
PSA2-10 Durability Test and Observation on Non-Linear Distortion in Output Waveform of Anti-Cavitation Hydrophone in High Intensity Ultrasound Nagaya Okada ¹ , Michihisa Shiba ² , Takeyoshi Uchida ³ , Masahiro Yoshioka ⁴ , Minoru K. Kurosawa ⁵ , Shinichi Takeuchi ⁶ ¹ Research and Development Div., HONDA ELECTRONICS CO., LTD., Japan, ² Department of Clinical Engineering, Faculty of Biomedical Engineering, Toei University of Yokohama, Japan, ³ National Metrology Institute of Japan (NMIJ), National Institute of Advanced Industrial Science and Technology (AIST), Japan, ⁴ Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan														
PSA2-11 Electronic Radial Scanning Echoendoscope Probe with High Resolution Jue PENG ¹ , Xiaojian PENG ¹ , Hu TANG ¹ , Tanfu WANG ¹ , Siping CHEN ¹ ¹ Department of Biomedical Engineering, Guangdong Key Laboratory for Biomedical Measurements & Imaging, National-Regional Key Technology Engineering Laboratory for Medical Ultrasound, Shenzhen University, Shenzhen, Guangdong, China, People's Republic of														

P5A2-12 Dual-concentric transducer with phase apodization for wide depth of field of high-frequency ultrasound imaging Jong Seob Jeong ¹ , Sung Min Kim ¹ ¹ Medical Biotechnology, Dongguk University, Seoul, Korea, Republic of				
P5A2-13 Pulse Pressure Sensor Based on Flexible Piezoelectric PZT Thick-Film Composite Device Rongjie Liang ¹ , Qing-Ming Wang ¹ ¹ Mechanical Engineering and Materials Science, University of Pittsburgh, USA				
P5A2-14 Multi-mode Langevin transducers for π -shaped ultrasonic motor with multi-degree of freedom. Takaaki Ishii ¹ , Seiya Mochizuki ¹ , Tsuyoshi Shimizu ¹ ¹ Mechatronics, University of Yamanashi, Kofu, Yamanashi, Japan				
P5A2-15 Fabrication and Characteristics of Inversion Layer LiNbO ₃ for High Frequency Ultrasound Transducers Zhitian Zhang ¹ , Chao Zhang ² , Jin Chen ³ , Qifa Zhou ⁴ ¹ Research Institute of Tsinghua Univ., China, People's Republic of; ² Research Institute of Tsinghua University, China, People's Republic of; ³ Tsinghua University, China, People's Republic of; ⁴ University of Southern California, USA				

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THURSDAY POSTER

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FRIDAY ORAL

Oral --- Friday, September 5, 2014					
8:00 am - 9:30 am	Session 1D. MSD: Advanced Multi-Channel and Multi-Modality Systems Chair: Andrzej Nowicki Institute of Fundamental Technical Research, Warsaw	Session 2D. MBF: Vector Velocity Techniques Chair: Hans Torp Univ. of Science and Technology, Trondheim	Session 3D. MPA: Photoacoustics II Chair: Paul Dayton Univ. North Carolina/NCSTU, Chapel Hill	Session 4D. NDE Chair: James Blackshire Air Force Research Laboratory	Session 5D. Particle Manipulation and Acoustic Tweezing 2 Chair: Charles Courtney University of Bath
Grand Ballroom					
8:00 am	1D-1 A Column-Row-Parallel Ultrasound Imaging Architecture for 3D Plane-wave Imaging and Tx 2nd-Order Harmonic Distortion (HD2) Reduction Kailiang Chen ¹ , Byung Chul Lee ² , Kai Thomenius ¹ , Burus T. Khuri-Yakub ² , Hae-Seung Lee ¹ , Charles G. Sodini ¹ ¹ MIT, USA, ² Stanford University, USA	2D-1 Vector Projectile Imaging (VPI): A New Tool for Dynamic Visualization of Complex Flow Fields Billy Y. S. Yiu ¹ , Alfred C. H. Yu ¹ ¹ Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong	3D-1 Enhancement of photoacoustic signal using a novel light illumination improvement device: <i>in vivo</i> animal study Jaesook Yu ^{1,2} , Youngsoo Jung ³ , Jeoun Kang ⁴ , Sang Goo Lee ⁵ , Jin Ho Chang ⁶ , Jung-Kun Lee ³ , Kang Kim ^{1,2} ¹ Center for Ultrasound Molecular Imaging and Therapeutics & Heart and Vascular Institute, University of Pittsburgh and University of Pittsburgh Medical Center (UPMC), Pittsburgh, PA, USA, ² Bioengineering, University of Pittsburgh, USA, ³ Mechanical Engineering and Materials Science, University of Pittsburgh, USA, ⁴ Electronic Engineering, Sogang University, Korea, Republic of, ⁵ IBILE PHOTONICS, Korea, Republic of, ⁶ Sogang Institute of Advanced Technology, Korea, Republic of	4D-1 Monitoring corrosion in plates based on wideband dispersion reversal of Lamb waves: a simulation study Kailiang Xu ^{1,2} , Dean Ta ¹ , Mingxi Deng ³ , Pascal Laugier ⁴ , Weiqi Wang ⁵ ¹ Department of Electronic Engineering, Fudan University, Shanghai, China, ² People's Republic of, ³ Laboratoire d'Imagerie Biomedicale, Sorbonne Universités, UPMC Univ Paris 06, INRS, CNRS, Paris, France, ⁴ Department of Physics, Logistics Engineering University, Chongqing, China, ⁵ People's Republic of	5D-1 Ultrahigh Frequency Ultrasound and its applications to Cellular Bioengineering K. Kirk Shung ¹ ¹ Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, USA
8:15 am	1D-2 System Development Improvements using Stackable High-Channel-Count Ultrasound Hardware Richard Tobias ¹ , Mark Schafer ² ¹ Cephasonics, Santa Clara, California, USA, ² Sonic Tech, Inc., Ambler, Pennsylvania, USA	2D-2 In-vivo Convex Array Vector Flow Imaging Jørgen Arendt Jensen ¹ , Andreas Brandt ² , Michael Bachmann Nielsen ³ ¹ Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark, ² Department of Radiology, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark	3D-2 An adaptive-interferometric sensor for all-optical photoacoustic microscopy Parag V. Chitnis ¹ , Harriet Lloyd ² , Ronald H. Silverman ² , F. L. Lizi Center for Biomedical Engineering, Riverside Research, New York, NY, USA, Edward S. Harkness Eye Institute, Columbia University Medical Center, New York, NY, USA	4D-2 Ultrasonic flexural wave responses to debonding at the cement-formation interface of a cased borehole Xiao He ¹ , Hao Chen ¹ , Xiuming Wang ¹ ¹ State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, ² People's Republic of	5D-2 Technological process and resonator design optimization of iRLGS High Temperature SAW Devices Sergey Sakharov ¹ , Alexey Zabelin ¹ , Andrey Medvedev ¹ , Oleg Buzanov ¹ , Dmitry Roschupkin ² , Sergei Kondratyev ³ , Alexander Shvetsov ³ , Sergei Zhigov ³ ¹ JSC Fomos-Materials, Moscow, Russian Federation, ² Institute of Microelectronics Technology and High-Purity Materials, Russian Academy of Sciences, Russian Federation, ³ National Research University "Moscow Power Engineering Institute", Russian Federation
8:15 am	1D-2 System Development Improvements using Stackable High-Channel-Count Ultrasound Hardware Richard Tobias ¹ , Mark Schafer ² ¹ Cephasonics, Santa Clara, California, USA, ² Sonic Tech, Inc., Ambler, Pennsylvania, USA	2D-2 In-vivo Convex Array Vector Flow Imaging Jørgen Arendt Jensen ¹ , Andreas Brandt ² , Michael Bachmann Nielsen ³ ¹ Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark, ² Department of Radiology, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark	3D-2 An adaptive-interferometric sensor for all-optical photoacoustic microscopy Parag V. Chitnis ¹ , Harriet Lloyd ² , Ronald H. Silverman ² , F. L. Lizi Center for Biomedical Engineering, Riverside Research, New York, NY, USA, Edward S. Harkness Eye Institute, Columbia University Medical Center, New York, NY, USA	4D-2 Ultrasonic flexural wave responses to debonding at the cement-formation interface of a cased borehole Xiao He ¹ , Hao Chen ¹ , Xiuming Wang ¹ ¹ State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, ² People's Republic of	5D-2 Design of a Minimally Invasive Low-Frequency Microtransducer for Ultrasonic Neuromodulation Amit Mulgaonkar ^{1,2} , Rahul Singh ^{2,3} , George Suddick ^{2,4} , Ashkan Maccabi ^{1,5} , William Melega ⁶ , Martin Culjat ^{1,2} , Warren Grundfest ^{2,3} ¹ Center for Advanced Surgical and Interventional Technology, University of California, Los Angeles (UCLA), USA, ² Bioengineering, University of California, Los Angeles (UCLA), USA, ³ Surgery, University of California, Los Angeles (UCLA), USA, ⁴ Center for Advanced Surgical and Interventional Technology, University of California, Los Angeles (UCLA), United States Minor Outlying Islands, ⁵ Electrical Engineering, University of California, Los Angeles (UCLA), USA, ⁶ Molecular and Medical Pharmacology, UCLA, USA

8:30 am	1D-3 Tri-modality Ultrasound Imaging System: Design and Phantom Experiment Results Man Nguyen ¹ , Jaesok Yu ^{1,2} , Xuan Ding ³ , Daewoo Park ¹ , Francois Yu ¹ , Kang Kim ^{1,2} ¹ Center for Ultrasound Molecular Imaging and Therapeutics & Heart and Vascular Institute, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA; ² Bioengineering, University of Pittsburgh, Pennsylvania, USA	2D-3 3-D Ultrafast Doppler Imaging in Vivo Jean Provost ¹ , Clement Papadacci ¹ , Charlie Demene ¹ , Olivier Villenain ¹ , Juan-Esteban Arango Ossa ¹ , Marion Imbault ¹ , Jean-Luc Gennisson ¹ , Mickael Tanter ¹ , Mathieu Pernot ¹ ¹ Institut Langevin, ESPCI ParisTech, INSERM U979, CNRS UMR7587, Université Paris 7, Paris, France	3D-3 Label-free ultrasound and spectroscopic imaging for photoacoustic imaging for the identification of metastatic lymph nodes Geoffrey Luke ^{1,2} , Stanislav Emelianov ^{1,2} ¹ Biomedical Engineering, The University of Texas at Austin, Austin, Texas, USA; ² Electrical and Computer Engineering, The University of Texas at Austin, Texas, USA	4D-3 Ultrasonic Detection of the Alkali-Silica Reaction in Concrete Peng Gong ¹ , Mark Patton ^{1,2} , David Greve ¹ , Joel Harley ¹ , Warren Junker ¹ , Irving Oppenheim ¹ , Chang Liu ¹ ¹ Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; ² Mark Patton Ltd., Murrysville, PA, USA; ³ Department of Electrical and Computer Engineering, Carnegie Mellon University, PA, USA; ⁴ Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; ⁵ W. Junker Consulting, Pittsburgh, USA	5D-2 Ultrasonic assembly of short fibre reinforced composites Marc-S Schoelz ¹ , Bruce W Drinkwater ² , Richard S Trask ¹ ¹ ACCIS, Department of Aerospace Engineering, University of Bristol, Bristol, United Kingdom; ² Department of Mechanical Engineering, University of Bristol, Bristol, United Kingdom	6D-3 Correlation between the microstructure of AlN films and the performances of AlN/Sapphire-based SAW devices in wide temperature range Keltouma Alt Aissa ¹ , omair elmazria ¹ , Pical Boulet ¹ , Thierry Aubert ² ¹ Institut Jean Lamour, UMR 7198, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France; ² Laboratoire SYMME, Université de Savoie, Annecy, France	7D-3 Partial hemispherical element of array transducer for second-harmonic superimposition Shin-ichiro Umemura ¹ , Kenji Otsu ¹ , Shin Yoshizawa ¹ ¹ Tohoku University, Japan
8:45 am	1D-4 Ultrasound pre-clinical Platform for Diagnosis and Targeted Therapy Dominique Certin ¹ , Mathieu Legros ² , Dominique Gross ³ , Philippe Vince ⁴ , Fabrice Gens ³ , Jean-Marc Grégoire ⁴ , Caroline Coulter ⁵ , Anthony Novell ⁵ , Ayache Bouakaz ⁴ ¹ Université François-Rabelais de Tours, GREMAN, UMR-CNRS 7347, Tours, France; ² Permon S.A., Tours, France; ³ Université François-Rabelais de Tours, CETU Althais Technologies, Tours, France; ⁴ Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France; ⁵ CEA, LETI, MINATEC Campus, Grenoble, France	2D-4 Robust angle-independent blood velocity estimation based on multi-angle speckle tracking and vector-Doppler Solveig Fadnes ¹ , Ingvald Kinn Ekroll ¹ , Siri Ann Nyrnes ^{1,2} , Hans Top ¹ , Lasse Lovstakken ¹ ¹ MIT Lab and Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway; ² Department of Pediatrics, St. Olav's University Hospital, Trondheim, Norway	3D-4 Molecular Imaging of Hemoglobin and Lipid Content in Breast Cancer with Multivariate Spectroscopic Photoacoustic Imaging Katheryne Wilson ¹ , Sumitha Bachawal ¹ , Lu Tian ² , Juergen Willmann ¹ ¹ Radiology, Stanford University, Palo Alto, California, USA; ² Health Research and Policy, Stanford University, Palo Alto, California, USA	4D-4 A new fiber-optic fast laser ultrasound scanner for efficient nondestructive evaluation of aircraft composites Ivan Peltivanov ^{1,2} , Takashi Buma ¹ , Jinjun Xia ¹ , Matthew O'Donnell ¹ ¹ Bioengineering, University of Washington, Seattle, Washington, USA; ² Moscow State University, Moscow, Russian Federation; ³ Union College, Schenectady, NY, USA	5D-3 Non-linear cavitation cloud oscillations in high intensity focused ultrasound for microphone application Keith Johnston ¹ , Bjørn Gerold ¹ , Sandy Cochran ¹ , Alfred Cuschieri ¹ , Paul Prentice ¹ ¹ Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom	6D-4 Lamb-wave resonator for microphone application Johanna Meltaus ¹ , Brandon Harrington ² , Markku Ylämmä ¹ , James Dekker ¹ , Tommi Reikkinen ¹ , Pekka Rantakari ¹ , Arto Nurmesla ¹ , Eric Lautenschlager ² , Tuomas Pensala ¹ ¹ TTI Technical Research Centre of Finland, Espoo, Finland; ² Knowles Electronics, Itasca, Illinois, USA	7D-4 Piezoelectric and Electromechanical Properties of Hard Lead-free Bi0.5Na0.5TiO3-based Ceramics Elahchi Taghaddos ¹ , Mehdi Hejazi ¹ , Ahmad Safari ¹ ¹ Material science and Engineering, Rutgers University, Piscataway, NJ, USA
9:00 am	1D-5 GPU Enabled Ultrasound Imaging Innovations Alfred C. H. Yu ¹ , Billy Y. S. Yui ¹ , Adrian J. Y. Chee ¹ ¹ Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong	2D-5 Intraventricular Blood Flow Vector and Streamline Imaging Using High Frame Rate Cardiac Ultrasound Hirotaki Takahashi ¹ , Hideyuki Hasegawa ¹ , Hiroshi Karai ¹ ¹ Tohoku University, Sendai, Miyagi, Japan	3D-5 Magnetomotive photoacoustic/ultrasound imaging using coded magnetic excitation Chen-wei Wei ¹ , Bastien Amal ¹ , Junwei Li ¹ , Xiaohu Gao ¹ , Matthew O'Donnell ¹ ¹ University of Washington, Seattle, Washington, USA	4D-5 Estimation of profiles for archaeological ceramics using ultrasonic signature Addisson Salazar ¹ , Gonzalo Safont ¹ , Alberto Rodriguez ² , Luis Vergara ³ ¹ Institute of Telecommunications and Multimedia Applications, Universitat Politècnica de València, Spain; ² Communications Engineering, Universidad Miguel Hernández, Elche, Spain	5D-4 Controlled Live-cell Subcellular Mechanical Modulation by Acoustic Tweezing Cytometry Di Chen ¹ , Yubing Sun ² , Yising Hsiao ³ , Madhu Guduru ⁴ , Ziqi Wu ¹ , Jianping Fu ^{1,2} , Cheri Deng ¹ ¹ Department of Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA; ² Department of Mechanical Engineering, University of Michigan, Ann Arbor, Michigan, USA	6D-5 SAW Tags for the 6 GHz range and SAW devices for 2-5 GHz range produced with nano-imprint-lithography Victor Plesky ¹ , Zachary Davis ² , Marc Lamothe ³ , Sergey Suchkov ⁴ ¹ GTR Trade SA, Switzerland; ² Center for Micro & Nanotech, DTI, Denmark; ³ PEMTO-ST, France; ⁴ Saravov State University, Russian Federation	7D-5 Frequency Optimization in High Intensity Focused Ultrasound Hasan Yetik ¹ , Cemre Ariyurek ² , Ayhan Bozkurt ¹ , Arif Ergun ¹ ¹ TOBB University of Economics and Technology, Turkey; ² Bilkent University, Turkey; ³ Sabancı University, Turkey

8:00 am - 9:30 am		Oral --- Friday, September 5, 2014				
9:15 am	2D-6 Blood velocity measurement in healthy and diseased carotid arteries by vector Doppler techniques Matteo Lengi¹, Daniele Righi², Stefano Ricci¹, Hervé Liebgott¹, Piero Tortoli¹ ¹Information Engineering, Università di Firenze, Firenze, Italy, ²Heart and vessels, AOU Careggi, Firenze, Italy, ³CREATIS, Université Lyon I, Lyon, France	3D-6 Longitudinal monitoring of oxygen saturation with photoacoustic imaging: An early, functional indicator of the in vivo efficacy of thermosensitive liposome treatments Eno Hys¹, Jonathan P. May², Lauren Wirtzfeld¹, Eljias Undzys², Shyh-Dar Li^{3,3}, Michael C. Kolos¹ ¹Physics, Ryerson University, Toronto, Ontario, Canada, ²Drug Delivery and Formulation Group, Drug Discovery Platform, Ontario Institute for Cancer Research, Toronto, Ontario, Canada, ³Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada	4D-6 Microwave-Induced Thermoacoustic Tomography Experimental Study and Hybrid FDTD Modeling Ryan Jacobs¹, Xiaoye Chen¹, Yiming Deng¹, Mark Golkowski¹ ¹Electrical Engineering, University of Colorado Denver, Denver, CO, USA	5D-6 Cancer Cell Mechanotransduction Study using Acoustic Tweezers: Fibronectin-Integrin Binding Induced Calcium Elevation in Breast Cancer Cells Jae Youn Hwang¹, Chi Woo Yoon¹, Hae Gyun Lim², Jinman Park¹, Jungwoo Lee³, K. Kirk Shung² ¹Information and Communication Engineering, Daegu Gyeongbuk Institute of Science & Technology, Korea, Republic of, ²Biomedical Engineering, University of Southern California, USA, ³Electrical Engineering, Kwangju University, Korea, Republic of	6D-6 Analysis of Inter-Sensor Interference for Wireless SAW Sensors James Humphries¹, Mark Gallagher¹, Donald Malocha¹ ¹Department of Electrical Engineering and Computer Science, University of Central Florida, Orlando, FL, USA	7D-6 Rapid Prototyping Fabrication of Focused Ultrasound Transducers Yohan Kim¹, Adam Maxwell², Timothy Hall¹, Zhen Xu¹, Kuang-Wei Lin¹, Charles Cain¹ ¹Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA, ²Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

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11:00 am	1E-3 In Vivo Quantification of Image Enhancement and Circulation Kinetics for Phase Change Perfluorocarbon Agents Using Custom Pulse Sequences Paul S. Sheeran ¹ , Juan D. Rojas ¹ , Connor Puett ¹ , Gloria Nyankima ¹ , Jordan Hjeltnist ² , Paul A. Dayton ¹ ¹ Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, USA; ² Department of Biomedical Engineering, North Carolina State University, USA	2E-3 Flow Detection based on the Spatial Coherence of Backscattered Echoes Youn Li ¹ , Jeremy Dahl ¹ ¹ Biomedical Engineering, Duke University, Durham, NC, USA	3E-3 Dynamic Ultrasound Imaging of Cervical Spine Intervertebral Discs Mingxin Zheng ^{1,2} , Ailin Masoud ¹ , Daniel Buckland ^{2,3} , Brian Stempert ¹ , Narayan Yoganandan ¹ , Thomas Szabo ¹ , Brian Snyder ^{2,5} ¹ Boston University, Boston, MA, USA; ² Beth Israel Deaconess Medical Center - Harvard Medical School, Boston, MA, USA; ³ Massachusetts Institute of Technology, Cambridge, MA, USA; ⁴ Medical College of Wisconsin, Milwaukee, WI, USA; ⁵ Children's Hospital Boston, Boston, MA, USA	4E-2 Ultrasound-induced vaporization of perfluorocarbon for efficient mixing in microfluidic channels Marine Bezagu ^{1,2} , Fabrice Monti ¹ , Stelios Arseniadi ² , Olivier Couture ³ , Mickael Tauter ¹ , Janine Cossy ² , Patrick Tabeling ¹ ¹ MMN (ESPCI, CNRS, UPMC), Paris, France; ² LCO (ESPCI, CNRS, UPMC), Paris, France; ³ Institut Langevin (ESPCI, CNRS, INSERM), Paris, France	5E-3 Two-dimensional noncontact transportation of small objects in air using flexural vibration of a plate Ryota Kashima ^{1,2} , Daisuke Koyama ^{2,3} , Mami Matsukawa ^{2,3} ¹ Faculty of Life and Medical Sciences, Doshisha University, Japan; ² Wave Electronics Research Center, Doshisha University, Japan; ³ Faculty of Science and Engineering, Doshisha University, Japan	6E-3 Chip Scale Reconfigurable Phased-Array Sonic Communication Jason Hoople ¹ , Justin Kuo ² , Serhan Ardanuç ² , Amit Lal ² ¹ Electrical and Computer Engineering, Cornell University, USA; ² Cornell University, USA	7E-3 New Applications of Ultrabiosonics - Feasibility Studies of Fish Growing by Ultrasonic Stimulation Yohachi (John) Yamashita ¹ , Hiroki Sugura ¹ , Tomoaki Karaki ¹ , Hiroki Iwanaga ² , Zao-Guang Ye ³ ¹ Intelligent Systems Design Engineering, Toyama Prefectural University, Imitsuchi, Toyama, Japan; ² Horika Aquaculture Association, Japan; ³ Department of Chemistry and 4D LABS, Simon Fraser University, Canada
11:15 am	1E-4 Condensation Properties of Perfluorobutane Microbubbles Paul Mountford ¹ , Shashank Sirsi ¹ , Mark Borden ¹ ¹ Mechanical Engineering, University of Colorado, Boulder, Colorado, USA	2E-4 Improved Wall Shear Rate Method for Robust Measurements Stefano Ricci ¹ , Abigail Swillens ² , Alessandro Ramalli ¹ , Magnus Cinthio ³ , Patrick Segers ² , Piero Tortoli ¹ ¹ Information Engineering, University of Florence, Florence, Italy; ² IBITech-bioMeda, Gent University, Belgium; ³ Biomedical Engineering, Lund University, Lund, Sweden	3E-4 Improved Detection of Kidney Stones Using an Optimized Doppler Imaging Sequence Bryan Cunitz ¹ , Barbria Dunmire ¹ , Maria Paut ¹ , Oleg Sapozhnikov ¹ , John Kuciewicz ¹ , Ryan Hsi ² , Franklin Lee ² , Matthew Sorensen ² , Jonathan Harper ² , Michael Bailey ¹ ¹ Applied Physics Lab, University of Washington, Seattle, WA, USA; ² Dept. of Urology, University of Washington School of Medicine, Seattle, WA, USA	4E-3 Formation and Double Reversal of Micron to Submicron Thin Fluid Films using Surface Acoustic Waves Angad Rezk ¹ , Ofer Manor ² , Leslie Yeo ³ , James Friend ¹ ¹ MicroNano Research Facility, RMIT University, Melbourne, Victoria, Australia; ² Chemical Engineering, Technion, Israel; ³ School of Environmental and Civil Engineering, RMIT University, Melbourne, Victoria, Australia	5E-4 Two-dimensional Acoustic Manipulation of Microbubbles Using Mechanical Focus Control of Ultrasound Beam Taichi Osaki ¹ , Kazuhito Inoue ² , Takashi Azuma ² , Mitsuhiro Ichinaga ³ , Shu Takagi ² , Yoichiro Matsumoto ² ¹ The University of Tokyo, Tokyo, Japan; ² The University of Tokyo, Japan; ³ Sophia University, Japan	6E-4 Towards Ultrasonic Through-Silicon Vias (UTSV) Justin Kuo ¹ , Jason Hoople ¹ , Serhan Ardanuç ² , Amit Lal ² ¹ School of Electrical and Computer Engineering, Cornell University, Ithaca, NY, USA	7E-4 Nucleic Acid Extraction using a Rapid, Chemical Free, Ultrasonic Technique for Point-of-Care Diagnostics Darren W. Branch ¹ , Jennifer T. Smith ¹ , Erika C. Vreeland ¹ , David Alland ² , Robert Blakemore ² ¹ Biosensors and Nanomaterials Department, Sandia National Laboratories, Albuquerque, New Mexico, USA; ² Department of Medicine, Rutgers University Medical School, Newark, NJ, USA
11:30 am	1E-5 Biogenic Nanostructures as Reporters for Ultrasound Imaging Mikhail Shapiro ¹ ¹ Chemical Engineering, California Institute of Technology, Pasadena, CA, USA	2E-5 In vivo Evaluation of An Objective Method to Select Power Doppler Wall Filter Cut-Off Frequency for Microvascular Quantification Mai Elfarawany ^{1,2} , Matthew R. Lowerison ^{2,3} , M. Nicole Hague ^{2,4} , Ann F. Chambers ^{2,4} , James C. Lacey ^{2,3} ¹ Biomedical Engineering Graduate Program, Western University, Canada; ² Robarts Research Institute, Western University, Canada; ³ Department of Medical Biophysics, Western University, Canada; ⁴ London Regional Cancer Program, London, ON, Canada	3E-5 Ultrafast Plane Wave Imaging Based Pulsed Magnetomotive Ultrasound Pei-Hsien Ting ¹ , Yi-Da Kang ² , San-Yuan Chen ² , Meng-Lin Li ^{1,3} ¹ Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan; ² Department of Materials Science and Engineering, National Chiao Tung University, Taiwan; ³ Institute of Photonics Technologies, National Tsing Hua University, Taiwan	4E-4 Ultra High Frequency Surface Acoustic Wave Driven Microfluidics Marco Travaglini ^{1,2} , Richie Shilton ¹ , Fabio Beltram ^{1,3} , Marco Cecchini ¹ ¹ Laboratorio NEST, Scuola Normale Superiore and Istituto Nanoscienze - CNR, Pisa, Italy; ² Center for Nanotechnology Innovation @ NEST, Istituto Italiano di Tecnologia, Pisa, Italy	5E-5 Experimentation and Simulation of Levitating Water Droplets Formed By Mist Particles in the Acoustic Field Kamlesh Suthar ¹ , Stephen Lomperski ² , Chris J. Benmore ³ , Anthony Tamalonis ¹ , Richard Weber ⁴ , Patric Den Hartog ¹ ¹ Advanced Photon Source, Argonne National Laboratory, Lemont, IL, USA; ² Nuclear Engineering, Argonne National Laboratory, Lemont, IL, USA; ³ X-Ray Science Division, Advanced Photon Source, Argonne National Laboratory, Lemont, IL, USA; ⁴ R&D, Materials Development, Inc., Evanston, IL, USA	6E-5 UV Direct Write Metal Enhanced Redox (MER) Domain Engineering for Realization of Surface Acoustic Devices on Lithium Niobate Didit Yudistira ¹ , Andreas Boes ¹ , Angad Rezk ² , Leslie Yeo ² , James Friend ^{2,3} , Arnan Mitchell ¹ ¹ School of Electrical and Computer Engineering, RMIT University, Melbourne, Victoria, Australia; ² Micro/Nanophysics Research Laboratory, RMIT University, Melbourne, Victoria, Australia; ³ The Melbourne Centre for Nanofabrication, Clayton, Victoria, Australia	7E-5 Biogenic Nanostructures as Reporters for Ultrasound Imaging Mikhail Shapiro ¹ ¹ Chemical Engineering, California Institute of Technology, Pasadena, CA, USA

10:30 am - 12:00 pm		Oral --- Friday, September 5, 2014			
11:45 am	2E-6 2D Flow Imaging in Rat Carotid Bifurcation Using Automatic Image Segmentation and Micro Ultrasonic Particle Image Velocimetry Ming Qian ^{1,2} , Lili Niu ¹ , Qifa Zhou ¹ , K. Kirk Shung ¹ , Harong Zheng ¹ ¹ Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, Guangdong, China, People's Republic of; ² NIH Ultrasonic Transducer Resource Center and Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA				
	3E-6 Automatic measurement of biparietal diameter with a portable ultrasound device Nisad Hossain Khan ¹ , Eva Tegnander ^{2,3} , Johan Morten Dreier ⁴ , Sturla Eik-Nes ^{5,6} , Hans Torp ⁷ , Gabriel Kiss ¹ ¹ ISB, MI Lab and Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway; ² National Center for Fetal Medicine (NCFM), St. Olavs Hospital, Trondheim, Norway; ³ Department of Laboratory Medicine, Children's and Women's Health (LBK), NTNU, Trondheim, Norway				
	4E-5 Microparticle manipulation and whole blood pre-treatment in surface acoustic wave counterflow devices Marco Travaglini ^{1,2} , Richie Shilton ¹ , Marco Pagliazzi ¹ , Iaria Tonazzini ¹ , Fabio Beltram ^{1,2} ¹ Laboratorio NEST, Scuola Normale Superiore and Istituto Nanoscienze - CNR, Pisa, Italy; ² Center for Nanotechnology Innovation @ NEST, Istituto Italiano di Tecnologia, Pisa, Italy				
	5E-6 Reconfigurable Acoustic Metamaterials: From Random to Periodic Mihai Caleap ¹ , Bruce Drinkwater ¹ ¹ University of Bristol, United Kingdom				
	6E-6 Design of High Q Thin Film Bulk Acoustic Resonator Using Dual-Mode Reflection Ngoc Nguyen ¹ , Agne Johansson ¹ , Ulrik Hanke ¹ ¹ Micro and Nano Systems Technology, Buskerud and Vestfold University College, Borre, Vestfold, Norway				
	7E-5 Nuclear Radiation Tolerance of Aluminum Nitride Bernhard Tittmann ¹ , David Parks ^{2,3} ¹ Engineering Science & Mechanics, Penn State University, University Park, Pennsylvania, USA; ² Navico Americas, Tulsa, Oklahoma, USA; ³ Pennsylvania State University, Oklahoma, USA				

FRIDAY ORAL

Oral --- Friday, September 5, 2014						
1:00 pm - 2:30 pm	Session 1F. MTH: Histotripsy and Lithotripsy <i>Chair: Zhen Xu</i> <i>University of Michigan, Ann Arbor</i>	Session 2F. MEL: Vascular Strain Imaging <i>Chair: Chris de Korte</i> <i>Radboudumc</i>	Session 3F. MBB: Beamforming II <i>Chair: Herve Liebgott</i> <i>Universite de Lyon</i>	Session 4F. Signal Processing <i>Chair: Erdal Orunklu</i> <i>Illinois Institute of Technology</i>	Session 6F. Novel microacoustic devices <i>Chair: Sunil Bhawe</i> <i>Cornell University</i>	Session 7F. CMUTs (2) <i>Chair: Richard O'Leary</i> <i>University of Strathclyde</i>
Grand Ballroom						
1:00 pm	1F-1 Histotripsy: Recent Advances Charles Cain ¹ ¹ Univ. of Michigan, Ann Arbor, Ann Arbor, Michigan, USA	2F-1 Determining the Stability of Murine Abdominal Aortic Aneurysms with Pulse Wave Imaging Sacha Nandlal ¹ , Monica Goldklang ¹ , Aubrey Kalashian ¹ , Nida Dangra ¹ , Jeanne D'Armento ¹ , Elisa Konofagou ^{1,3} ¹ Biomedical Engineering, Columbia University, New York, NY, USA, ² Medicine, Columbia University, New York, NY, USA, ³ Radiology, Columbia University, New York, NY, USA	3F-1 An Adapted Beamforming Free from Crystalline Lens Phase Aberration for Ocular Ultrasonography – In-vitro Results with a 20 MHz Linear Array Tony Matteo ¹ , Yassine Mofid ¹ , Jean-Marc Grégoire ¹ , Frédéric Ossant ^{1,2} ¹ Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France, ² CHRU de Tours, Tours, France	4F-1 Low-rate ultrasonic communication axially along a cylindrical pipe via transverse waves Sounya Chakraborty ¹ , Kyle Wilt ² , Gary Saulnier ¹ , Robert Litman ² , Henry Scarton ² ¹ Electrical Engineering, Rensselaer Polytechnic Institute, USA, ² Mechanical, Aerospace, and Nuclear Engineering, Rensselaer Polytechnic Institute, USA	6F-1 Study of Shear Horizontal Wave MEMS resonators based on X-cut Lithium Niobate thin film Songbin Gong ¹ , Gianluca Piazza ² ¹ Department of Electrical and Computer Engineering, University of Illinois Urbana Champaign, Urbana, Illinois, USA, ² Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA	7F-1 CMUT-in-CMOS 2D Arrays with Advanced Multiplexing and Time-Gain Control David Lemmerhirt ¹ , Amir Borni ¹ , Sushma Alvar ^{1,2} , Collin Rich ¹ , Oliver Kripfgans ² ¹ Sonetics Ultrasound, Inc., Ann Arbor, MI, USA, ² Basic Radiological Sciences Division, University of Michigan Medical School, USA
	1:15 pm	2F-2 Stiffness mapping in murine atherosclerotic and aneurysmal aortas using Pulse Wave Imaging (PWI) in vivo Iason Zacharias Apostolakis ¹ , Sacha D. Nandlal ¹ , Elisa E. Konofagou ¹ ¹ Columbia University, USA	3F-2 Full aberration correction in echo ultrasound after detecting aberrators spatially resolved via transmit beam steering Michael Jaeger ¹ , Martin Frenz ¹ ¹ University of Bern, Switzerland	4F-2 Signal optimization of PSK modulated gold-sequences for narrow band transducers Andreas Schröder ¹ , Bernd Henning ¹ ¹ Measurement Engineering Group, University of Paderborn, Paderborn, NRW, Germany	6F-2 Suppressing Fine-Frequency Modes in Aluminum Nitride Microresonators Darren W. Branch ¹ , Roy H. Olsson ² ¹ Biosensors and Nanomaterials Department, Sandia National Laboratories, Albuquerque, New Mexico, USA, ² Advanced MEMS Department, Sandia National Laboratories, Albuquerque, NM, USA	7F-2 Improved Performance CMUT-on-CMOS Devices Using ALD Hafnium Oxide Insulation Layer Toby Xu ¹ , Coskun Tekes ² , F. Levent Degertekin ³ ¹ Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA, ² Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, ³ Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA
Williford C						
Williford B						
Marquette						
Boulevard						
Waldorf						

1:30 pm	1F-2 Synthesis of Near Monopolar Ultrasound Pulses Using a Frequency-Compounding Transducer Kuang-Wei Lin ¹ , Timothy L. Hall ¹ , Robert J. McGough ¹ , Zhen Xu ¹ , Charles A. Cain ¹ ¹ University of Michigan, USA, ² Michigan State University, USA	2F-3 High-resolution harmonic motion imaging (HR-HMI) for tissue biomechanical property characterization Teng Ma ^{1,2} , Xuequn Qian ¹ , Chi Tat Chui ^{1,2} , Yao-sheng Tung ^{1,2} , Qifa Zhou ¹ , K. Kirk Shung ^{1,2} ¹ Department of Biomedical Engineering, University of Southern California, USA, ² NIH Resource Center on Medical Ultrasonic Transducer Technology, University of Southern California, USA, ³ Department of Electrical Engineering, University of Southern California, USA	3F-3 Acoustic Signal Modeling for Direct in vivo Assessment of Off-Axis and Reverberation Clutter Energy in the Liver Brett Byram ¹ , Kazuyuki Del ¹ , Douglas Dumont ¹ ¹ Biomedical Engineering, Vanderbilt University, Nashville, TN, USA	4F-3 Echo Identification by Singular Value Decomposition of Cross Wigner-Ville Distribution Chi-Hang Kwan ¹ , Anthony N. Sinclair ¹ ¹ Mechanical & Industrial Engineering, University of Toronto, Toronto, Ontario, Canada	6F-3 Bulk Acoustic Wave Gyroscope Farokh Ayazi ^{1,2} ¹ Georgia Institute of Technology, Atlanta, GA, USA, ² Quadrif Inc., Marlborough, MA, USA	7F-3 Non-Flexural Parallel Piston Movement across CMUT with Substrate-Embedded Springs Byung Chul Lee ¹ , Amin Nikoosadeh ¹ , Kwan Kyu Park ² , Butrus (Pierre) T. Khuri-Yakub ¹ ¹ Stanford University, USA, ² Hanyang University, Korea, Republic of
1:45 pm	1F-3 Liquefaction of Large Volume Clots Using Histotripsy and Precise Lesion Generation Through the Skull Jonathan Sukovich ¹ , Yohan Kim ¹ , Aditya Pandey ² , Hinder Gurni ¹ , Charles Cain ¹ , Zhen Xu ^{1,4} ¹ Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, ² Neurosurgery, University of Michigan, Ann Arbor, Michigan, USA, ³ Internal Medicine, University of Michigan, Ann Arbor, Michigan, USA, ⁴ Pediatrics, University of Michigan, Ann Arbor, Michigan, USA	2F-4 A sequential Bayesian based method for tracking and strain palpography estimation of arteries in intravascular ultrasound images Nicolas Widynski ¹ , Jonathan Potée ¹ , Marie-Hélène Roy Cardinal ¹ , Jacques Olavoy ² , Guy Cloutier ¹ , Damien Garcia ¹ ¹ University of Montreal Hospital, Montreal, QC, Canada, ² Laboratory TIMC, DyCTIM, CNRS UMR5525, Joseph Fourier University, La Tronche, France	3F-4 Sparse sampling and alternative methods for efficient spatial coherence estimation Dongwoon Hyun ¹ , Gregg Trahey ¹ , Jeremy Dahl ¹ ¹ Duke University, Durham, NC, USA	4F-4 Anisotropic diffusion filter for robust timing of ultrasound echoes Yunluo Jia ¹ , Mikhail Sklar ¹ ¹ University of Utah, USA	7F-4 A Vacuum-sealed Rotational Capacitive Micromachined Ultrasonic Transducer (RCMUT) Donghwan Kim ¹ , Michael Kuntzman ¹ , Neal Hall ¹ ¹ Electrical and Computer Engineering, The University of Texas at Austin, Austin, Tx, USA	
2:00 pm	1F-4 Ultrasonic Propulsion of Kidney Stones: Preliminary Results from Human Feasibility Study Michael Bailey ^{1,2} , Bryan Cunitz ¹ , Barbara Dumire ¹ , Maria Paur ¹ , Franklin Lee ² , Susan Ross ² , James Lingeman ³ , Michael Coburn ⁴ , Hunter Wessells ² , Matthew Sorensen ^{2,5} , Jonathan Harper ³ ¹ CMU, Applied Physics Laboratory, University of Washington, Seattle, WA, USA, ² Department of Urology, University of Washington, Seattle, WA, USA, ³ Department of Urology, Indiana University School of Medicine, Indianapolis, IN, USA, ⁴ Department of Urology, Baylor College of Medicine, Houston, TX, USA, ⁵ Division of Urology, Puget Sound Veterans Affairs Medical Center, Seattle, WA, USA	2F-5 Semi-3D strain imaging of an atherosclerotic carotid artery by multi cross-sectional radial strain estimations using simulated multi angle plane wave ultrasound Stein Fekkes ¹ , Abigail E.S. Swillens ² , Hendrik H.G. Hansen ¹ , Anne E.C.M. Sarrs ¹ , Maartje M. Nillesen ¹ , Patrick Segers ¹ , Chris L. de Korte ¹ ¹ Medical Ultrasound Imaging Center, Department of Radiology and Nuclear Medicine, Radboud University Medical Center, Nijmegen, Netherlands, ² Department of Electronics and Information Systems, Ghent University, Ghent, Belgium	3F-5 Phase Coherence Factor with Sub-Aperture Beamforming Hideyuki Hasegawa ¹ , Hiroshi Kanai ² ¹ Graduate School of Biomedical Engineering, Tohoku University, Japan, ² Graduate School of Engineering, Tohoku University, Japan	4F-5 Auto-adjustment of Image Produced by Multi-transducer Ultrasonic System Arayaz Baradaran ¹ , Roman Maev ¹ , Fedar Severin ¹ , Jason Taylor ¹ , Serge Zheleznakov ¹ ¹ Institute for Diagnostics Imaging Research, Windsor, Ontario, Canada	7F-5 Row-Column Addressed 2-D CMUT Arrays with Integrated Apodization Thomas Lehmann Christiansen ¹ , Morten Fischer Rasmussen ² , Jørgen Arendt Jensen ² , Erik Vilain Thomsen ¹ ¹ Department of Micro- and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark, ² Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark	

1:00 pm - 2:30 pm	1F-5 <i>In vivo</i> evaluation of cavitation activity and hemorrhagic kidney injury induced by burst wave lithotripsy Wayne Kreider ¹ , Adam Maxwell ^{1,2} , Bryan Cuntz ² , Yak-Nam Wang ¹ , Ryan His ² , Franklin Lee ² , Mathew Sorassan ² , Jonathan Harper ² , Vera Klokhsva ¹ , Oleg Sapozhnikov ^{1,2} , Bret Comors ⁴ , Andrew Evan ⁴ , Michael Bailey ¹ ¹ CIMU, Applied Physics Laboratory, University of Washington, Seattle, WA, USA, ² Department of Urology, University of Washington School of Medicine, Seattle, WA, USA, ³ Department of Acoustics, Physics Faculty, Moscow State University, Moscow, Russian Federation, ⁴ Department of Anatomy and Cell Biology, Indiana University School of Medicine, Indianapolis, IN, USA
2:15 pm	2F-6 <i>In vivo</i> Radial and Longitudinal Carotid Artery Plaque Strain Estimation via Ultrasound-Based Speckle Tracking Erik Widman ¹ , Kenneth Caidahl ² , Jan D'hooge ³ , Matilda Larsson ¹ ¹ Department of Medical Imaging, KTH Royal Institute of Technology, Stockholm, Sweden, ² Department of Molecular Medicine and Surgery, Karolinska Institute, Stockholm, Sweden, ³ Cardiovascular Imaging & Dynamics, Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium
	3F-6 Robust Ultrasonic Reverberation Clutter Suppression Using Multi-Adaptization with Cross-correlation Junsob Shin ¹ , Yu Chen ¹ , Jesse Yen ¹ ¹ Biomedical Engineering, University of Southern California, Los Angeles, CA, USA
	4F-6 Hardware-Software Co-design of 3D Data Compression for Real-Time Ultrasonic Imaging Applications Pramod Govindan ¹ , Jafar Saniee ¹ ¹ Electrical and Computer Engineering, Illinois Institute of Technology, USA
	6F-5 Piezoelectric MEMS Gyroscope with Sputtered PZT Film Tsuoyoshi Takemoto ¹ , Hiroaki Minami ¹ , Glen Fox ² ¹ Silicon Sensing Products Ltd, Anagasaki, Hyogo, Japan, ² Fox Materials Consulting, LLC, Colorado Springs, CO, CO, USA
	7F-6 Fabrication of Anodically Bonded Capacitive Micromachined Ultrasonic Transducers with Vacuum-Sealed Cavities F. Yalcin Yamaner ¹ , Xiao Zhang ¹ , Ormer Oralkan ¹ ¹ Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA
Oral --- Friday, September 5, 2014	

FRIDAY ORAL

Oral --- Friday, Sept. 5th					
3:30 pm - 5:00 pm	Session 1G. MIM: New Developments in Volumetric Ultrasound Chair: James Miller Washington University, St. Louis	Session 2G. MTC: High Frequency Tissue Characterization Chair: Timothy Hall University of Wisconsin, Madison	Session 3G. MEL: Elasticity Imaging Methods I Chair: Kathy Nightingale Duke University, Durham	Session 4G. Sensing Chair: John Votelno University of Maine	Session 7G. Diagnostic and Imaging Transducers Chair: Scott Smith GE Global Research
Grand Ballroom					
Waldorf					
3:30 pm	1G-1 Three Dimensional Echocardiography Comes of Age: Promises and perspective Roberto Lang¹ ¹Roberto Lang, Wilmette, IL, USA	2G-1 Quantitative ultrasound analyses of cell starvation in HT-29 pellets Elizabeth S. L. Bemdl¹, Lauren A. Wirtzfeld¹, Michael C. Kolos¹ ¹Department of Physics, Ryerson University, Toronto, Ontario, Canada	3G-1 Induced tissue displacement in magnetomotive ultrasound imaging - simulations and experiments Tomas Jansson^{1,2}, Maria Everiss³, Esayas Atile³, Roger Andersson³, Sarah Fredriksson³, Hans W. Persson³, Ingrid Svensson³, Magnus Cinthio³ ¹Clinical Sciences Lund, Biomedical Engineering, Lund University, Lund, Sweden, ²Medical Services, Skåne University Hospital, Lund, Sweden, ³Biomedical Engineering, Faculty of Engineering, LTH at Lund University, Lund.	4G-1 A Novel MEMS Gas Sensor Based on Ultrasonic Resonance Cavity Panu Koppinen¹, Teuvo Sillanpää¹, Anu Kärkkäinen¹, Jaakko Saariluoma¹, Heikki Seppä¹ ¹VTT Technical Research Centre of Finland, VTT, Finland	7G-1 20 MHz/40 MHz Dual-layer Micromachined Composite Transducer for Tissue Harmonic Imaging Sibo Li¹, Jian Tian², Pengdi Han², Xiaoning Jiang¹ ¹Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, ²HC Materials Corporation, Bolingbrook, Illinois, USA
3:45 pm		2G-2 Ultrasound-Based Diagnostic Assay of Cancer Cell Invasiveness Andrew Weitz¹, Nan Sook Lee¹, Jae Youn Hwang², Robert Chow¹, K. Kirk Shung¹ ¹University of Southern California, Los Angeles, CA, USA, ²Daegu Gyeongbuk Institute of Science & Technology, Daegu, Korea, Republic of	3G-2 Shear Wave Arrival Time Estimates Correlate with Local Speckle Pattern Stephen McAleavy¹, Laurentius Osapoetra², Jonathan Langdon¹ ¹Biomedical Engineering, University of Rochester, Rochester, New York, USA, ²Physics, University of Rochester, Rochester, New York, USA	4G-2 Microacoustic in-liquid sensors based on thin AlN films: A comparative study Tonia Mirea¹, Enrique Iborra¹, Ventsislav Yatchev² ¹GMMF-CEMADAT/C-ETSIT, Universidad Politécnica de Madrid, Spain, ²Uppsala University, Sweden	7G-2 Design and Fabrication of a High-Frequency Phased Array with Sparse Vernier Array Element Spacing for Grating Lobe Suppression Andre Bezançon¹, Jeremy Brown¹ ¹Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada
Marquette					
Williford C					

4:00 pm	7G-2 3-D Ultrafast Imaging of the Heart in Vivo Jean Provost ¹ , Clément Papadacci ¹ , Olivier Villemain ¹ , Juan-Esteban Arango Ossa ¹ , Marion Imbault ¹ , Jean-Luc Gennisson ¹ , Mickael Tanter ¹ , Mathieu Pernot ¹ ¹ Institut Langevin, ESPCI Paris Tech, INSERM U979, CNRS UMR7587, Université Paris 7, France	2G-3 Fine-resolution maps of acoustic properties at 250 MHz of fresh samples and unstained fixed 12 µm thin human lymph nodes. Daniel Rohrbach ¹ , Emi Saegusa-Becroft ² , Eugene Yanagihara ³ , Junji Machi ² , Ernest J. Feleppa ¹ , Jonathan Mamou ¹ ¹ Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA; ² Department of General Surgery, University of Hawaii and Kapiolani Medical Center, Honolulu, HI, USA; ³ Department of Pathology, Kapiolani Medical Center, Honolulu, HI, USA	3G-3 Shear wave generation with steered ultrasound push beams Alireza Nabaviadeh ^{1,2} , Pengfei Song ² , Shigao Chen ² , James F. Greenleaf ¹ , Matthew W. Urban ² ¹ University of Minnesota-Rochester, USA; ² Mayo Clinic College of Medicine, USA	4G-3 Biosensing using contactless quartz resonators Hirotugu Ogi ¹ ¹ Osaka University, Japan	7G-3 Dual frequency transducers for super harmonic intravascular ultrasound imaging Jianguo Ma ¹ , Karl Hentz ² , Yang Li ¹ , Paul Dayton ¹ , Qifa Zhou ¹ , Kirk Shung ² , Xiaoning Jiang ¹ ¹ Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA; ² UNC/NCSC Joint Department of Biomedical Engineering, University of North Carolina, Chapel Hill, North Carolina, USA; ³ Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA	
4:15 pm	7G-3 Elastic registration vs. block matching for quantification of cardiac function with 3D ultrasound: initial results of a direct comparison in silico based on a new evaluation pipeline Martino Alessandrini ¹ , Brecht Heyde ¹ , Szymon Cygan ^{1,2} , Maxime Sermesant ¹ , Hervé Delingette ¹ , Olivier Bernard ¹ , Mathieu De Craene ¹ , Jan D'hooge ¹ ¹ Medical Imaging Research Center, KU Leuven, Leuven, Belgium; ² PoliTechnika Warszawska, Instytut Medycyny i Inżynierii Biomedycznej Wydział Mechatroniki, Warszawa, Poland; ³ Asclepias Res. Project, INRIA, SOPHIA ANTIPOLIS Lyon, CREATIS, CNRS UMR5220, INSERM U1044, Université Lyon 1, INSA-LYON, France; Villeurbanne, France; ⁴ MedSys, Philips Research Paris, Paris, France	2G-4 Structure Factor Model for understanding the ultrasonic scattering from concentrated cell pellet biophantoms Emilie Franceschini ¹ , Régine Guillemin ¹ , Franck Tourniaire ¹ , Jean-François Landrier ² ¹ Laboratoire de Mécanique et d'Acoustique LMA CNRS, Aix-Marseille Université, Centrale Marseille, France; ² Navigation, Obésité et Risque Thrombotique, UMR INSERM 1062/INRA 1260, Aix-Marseille Université, France	3G-4 Shear wave elastography method combining phase-sensitive optical coherence tomography and coded acoustic radiation force Thu-Mai Nguyen ¹ , Shaozhen Song ^{1,2} , Bastien Arsal ¹ , Emily Y Wong ¹ , Ruikang K. Wang ^{1,3} , Matthew O'Donnell ¹ ¹ Department of Bioengineering, University of Washington, Seattle, WA, USA; ² School of Engineering, Physics and Mathematics, University of Dundee, Dundee, United Kingdom; ³ Department of Ophthalmology, University of Washington, Seattle, WA, USA	7G-4 Development of Dual-Frequency Transducers for Interventional Contrast Enhanced Imaging Jinwook Kim ¹ , Sibin Li ¹ , Xiaoning Jiang ¹ ¹ Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA		

3:30 pm - 5:00 pm		Oral --- Friday, Sept. 5th			
4:30 pm	1G-4 Semi-automatic left-atrial segmentation from volumetric ultrasound using B-spline explicit active surfaces Nuno Almeida ¹ , Daniel Barbosa ² , Brecht Heyde ³ , Razvan Olmupiu Mada ⁴ , Denis Friboulet ⁴ , Olivier Bernard ⁴ , Eigil Samset ^{5,6} , Jan D'hooge ¹ ¹ Lab. on Cardiovascular Imaging and Dynamics, KU Leuven, Leuven, Belgium, ² Life and Health Sciences Research Institute (ICTS), Universidade do Minho, Braga, Portugal, ³ Dept. of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ⁴ CREATIS, CNRS UMR5220, Inserm U630, Université Lyon 1, INS4-Lyon, France, ⁵ GE Vingmed Ultrasound AS, Horten, Norway, ⁶ Center for Cardiological Innovation (CCI), Oslo, Norway	2G-5 Effective scatterer size estimates in HT-29 spheroids at 55 MHz and 80 MHz Lauren A. Wirtzfeld ¹ , Elizabeth S. L. Bernd ¹ , Michael C. Kolios ¹ ¹ Department of Physics, Ryerson University, Toronto, Ontario, Canada	3G-5 Shear wave elastography by Lorentz force: ex-vivo experiment and computer simulation Pol Grasland-Mongrain ¹ , Rémi Souchon ¹ , Florian Cartellier ¹ , Ali Zargani ¹ , Jean-Yves Chapelon ¹ , Cyril Lafon ¹ , Stefan Catheline ¹ ¹ LabT4U, INSERM U1032, Lyon, France	4G-4 Self-Sensing Ultrasound Transducer for Cavitation Detection Peter Bornmann ¹ , Tobias Hensel ¹ , Walter Sextro ¹ , Gianluca Memoi ² , Mark Hodnett ² , Bartram Zeqiri ² ¹ Chair of Mechatronics and Dynamics, University of Paderborn, Paderborn, Germany, ² National Physical Laboratory, Teddington, United Kingdom	7G-5 Design and Simulation of a High-Frequency Ring-Shaped Linear array for Capsule Ultrasound Endoscopy Holly Lay ¹ , Vipin Seethoh ¹ , Benjamin Cox ¹ , Christine Demore ¹ , Sandy Cochran ¹ ¹ University of Dundee, United Kingdom
4:45 pm	1G-5 Three-dimensional Contrast-ultrasound Dispersion Imaging for Prostate Cancer Localization, a Feasibility Study Stefan Schalk ¹ , Libertario Demi ¹ , Martin Sneege ² , Jean de la Rosette ² , Hessel Wijkstra ^{1,2} , Massimo Misch ¹ ¹ Eindhoven University of Technology, ² Academic Medical Center (AMC) Amsterdam, Netherlands	2G-6 Impact of microscale properties measured by 50-MHz acoustic microscopy on mesoscale elastic and ultimate mechanical cortical bone properties Adeline Bourgon ¹ , Annette Sitzer ² , Artra Chababory ¹ , Kerstin Rohde ³ , Peter Varga ¹ , Robert Wendlandt ² , Kay Raum ¹ ¹ Julius Wolff Institute, Charité-Universitätsmedizin Berlin, Berlin, Berlin, Germany, ² Labor für Biomechanik, Universitätsklinikum Schleswig Holstein, Lübeck, Schleswig Holstein, Germany, ³ Klinik für Diagnostische Radiologie, Universitätsklinikum Schleswig Holstein, Kiel, Schleswig Holstein, Germany	3G-6 Assessment of the Nonlinear Elastic Properties of Soft Tissues <i>in vivo</i> by using Supersonic Shearwave Imaging Technique Miguel Bernal ¹ , Mathieu Couade ² , Foucauld Chammings ³ , Jeremy Bercoff ⁴ , Jean-Luc Gennisson ⁵ , Mickael Tanter ¹ ¹ ESPCI ParisTech, CNRS UMR7587, INSERM U979, Institut Langevin – Ondes et Images, Paris, France, ² SuperSonic Imagine, France, ³ Radiology Department, Université Paris Descartes Sorbonne Paris Cité, Hôpital Européen Georges Pompidou, Paris, France	4G-5 High temperature ultrasonic technique for monitoring of the properties of plastic melts during manufacturing process Lindas Mazeika ¹ , Rymantas Kazys ¹ , Reimondas Sliteris ¹ , Alfonsas Vladisaukas ¹ , Egidijus Zukauskas ¹ , Regina Rekiuviene ¹ ¹ K. Barausko Ultrasound Institute, Kaunas University of technology, Lithuania	7G-6 15-20MHz Single Element Ultrasound Transducers in a Needle for Neurological Applications Yun Jiang ¹ , Carl Meggs ^{1,2} , Daniel Rodriguez Sammartin ² , Zhen Qiu ¹ , Rachael McPhillips ³ , Christine Demore ⁴ , Sandy Cochran ⁵ , Graeme Casey ⁶ , Syed Mahboob ⁷ , Sam Eljamel ¹ , Giuseppe Schiavone ¹ , Marc Desmulliez ⁴ , Tim Button ² ¹ University of Birmingham, Birmingham, United Kingdom, ² Applied Functional Materials Ltd., Birmingham, United Kingdom, ³ University of Dundee, Dundee, United Kingdom, ⁴ Heriot-Watt University, Edinburgh, United Kingdom

Poster --- Friday, September 5, 2014

8:00 am - 5:00 pm

Salon C

Session P1B1.
MPA: Light and Sound II

Chair: Pai Li
National Taiwan University, Taipei

P1B1-8 Thermoacoustic Contrast of Prostate Cancer due to Heating by Very High Frequency Irradiation

Sarah Patch¹, David Hull², Stephanie Griep³, Majorca Thomas⁴, Kenneth Jacobsohn¹, William See³
¹Physics, UW-Milwaukee, Milwaukee, Wisconsin, USA, ²Bostwick Laboratories, USA, ³University of Southern California, USA, ⁴Urology, Medical College of Wisconsin, Milwaukee, WI, USA

Session P1B2.
MBB: Beamforming II

Chair: John Hossack
Univ. of Virginia, Charlottesville

P1B1-1 Diagnostic Imaging of Molecular-Targeted Nanorods Simultaneously Exposed to Light and Sound

James McLaughlin¹, David Cowell¹, Zubair Kakakchi¹, Sevan Harput¹, Steven Freear²
¹School of Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom

P1B1-2 In vitro study of PLGA/PFC particles loaded with gold nanoparticles as theranostic agents for photoacoustic imaging and cancer therapy

Yan Wang¹, Eric Strohm¹, Yang Sun², Yuanyu Zheng³, Zhigang Wang³, Michael Kolos¹
¹Physics, Ryerson University, Toronto, Ontario, Canada, ²Institute of Ultrasound Imaging, Second Affiliated Hospital, Chongqing Medical University, Chongqing, China, ³People's Republic of

Teichiro Ikeda¹, Shima Takano¹, Hiroshi Masuzawa¹
¹Hitachi Ltd., Japan

P1B2-1 Suppression of aberration in deeper region US images using multi-look adaptive beamforming

Konstantinos Diamantis¹, Iben Holfort Voksen^{2,3}, Alan Greenaway¹, Tom Anderson⁴, Jorgen Arendt Jensen², Vassilis Sboros¹
¹School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom, ²Center for Fast Ultrasound Imaging, Dept. of Electrical Engineering, Technical University of Denmark, Lyngby, Denmark, ³Greenwood Engineering, Brøndby, Denmark, ⁴Medical Physics, Centre for Cardiovascular Science, University of Edinburgh, Edinburgh, United Kingdom

P1B2-2 Phantom and In vivo Evaluation of Sound Speed Estimation Methods: Preliminary Results

Soohy Choi¹, Jeoun Kang¹, Yangmo Yoo^{1,2}
¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of, ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Korea, Republic of

P1B1-3 Photo-thermal responsive nanocluster as photoacoustic contrast agents

Soon-Joon Yoon^{1,2}, Yun-Sheng Chen^{1,2}, Stanislav Emelianov^{1,2}
¹Department of Electrical and Computer Engineering, The University of Texas at Austin, Austin, TEXAS, USA, ²Department of Biomedical Engineering, The University of Texas at Austin, Austin, TEXAS, USA

P1B2-7 Imaging with Large Coherent Apertures: Ex vivo Studies

Marko Jakovljevic¹, Gregg Trahey¹
¹Biomedical Engineering, Duke University, Durham, NC, USA

P1B2-8 A novel method for sound velocity estimation in pulse-echo ultrasound imaging

Piotr Karwat¹
¹Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland

P1B3-6 Does large beam-steered angle velocity compounding using plane wave transmission improve blood vector velocity estimation in a 3D carotid artery flow field?

Anne E.C.M. Sarks¹, Hendrik H.G. Hansen¹, Stein Fekkes¹, Maarje M. Nillesen¹, Marcel C.M. Rutten¹, Chris L. de Korte¹
¹Medical Ultrasound Imaging Center, Department of Radiology and Nuclear Medicine, Radboud University Medical Center, Nijmegen, Netherlands, ²Cardiovascular Biomechanics, Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

P1B3-7 On the Accuracy of Coherent Compounding Doppler Imaging

Ingvild K. Ekroll^{1,2}, Marco Voormolen¹, Øyvind Standal¹, Jochem Raul¹, Hans Torp¹, Lasse Lovstakken¹
¹Dept. Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, ²St. Olavs University Hospital, Trondheim, Norway

P1B3-4 2D Tracking Doppler for Cardiac Jet Flow Velocity Estimation

Jorgen Avidal¹, Lasse Lovstakken², Solveig Fadnes¹, Ingvild Ekroll^{1,3}, Hans Torp²
¹MI Lab and Dept. of Circulation and Medical Imaging, Norwegian University of Science and Technology, Norway, ²Dept. of Circulation and Medical Imaging, NTNU, Norway, ³St. Olavs Hospital, Norway

P1B3-5 Spatially Adaptive Pulse Repetition Frequency in Synthetic Aperture Vector Flow Imaging

Carlos A. Villagomez Hoyos¹, Matthias Bo Stuart¹, Jorgen Arendt Jensen¹
¹Department of Electrical Engineering, Technical University of Denmark, Denmark

P1B4-1 Adapting amplitude modulation to plane-wave non-linear Doppler imaging

Charles Tremblay-Darveau¹, Ross Williams², Laurent Miot^{1,2}, Matthew Bruce³, Peter Burns^{1,2}
¹University of Toronto, Canada, ²Sunnybrook Health Sciences Centre, Canada, ³Supersonic Imagine, France

P1B4-2 Contrast Enhanced Ultrasound Imaging using Adaptive Third-order Volterra Filter

JUAN DU¹, Dalong Liu¹, Enad Ebbini¹
¹University of Minnesota, Minneapolis, Minnesota, USA

P1B4-3 Spatiotemporal Denoising and Compression of Contrast-Enhanced Ultrasound Movies

Avinom Bar Zion¹, Charles Tremblay-Darveau², Melissa Yin³, F. Stuart Foster^{2,3}, Dan Adam¹
¹Department of Biomedical Engineering, Technion - Israel Institute of Technology, Haifa, Israel, ²Department of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada, ³Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

P1B4-4 Contrast Detection Efficacy for Plane vs. Focused Wave Transmission

Jacopo Viti^{1,2}, Francesco Guidi², Hendrik J. Vos¹, Nico de Jong¹, Piero Tortoli²
¹Biomedical Engineering, Erasmus Medical Centre, Rotterdam, Netherlands, ²Information Engineering, Università degli Studi di Firenze, Firenze, Italy

P1B1-4 Assessing storage-induced red blood cell lesions using photoacoustic measurements of oxygen saturation and the frequency content of photoacoustic signals Eno Hys¹, Eric M. Strohm¹, Elizabeth S. L. Bernd¹, Jason P. Acker¹, Michael C. Kolos¹ ¹Physics, Ryerson University, Toronto, Ontario, Canada; ²Canadian Blood Services, Edmonton, AB, Canada	P1B2-3 Improved Lateral Resolution and Contrast in Ultrasound Imaging Using a Sidelobe Masking Technique Alessandro Stuart Savoia¹, Giulia Matrone², Alessandro Ramalli², Enrico Boni¹, Giosuè Callano¹, Giovanni Magenes¹, Piero Tortoli³ ¹Dipartimento di Ingegneria, Università degli Studi Roma Tre, Roma, Italy; ²Dipartimento di Ingegneria Industriale e dell'Informazione, Università degli Studi di Pavia, Pavia, Italy; ³Dipartimento di Ingegneria dell'Informazione, Università degli Studi di Firenze, Firenze, Italy	Session P1B3 MBF: Vector Velocity Imaging and Applications Chair: Damien Garcia CRCHUM - Research Centre, University of Montreal Hospital	P1B3-8 Robust Speckle Tracking using a Non-Rigid Point Set Registration Algorithm Nicolas Widynski¹, Damien Garcia¹ ¹University of Montreal Hospital, Montréal, Québec, Canada	P1B4-5 Evaluation of Bias Voltage Modulation sequence for nonlinear contrast agent imaging using a cMUT array Anthony Novell^{1,2}, Mathieu Legros³, Jean-Marc Gregoire¹, Paul Dayton¹, Ayache Boukac² ¹UMR Inserm U930, Université François-Rabelais de Tours, France; ²Department of Biomedical Engineering, The University of North Carolina, Chapel Hill, NC, USA; ³Vernon SA, Tours, France
P1B1-5 Optically driven oscillations of nanoparticle-coated microbubbles Jacob Dove¹, Mark Borden¹, Todd Murray¹ ¹Mechanical Engineering, University of Colorado Boulder, Boulder, CO, USA	P1B2-4 Adaptive Beamforming for Thermal Strain Imaging Using a Single Ultrasound Linear Array Man Nguyen¹, Xuan Ding^{1,2}, Francois Yu¹, Kang Kim^{1,2} ¹Center for Ultrasound Molecular Imaging and Therapeutics & Heart and Vascular Institute, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA; ²Bioengineering, University of Pittsburgh, Pennsylvania, USA	P1B3-1 3-D in vivo velocity estimation in two planes Simon Holbek¹, Michael Johannes Pihl¹, Caroline Ewertsen², Michael Bachmann Nielsen², Jorgen Arendt Jensen¹ ¹Department of Electrical Engineering, Center for Fast Ultrasound Imaging, Lyngby, Denmark; ²Department of Radiology, Rigshospitalet Copenhagen University Hospital, Copenhagen, Denmark	P1B3-9 Analysis of Angle Compounding on a Fast Color Doppler Imaging: Phantom Study Hyohye Kim¹, Summi Yeo¹, Yeokyeong Yoon¹, Yangmo Yoo^{1,2} ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of; ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of	P1B4-6 Detection of early therapeutic response with dynamic contrast enhanced ultrasound (DCE-US) using a perfusion clustering algorithm Guillaume Barrois¹, Alain Coron¹, Lori S. Bridal¹ ¹Laboratoire d'Imagerie Biomédicale UPMC, CNRS UMR7371, INSERM U1146, PARIS, France
P1B1-6 Ultrafast vaporization dynamics of photoacoustic polymeric microcapsules Guillaume Lajoie¹, Erik Gelderblom¹, Ceciel Chlon¹, Marcel Bohmer², Nico De Jong², Wierdelt Steenberg⁴, Strang Manohar⁴, Michel Versluis¹ ¹Physics of Fluids, University of Twente, Netherlands; ²Philips Research Laboratories Europe, High Tech Campus, Netherlands; ³Biomedical Engineering, Thoraxcenter, Erasmus mc, Netherlands; ⁴Biomedical Photonic Imaging Group, University of Twente, Netherlands	P1B2-5 Robust Adaptive Beamforming for Artifact Suppression in Gastrointestinal Ultrasonography Brian Tracey¹, Dominique Pennink², David Lemmerhirt³, Joseph Polak⁴ ¹Electrical and Computer Engineering, Tufts University, Medford, MA, USA; ²Department of Clinical Sciences, Cummings School of Veterinary Medicine, Tufts University, North Grafton, MA, USA; ³Sonetics Ultrasound, Inc, Ann Arbor, MI, USA; ⁴Department of Radiology, Tufts University School of Medicine, Boston, MA, USA	P1B3-2 A multi-angle plane wave imaging approach improves volume flow estimation: simulation study in the murine arterial system Abigail Swillens¹, Darya Shcherbakova¹, Ingvald Kinn Ekroll², Bram Trachet¹, Lasse Lovstakken², Patrick Segers¹ ¹IBITech-bioMMeda, Ghent University, Gent, Belgium; ²Department of Circulation and Medical Imaging, NTNU, Norway	P1B3-10 Plane Wave Ultrasound Imaging Velocimetry Chee Han Leow¹, Robert J. Eckersley², Meng-Xing Tang¹ ¹Department of Bioengineering, Imperial College London, United Kingdom; ²Department of Biomedical Engineering, King's College London, United Kingdom	P1B4-7 New reference-free, simultaneous motion-correction and quantification in dynamic contrast-enhanced ultrasound Guillaume Barrois¹, Lori S. Bridal¹, Alain Coron¹ ¹Laboratoire d'Imagerie Biomédicale UPMC, CNRS UMR7371, INSERM U1146, PARIS, France
P1B1-7 Enhanced Plasmonic Photothermal Therapy with Synergistic Sonoporation of Gold Nanodroplets Shu-Wei Liu¹, Pai-Chi Li¹ ¹National Taiwan University, Taiwan	P1B2-6 Understanding Contrast Improvements from Capon Beamforming Ole Marius Hoel Rindal¹, Jon Petter Aasen², Sverre Holm¹, Andreas Austeng¹ ¹Department of Informatics, University of Oslo, Oslo, Norway; ²Squarehead Technology AS, Norway	P1B3-3 In Vivo Evaluation of an Angle Independent Flow Rate Estimator Jonas Jensen¹, Jacob Bjerring Olesen¹, Peter Møller Hansen², Michael Bachmann Nielsen², Jorgen Arendt Jensen¹ ¹Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, Kgs. Lyngby, Denmark; ²Department of Radiology, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark	Session P1B4 MCA: Contrast Imaging Strategies Chair: Wilko Wilkening Siemens Medical Solutions, Mountain View	P1B4-8 Transcranial functional ultrasound using ultrafast Doppler with microbubbles Claudia Errico¹, Bruno-Felix Osmanski¹, Sophie Pezet², Olivier Couture¹, Zsolt Lenkei², Mickael Tanter¹ ¹Institut Langevin (ESPCI-CNRS-INSERM, Paris Diderot), Paris, France; ²Laboratoire de Neurobiologie (ESPCI, CNRS UMR 7637), France

8:00 am - 5:00 pm

Poster --- Friday, September 5, 2014

Salon C

P1B4-9 Ultrasound Contrast Plane Wave Imaging with Higher CTR based on Bubble Wavelet Transform Diya Wang¹, Xuan Yang¹, Jinjin Wan¹, Bowen Jing¹, Mingxi Wan¹ ¹Department of Biomedical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China, People's Republic of	P1B5-6 Forming acoustic attraction force to concentrate microbubbles in flow using a matrix array transducer Nuoto Hosaka¹, Shinya Miyazawa¹, Toi Sawaguchi¹, Ren Koda¹, Shinya Onogi¹, Takashi Mochizuki¹, Kohji Masuda¹ ¹Tokyo Univ. of A&T, Japan	P1B6-3 Non-invasive strain imaging on normotensive and hypertensive patients, an in vivo pilot Renate W. Boekhoven¹, Louise Marais², Marcel C.M. Rutten¹, Frans N. van de Vosse¹, Pierre Boutouyrie¹, Richard G.P. Lopata¹ ¹Eindhoven University of Technology, Netherlands, ²Université Paris-Est, France, ³Hôpital Européen Georges Pompidou, France	Session P1B7. MEL: Elastography: Phantoms and Methods Chair: Piero Tortoli Università di Firenze	P1B7-8 Simulations of Tendon Mechanical Properties by ABAQUS: Comparison with Results from Elasticity Imaging Tang-Ting Chai¹, Chia-Lun Yeh¹, Pai-Chi Li^{1,2}, Po-Ling Kuo² ¹Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taipei, Taiwan, ²Department of electrical engineering, National Taiwan University, Taipei, Taiwan
P1B4-10 Three-Dimensional Ultrasound Imaging of Rat Brain Vasculature Using a Human-Scale Sparse Hemispherical Array Meaghan O'Reilly¹, Kullervo Hynynen^{1,2} ¹Stamphill Research Institute, Toronto, Ontario, Canada, ²University of Toronto, Canada	P1B5-7 Acoustic monitoring of single freely-floating microbubble dynamics coupled with optical sizing Ying Luan¹, Guillaume Renaud¹, Jason L. Raymond¹, Tim Segers², Robert Beuskers¹, Tom Kokhuis¹, Guillaume Lajoie², Antonius F.W. van der Steen^{1,3}, Michel Versluis², Nico de Jong^{1,3} ¹Erasmus Medical Center, Rotterdam, Netherlands, ²University of Twente, Netherlands, ³Delft University of Technology, Netherlands	P1B6-4 Direct estimation of carotid artery wall strain parameters using autocorrelation of high frame rate ultrasound images Yasaman Adibi¹, Afshin Divani¹, Emad Ebimi¹ ¹University of Minnesota, Minneapolis, Minnesota, USA	P1B7-1 C-plane Reconstructions from Shear Acquisition for Ultrasound Electrode Vibration Elastography Atul Ingle¹, Tomy Varghese¹ ¹University of Wisconsin-Madison, USA	P1B7-9 3D Cell Mechanobiology Study using Shear Wave Elasticity Imaging Chun-Ting Li¹, Chin-Hsiung Tsai¹, Pai-Chi Li^{1,2}, Po-Ling Kuo^{1,2} ¹Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taipei, Taiwan, ²Department of electrical engineering, National Taiwan University, Taipei, Taiwan
Session P1B5. MCA: Acoustics and Manipulations Chair: Chih-Kuang Yeh National Tsing Hua University, Taiwan	P1B5-8 Effects of Ultrasound Parameters on the Acoustic Characteristics of Phase-Change Droplets Wei-Pu Kao¹, Shih-Tsung Kang¹, Chih-Kuang Yeh¹ ¹Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan	P1B6-5 Performance evaluation of compounding and directional beamforming techniques for carotid strain imaging using plane wave transmissions Hendrik H.G. Hansen¹, Matthias B. Stuart², Carlos A. Villagomez Hoyos², Jorgen Arendt Jensen², Chris L. de Korte¹ ¹Medical Ultrasound Imaging Center, Department of Radiology and Nuclear Medicine, Radboud University Medical Center, Netherlands, ²Center for Fast Ultrasound Imaging, Department of Electrical Engineering, Technical University of Denmark, Denmark	P1B7-2 Bayesian Estimation of Small Displacements using a Robust Prior Scheme Douglas Dumont¹, Mark Palmeri¹, Stephanie Eyert², Patrick Wolf², Brett Byram¹ ¹Biomedical Engineering, Vanderbilt University, Nashville, Tennessee, USA, ²Biomedical Engineering, Duke University, Durham, North Carolina, USA	P1B7-10 Elastographic characterization of two viscoelastic phantoms using three techniques: Shear Wave Induced Resonance Elastography, Transient Elastography and Supersonic Shear Imaging Caroline Chartier¹, Mélouka Elkateb¹, Anis Hadji Henni¹, Céline Schmitt¹, Cécile Bastard¹, Veronique Mietté¹, Frédéric Ossant^{1,4} ¹Université François-Rabé de Tours, Insevim, Imagerie et Cerveau UMR U930, Tours, France, ²Rheolab Inc, Montréal, Québec, Canada, ³Echosens company, Paris, France, ⁴CHRU de Tours, Tours, France
P1B5-1 Optimization of ultrasound contrast agent for high frequency ultrasound molecular imaging using subharmonic oscillation Verva Daetichin¹, Klazina Koolman¹, Ilya Skachkov¹, Johan G. Bosch¹, Antonius van der Steen^{1,2}, Nico de Jong^{1,2} ¹Biomedical Engineering, Thorax Center, Erasmus MC, Rotterdam, Netherlands, ²Technical University Delft, Netherlands	P1B5-9 Sorted ultrasound contrast agents boost the scattering to attenuation ratio: modeling and experiments Tim Segers¹, Maarten Kok¹, Nico de Jong², Michel Versluis¹ ¹Physics of Fluids, University of Twente, Enschede, Netherlands, ²Biomedical Engineering, Erasmus Medical Center, Rotterdam, Netherlands	P1B6-6 Feasibility of Shear Wave Elastography for Plaque Characterization – An experimental study using Mechanical testing Erik Widman¹, Elira Maksuti¹, David Larsson¹, Kenneth Caidahl², Matthew W. Urban³, Anna Bjällmark¹, Matilda Larsson¹ ¹Department of Medical Engineering, KTH Royal Institute of Technology, Sweden, ²Department of Molecular Medicine and Surgery, Karolinska Institutet, Sweden, ³Department of Physiology and Biomedical Engineering, Mayo Clinic Coll, USA	P1B7-3 Experimental optimization of the elevational focus for radiation force applications Bastien Ama¹, Thu-Mai Nguyen¹, Matthew O'Donnell¹ ¹Biomedical Engineering, University of Washington, Seattle, WA, USA	P1B7-11 Characterization of transverse isotropy in tissue mimicking phantoms under static stress Matthew Urban¹, Randall Kinnick¹, Xiaoming Zhang¹, James Greenleaf¹ ¹Mayo Clinic College of Medicine, Rochester, MN, USA

P1B5-2 Optimization of Contrast-to-tissue Ratio and Role of Bubble Destruction in Dual-Frequency Contrast-Specific "Acoustic Angiography" Imaging Brooks Lindsey^{1,2}, Juan Rojas^{1,2}, Sarah Shelton^{1,2}, Heath Martin^{1,2}, Paul Dayton^{1,2} ¹Biomedical Engineering, University of North Carolina, Chapel Hill, North Carolina, USA, ²Biomedical Engineering, North Carolina State University, Raleigh, USA	P1B5-10 High throughput production of uniformly-sized fluorocarbon emulsions for ultrasonic therapy using a silicon-based microfluidic system Mario Fabilli¹, Justin Silpe¹, Colin Rush¹, Oliver Kripfgans¹ ¹Radiology, University of Michigan, Ann Arbor, MI, USA	P1B6-7 Evaluation of pulse wave at back and forth of the carotid bifurcation by PZT transducer Takuya Odahara¹, Mami Matsukawa¹, Masashi Saito², Takasaki Asada² ¹Wave Electronics Research Center, Doshisha University, Kyotomachi, Japan, ²Murata Manufacturing Co., Ltd., Japan	P1B7-4 Measurement of both elastic and optical properties using an ultrasound modulated optical imaging system Yi Cheng¹, Sina Li¹, Robert J. Eckersley², Daniel S. Elson², Meng-Xing Tang¹ ¹Department of Bioengineering, Imperial College London, United Kingdom, ²Department of Biomedical Engineering, King's College London, United Kingdom, ³Institute of Global Health Innovation and Department of Surgery and Cancer, Imperial College London, United Kingdom	P1B7-12 1D high resolution transient elastography: an optimized elastographic tool for a viscoelastic characterization of thin heterogeneous tissues - a preliminary study Yassine MORID¹, Caroline Chartier¹, Mélouka El Kaeb¹, Cécile Bastard¹, Stéphane Audière², Véronique Mienne², Valérie Tauveron³, Anabel Manuati^{1,3}, Frédéric Ossant^{1,3} ¹Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France, ²tours, France, ³Echosens company, Paris, France, ⁴tours, France, ⁵CHRU de Tours, Tours, France, ⁶tours, France
P1B5-3 Ultrasound Imaging from Vaporization Signals Emitted by Phase Change Contrast Agents Christopher Arena¹, Anthony Novell¹, Paul Sheeran¹, Connor Puett¹, Linsey Phillips¹, Paul Dayton¹ ¹Joint Department of Biomedical Engineering, University of North Carolina - North Carolina State University, USA	Session P1B6. MEL: Mechanical Characterization of the Carotid Chair: Richard Lopata <i>Eindhoven University of Technology</i>	P1B6-8 Effects of Key Parameters on the Accuracy and Precision of Local Pulse Wave Velocity Measurement Chengwu Huang^{1,2}, Tianling Ren^{3,4}, Jianwen Luo^{1,2} ¹Department of Biomedical Engineering, School of Medicine, Tsinghua University, Beijing, China, ²People's Republic of China, ³Center for Biomedical Imaging Research, Tsinghua University, Beijing, China, ⁴People's Republic of China, ⁵Institute of Microelectronics, Tsinghua University, Beijing, China, ⁶People's Republic of China, ⁷Tsinghua National Laboratory for Information Science and Technology (TNList), Tsinghua University, Beijing, China, ⁸People's Republic of China	P1B7-5 Shear Modulus Imaging Based on Full-Field Laser Speckle Contrast Analysis for Improved Spatial Resolution Pei-Yu Chao¹, Pai-Chi Li¹ ¹National Taiwan University, Taiwan	P1B7-13 Building A Virtual Breast Ultrasound Phantom Lab Using Open Source Software Yu Wang¹, Emily Helminen¹, Jingfeng Jiang¹ ¹Michigan Tech Univ, Houghton, Michigan, USA
P1B5-4 Detecting and quantifying activation of perfluorocarbon based phase-change contrast agents using ultrasound Sinan Li¹, Shengqiao Lin¹, Terry O. Matsunaga², James J. Choi¹, Robert J. Eckersley³, Meng-Xing Tang¹ ¹Department of Bioengineering, Imperial College London, United Kingdom, ²Department of Radiology Research, University of Arizona, USA, ³Biomedical Department, King's College, United Kingdom	P1B6-9 In vivo characterization of atherosclerotic plaque of human carotid arteries with histopathological correlation using acoustic radiation force impulse (ARFI) ultrasound Tomasz Czernuszcwicz¹, Jonathon Homeister², Melissa Caughey³, Mark Farber⁴, Joseph Fulton⁵, Peter Ford⁶, William Marston⁷, Raghuvier Vallabhaneni⁸, Timothy Nichols⁹, Caterina Gallipoli^{1,5} ¹Joint Department of Biomedical Engineering, University of North Carolina/North Carolina State University, Chapel Hill, NC, USA, ²Department of Pathology and Laboratory Medicine, University of North Carolina, Chapel Hill, NC, USA, ³Department of Medicine, University of North Carolina, Chapel Hill, NC, USA, ⁴Department of Surgery, University of North Carolina, Chapel Hill, NC, USA, ⁵Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA	P1B6-10 Non-invasive vascular modulatory: An inverse problem method for imaging the local elasticity of atherosclerotic carotid plaques Jonathan Porée¹, Damien Garcia¹, Boris Chayer¹, Gilles Soulez¹, Jacques Oluyon², Guy Cloutier¹ ¹University of Montreal Hospital, Canada, ²Joseph Fourier University of Grenoble, France	P1B7-6 Two-way strain estimation quality assessment approach for tumor detection using free-hand strain imaging: Experimental study Saferi Hyder¹, Sevan Harput¹, Zainab Abomar¹, Steven Freear¹ ¹School of Electrical and Electronic Engineering, University of Leeds, Leeds, United Kingdom	P1B7-14 In vitro Study of Shear Wave Velocity Dependency on Heart-Motion Induced Tissue Compression Hideki Yoshikawa¹, Ken-ichi Kawabata¹, Kunito Hashiba² ¹Central Research Laboratory, Hitachi, LTD., Tokyo, Japan, ²Hitachi Aloka Medical, Ltd., Tokyo, Japan
P1B5-5 Imaging laser activated microbubble recondensation kinetics using high frame rate ultrasound Alexander Hannah¹, Geoffrey Luke², Stanislav Emelianov¹ ¹Biomedical Engineering, The University of Texas at Austin, Austin, TX, USA, ²Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, USA	P1B6-2 In Vitro Elastography of Porcine Carotid Arteries, a validation study. Renate W. Boekhoven¹, Martijn F.J. Blatter¹, Rens M.J.M. de Vries¹, Frans N. van de Vosse¹, Richard G.P. Lopata¹ ¹Eindhoven University of Technology, Netherlands	P1B7-7 Anisotropic polyvinyl alcohol hydrogel phantom for shear wave elastography in fibrous biological soft tissue Simon Chatelin¹, Miguel Bernal¹, Clement Papadacci¹, Jean-Luc Gennisson¹, Mickael Tanter¹, Mathieu Pernot¹ ¹Institut Langevin - ESPCI ParisTech, INSERM Paris U979 - CNRS UMR 7387, Paris, France	Session P1B8. MIM: New Systems for and Applications of Ultrasound Imaging Chair: Jeremy Dahl <i>Duke University</i>	

8:00 am - 5:00 pm

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Salon C

P1B8-1 Gastric emptying evaluation using magneto-acoustic transducer. Alexandre Colello Bruno¹, Oswaldo Baffa¹, Antonio Carneiro² ¹Department of Physics, University of Sao Paulo, Ribeirão Preto, SP, Brazil; ²Department of Physics, University of Sao Paulo, Ribeirão Preto, São Paulo, Brazil	P1B8-9 The spatio-temporal variation of rat carotid artery bifurcation by ultrasound imaging Chang-zhu Jin¹, Kweon-Ho Nam¹, Dong-Gu Paeng¹ ¹Ocean System Engineering, Jeju National University, Jeju si, Jeju do, Korea, Republic of	P1B9-7 Texton-Based Method in Clinical Cancer Response Monitoring Mehrdad Gangeh^{1,2}, Hadi Tadayyon^{1,2}, Lakshmanan Srinivas^{1,2}, Ali Sadeghi-Naini^{1,2}, William Tran^{1,2}, Gregory Czarnota^{1,2} ¹Departments of Medical Biophysics and Radiation Oncology, University of Toronto, Toronto, Ontario, Canada; ²Department of Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, and Sunnybrook Research Institute, Toronto, Ontario, Canada	P1B10-3 A compact and reconfigurable 8-channel Ultrasound Evaluation System for experimental research Amairi Asefi¹, Joaquim Maia², Vera Button³, Eduardo Costa³ ¹DAEIT/CPGEL, UTFPR, Curitiba, Brazil; ²DAELN/CPGEL, UTFPR, Curitiba, Brazil; ³DEB/FEEC/CEB, UNICAMP, Campinas, Brazil	P1B10-11 Handheld Device for Diagnostics of Pulmonary and Abdominal Pathologies by Multifunctional Analysis of Acoustic Percussion Signals Eugene Malyarenko¹, Mircea Panteru², Fedar Seviaryn³, Roman Maev² ¹Tessones Corp., Birmingham, MI, USA; ²Institute for Diagnostic Imaging Research, Windsor, ON, Canada
P1B8-2 Dependence of ultrasound decorrelation on urine scatter particle concentration for a non-invasive diagnosis of bladder outlet obstruction. Muhammad Arif¹, Tim Idzenga², Ron van Mastriq¹, Chris L. de Korte² ¹Erasmus Medical Center, Rotterdam, Netherlands; ²Radboud UMC Nijmegen, Netherlands	Session P1B9. MTC: Cancer Applications of Tissue Characterization Chair: Michael Kolios Ryerson University, Toronto	P1B9-8 Ultra-High Frequency Acoustic Impedance Imaging of Cancer Cells Muhammad Fadihi¹, Elizabeth Bernall¹, Eric Strohm¹, Michael Kolios¹ ¹Ryerson University, Toronto, ON-Ontario, Canada	P1B10-4 Toward a high performance handheld volumetric ultrasound imaging system Carlos Julián Martín-Arguedas¹, David Romero-Laorden², Oscar Martínez-Graullera², César Gutiérrez Fernández¹, Ana Jiménez Martín¹ ¹Universidad de Alcalá, Spain; ²Consejo Superior de Investigaciones Científicas, Spain	Session P1B11. MTH: Novel therapeutic ultrasound approaches Chair: Shin-ichiro Umemura Tohoku University
P1B8-3 Estimation of Needle Tip Location using Ultrasound Image Processing and Hypoechoic Markers Ian McSweeney¹, Brian Murphy¹, William Wright¹ ¹Electrical and Electronic Engineering, University College Cork, Cork, Ireland	P1B9-1 Cell Death Detection in Locally Advanced Breast Cancer Using Quantitative Ultrasound and Diffuse Optical Spectroscopy William Tyler Tran^{1,2}, Christina Kim¹, Gregory J Czarnota^{1,2} ¹Radiation Oncology, Sunnybrook Health Sciences Centre, Canada; ²Physical Sciences, Sunnybrook Health Sciences Centre, Canada	P1B9-9 Evaluation of classification strategies using quantitative ultrasound markers and a thyroid cancer rodent model Maria Luisa Montero¹, Omar Zenteno², Benjamin Castaneda², Michael Oelze², Roberto Lavarello² ¹Departamento de Ciencias, Pontificia Universidad Católica del Perú, San Miguel, Lima, Peru; ²Departamento de Ingeniería, Pontificia Universidad Católica del Perú, San Miguel, Lima, Peru; ³Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA	P1B10-5 A New Smart Probe System for a Tablet PC-based Point-of-Care Ultrasound Imaging System: Feasibility Study Yeongnam Lee¹, Jeoun Kang¹, Sunmi Yeo¹, Jaemin Lee¹, Gi-Duck Kim², Yangmo Yoo³, Tat-Kyong Song¹ ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of; ²Sogang Institute of Advanced Technology, Sogang University, Seoul, Korea, Republic of; ³Interdisciplinary Program of Integrated Biotechnology, Sogang University, Seoul, Korea, Republic of	P1B11-1 Histotripsy Lesion Formation Using an Ultrasound Imaging Transducer Enabled by a Low-Frequency Pump Transducer Kuang-Wei Lin¹, Timothy L. Hall¹, Zhen Xu¹, Charles A. Cain¹ ¹University of Michigan, USA
P1B8-4 Needle visibility for deep punctures with curved arrays Stefanie Dencks¹, Georg Schmitz¹ ¹Medical Engineering, Ruhr-Universität Bochum, Germany	P1B9-2 Statistics of envelope of Ultrasound Backscatter from Basal Cell Carcinoma and Actinic Keratosis lesions Jerzy Litniewski¹, Hanna Piotrkowska-Wroblewska¹, Elzbieta Szymanska¹, Andrzej Nowicki¹ ¹Ultrasound, Institute of Fundamental Technological Research, Warsaw, Poland; ²Dermatology Clinic, CSK MSWiA Hospital, Warsaw, Poland	P1B9-10 Alterations in Ultrasound Scattering Following Thermal Ablation in Ex Vivo Bovine Liver Nicholas Rubert¹, Tony Varghese^{1,2} ¹Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA; ²Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA	P1B10-6 A New Automated Breast Ultrasound System with Dual Wide Field-of-View Imaging Jaeyoung Son¹, Jongho Park¹, Hyunjae Song¹, Jin Ho Chang², Tat-Kyong Song¹, Yangmo Yoo² ¹Electronic Engineering, Sogang University, Seoul, Korea, Republic of; ²Interdisciplinary Program of Integrated Biotechnology, Sogang University, Integrated Biotechnology, Sogang University, Korea, Republic of	P1B11-2 Closed-loop Multiple-focus Lesion Formation Control Using Dual Mode Ultrasound Arrays Dalong Liu¹, Alyona Haritonova², Emad Ebbini¹ ¹Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, USA; ²Biomedical Engineering, University of Minnesota, Minneapolis, Minnesota, USA

P1B8-5 Ultrasound Based Muscle Kinematics Measurement with Tracklet Stitching Paul Otto¹, Frances Gaveli², Hyun Soo Im², Siddhartha Sikdar³ ¹Electrical and Computer Engineering, George Mason University, Fairfax, Virginia, USA, ²National Institutes of Health, Bethesda, Maryland, USA, ³Bioengineering, George Mason University, Fairfax, Virginia, USA	P1B9-3 Quantitative Ultrasound Monitoring of Tumour Cell Death Response in Locally-Advanced Breast Cancer Patients Using A Multiparameter Approach Lakshmanan Sannachi^{1,2}, Hadi Tadayyon^{1,2}, Ali Sadeghi-Naini^{1,2}, Gregory Czarnota^{1,2} ¹Department of Radiation Oncology and Imaging Research - Physical Sciences, Sunnybrook Health Sciences Centre, Canada, ²Departments of Radiation Oncology and Medical Biophysics, University of Toronto, Toronto, ON, Canada	P1B9-11 Measuring Tumour Heterogeneity using Quantitative Ultrasound Acoustic Texture as a Biomarker of Chemotherapy Response Ali Sadeghi-Naini^{1,2}, Michael Kolios^{1,4}, Gregory Czarnota^{1,2} ¹Imaging Research Radiation Oncology, Sunnybrook Health Sciences Centre, Toronto, ON, Canada, ²Medical Biophysics Radiation Oncology, University of Toronto, Toronto, ON, Canada, ³Physics, Ryerson University, Toronto, ON, Canada, ⁴Medical Biophysics, University of Toronto, Toronto, ON, Canada	P1B10-7 A Programmable Ultrasound Platform for Multi-gate Doppler Measurement Weibao Qiu¹, Zongying Ye¹, Liyang Chi¹, Peitian Mu¹, Guofeng Li¹, Congzhi Wang¹, Yang Xiao¹, Ming Qian¹, Lei Sun², Hairong Zheng¹ ¹Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, ²People's Republic of Interdisciplinary Division of Biomedical Engineering, The Hong Kong Polytechnic University, Hong Kong	P1B11-3 Transcranial Focusing and HIFU beam Localization with Dual-Mode Ultrasound Arrays Alyona Haritonova¹, Dalong Liu², Mahdi Bayat², Emad Ebbini² ¹Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, USA, ²Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, USA
P1B8-6 Ultrasound Strain Rate Imaging of Individual Muscle Motor Units Max Heger¹, Oyvind Stuvland^{1,2}, Hans Torp³ ¹Information Technology, Mathematics and Electrical Engineering, Norwegian University of Science and Technology, Trondheim, Norway, ²Information Technology, Mathematics and Electrical Engineering, Norwegian University of Science and Technology, Trondheim, Norway, ³Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway	P1B9-4 Quantitative Ultrasound Characterization of Genetically Modified Prostate Cancer Responses to Ultrasound-stimulated Microbubbles and Radiation Lakshmanan Sannachi^{1,2}, Azza Al-Mahrouki^{1,2}, Gregory Czarnota^{1,2} ¹Department of Radiation Oncology and Imaging Research - Physical Sciences, Sunnybrook Health Sciences Centre, Toronto, ON, Canada, ²Departments of Radiation Oncology and Medical Biophysics, University of Toronto, Toronto, ON, Canada	Session P1B10. MSD: Novel Medical Systems & Devices Chair: Hervé Liebgott CREATIS	P1B10-8 Battery-less Implantable Doppler Blood Flowmeter Sai Chun Tang¹, David Vilkomerson², Tom Chlipka² ¹Radiology, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, USA, ²DPX LLC, Princeton, NJ, USA	P1B11-4 Design of high intensity focused ultrasound systems for therapeutic applications utilizing shock wave exposures Vera Khokhlova^{1,2}, Adam Maxwell³, Petr Yuldashev³, Pavel Rosnitskiy³, Wayne Kreider⁴, Oleg Sapozhnikov^{1,2}, Michael Bailey¹ ¹Physics Faculty, Moscow State University, Moscow, Russian Federation, ²Center for Industrial and Medical Ultrasound, University of Washington, Seattle, WA, USA, ³Department of Medicine/Urology, University of Washington, Seattle, WA, USA, ⁴Center for Industrial and Medical Ultrasound, University of Washington, USA
P1B8-7 High frequency ultrasound imaging of dental acid erosion in-vitro David Hughes¹, Steven Stewart¹, David Hutson¹, Christopher Longbottom², Katherine Kirk¹ ¹Centre for Advanced Technology, University of the West of Scotland, Paisley, United Kingdom, ²Dental Innovation and Translation Centre, Kings College London, London, United Kingdom	P1B9-5 Quantitative Ultrasound Characterization of Tumour Cell Death: Ultrasound-Stimulated Microbubbles for Radiation Enhancement Christina Kim¹, Azza Al-Mahrouki¹, Alborz Gonizadeh², Ali Sadeghi-Naini¹, Rafi Karshafian¹, Gregory Czarnota¹ ¹Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada, ²Ryerson University of Toronto, Canada	P1B10-1 A System for Real-Time Intravascular Ultrasound and Photoacoustic Imaging Don VanderLaan¹, Andrei Karpiouk¹, Doug Yeager¹, Sianshi Emelianov¹ ¹Biomedical Engineering, University of Texas at Austin, Austin, Texas, USA	P1B10-9 Development of A Crossed-Coupled Power MOSFET-based Protection Circuit for High Frequency Ultrasound Systems Hojong Choi¹, Kirk K. Shung¹ ¹NIH Ultrasonic Transducer Resource Center and Biomedical Engineering, University of Southern California, Los Angeles, CA, USA	P1B11-5 Development of the Algorithm for HIFU focus Visualization Daejeung Kim¹, Myungeok Kim¹, Kookjin Kang¹, Keonho Son¹ ¹New Business Department, ALPION MEDICAL SYSTEMS, Korea, Republic of
P1B8-8 Fast Detection of Breast Position for 3D USCT Bo Qin¹, Michael Zapf¹, Ernst Krizek¹, Xiaochuan Ma², Nicole Rüter¹ ¹Karlsruhe Institute of Technology, Germany, ²Institute of Acoustics, Chinese Academy of Science, China, People's Republic of	P1B9-6 Evaluation of Hyperthermia Induced Breast Tumor Cell Apoptosis in Mice by Ultrasonic Spectrum Analysis in vivo Guofeng Li^{1,2}, Weibao Qiu¹, Mingbin Zheng², Congzhi Wang¹, Qunfang Zhou¹, Yingjuan He¹, Fei Yan¹, Yang Xiao¹, Hairong Zheng¹ ¹Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, ²People's Republic of Guangdong Medical College, China, People's Republic of, ³Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of	P1B10-2 A CMUT-based Finger-mounted 3D Ultrasound Probe Albert I.H. Chen¹, Lawrence P. Wong¹, John T.W. Yeow¹ ¹Systems Design Engineering, University of Waterloo, Waterloo, ON, Canada	P1B10-10 High frequency GaN-based pulse generator with active T/R switch circuit Enrico Boni¹, Andrea Cellai², Luca Bassi³ ¹Dipartimento di Ingegneria dell'Informazione, Università di Firenze, Firenze, Italy, ²X-Phase s.r.l., Sesto Fiorentino, Italy	P1B11-6 Characterization of acoustic droplet vaporization and inertial cavitation thresholds in acoustically-responsive tissue scaffolds Alexander Moncion¹, Oliver Kripfigans¹, J. Brian Fowlkes¹, Paul Carson¹, Mario Tabilli¹ ¹University of Michigan, Ann Arbor, Michigan, USA

8:00 am - 5:00 pm

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Salon C

P1B11-7 High Intensity Focused Ultrasound applied to the placental unit: Preliminary results of an in-vivo study in monkeys David McIodelima¹, Jonathan Caloone^{1,2}, Cyril Huisoud^{2,3}, Jérémy Vincenot¹, Anthony Kocot¹, Jean-Yves Chapelon¹ ¹LabTAU - INSERM U1032, France; ²Maternité de la Croix Rousse - Hospices Civils de Lyon, France; ³INSERM U846, France	P2B1-3 NDE applications of compressed sensing, signal decomposition and echo estimation Yufeng Lu¹, Ramazan Demiri^{1,2}, Jafar Samie³ ¹Electrical and Computer Engineering, Bradley University, USA; ²Department of Radiology, Perlman School of Medicine, University of Pennsylvania, USA; ³Electrical and Computer Engineering, Illinois Institute of Technology, USA	P2B2-2 Microparticle separation using a PMMA channel at an oblique angle to a SAW field Erin Dauson¹, David Greve², Irving Oppenheim¹, Kelvin Gregory¹ ¹Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA; ²Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA	P2B3-4 New Wideband Tompliz Transducer with a Volded Head Mass Yongrae Roh¹, Hyunki Kim¹ ¹School of Mechanical Engineering, Kyungpook National University, Daegu, Daegu, Korea, Republic of	P3B1-6 A Calculation and Validation of Electrical Resistance of Quartz Crystal Resonators with Structural Viscosity Ji Wang¹, Hui Chen¹, Julian Shen², Shi-Yung Pao², Min-Chang Chao², Tingfeng Ma¹, Jianke Du¹ ¹Piezoelectric Device Laboratory, Ningbo University, Ningbo, Zhejiang, China, People's Republic of; ²TYC (Ningbo) Corporation, Beilun, Ningbo, Zhejiang, China, People's Republic of
P1B11-8 Integrated ultrasound thermometry and multiphysics modeling for RF ablation monitoring: ex vivo studies on bovine liver tissue Shriram Sethuraman¹, Ajay Anand¹, Jun Bo Li² ¹Philips Research North America, Briarcliff Manor, New York, USA; ²Philips Research China, Shanghai, China, People's Republic of	P2B1-4 Adaptive filtering and Fractional Fourier transform for ultrasonic signal processing and flaw detection Yufeng Lu¹, Jafar Samie² ¹Electrical and Computer Engineering, Bradley University, USA; ²Electrical and Computer Engineering, Illinois Institute of Technology, USA	P2B2-3 Temperature uniformity of microdroplet heated by buried surface acoustic wave device Thibaut Roux-Marchand¹, Frédéric Sarry¹, Denis beysse¹, Omar Elmazria¹ ¹Université de Lorraine, LUL UMR7198 CNRS, FANDOEUTRE les NANCY, France	P2B3-5 Optical Characterization of Surface Displacement Fields of High-Frequency Transducers Ashwin Sampathkumar¹, Jonathan Mamou¹, Jeffrey Ketterling¹ ¹F. L. Lizzi Center for Biomedical Engineering, Riverside Research, New York City, New York, USA	P3B1-7 Reflection of elastic waves from a randomly rough surface Alexei Maznev¹ ¹Department of Chemistry, MIT, Cambridge, USA
P1B11-9 Healing Tissue Response with ITU (Intense Therapy Ultrasound) in Musculoskeletal Tissue, Feasibility Study Michael H. Slayton¹, Jennifer Kehlet Barton² ¹Guided Therapy Systems, Mesa, Arizona, USA; ²University of Arizona, Tucson, Arizona, USA,	P2B1-5 Multidimensional Representation of Ultrasonic Data Processed by Reconfigurable Ultrasonic System-on-Chip Using OpenCL High-Level Synthesis Spenser Gilliland¹, Clementine Boulet, Thomas Gonnot, Jafar Samie¹ ¹Electrical and Computer Engineering, Illinois Institute of Technology, USA	P2B2-4 Development of a microfluidic device with integrated high frequency ultrasound probe for particle characterization Eric Strohm¹, Byoung-Li Moon², Dae Kun Hwang³, Scott Tsai², Michael Kolos¹ ¹Department of Physics, Ryerson University, Toronto, Ontario, Canada; ²Department of Mechanical and Industrial Engineering, Ryerson University, Toronto, Ontario, Canada; ³Department of Chemical Engineering, Ryerson University, Toronto, Ontario, Canada	Session P3B1. Elastic Wave Propagation <i>Chair: Bilash Sinha</i> Schlumberger-Doll Research,	P3B1-8 The influence of uniaxial pressure on the elastic waves propagation in piezoelectric layered structures langasite/fused silica Sergei Burkov¹, Olga Zolotova², Pavel Turchin^{1,3} ¹Condensed Matter Physics Department, Siberian Federal University, Krasnoyarsk, Russian Federation; ²Siberian State Aerospace University, Krasnoyarsk, Russian Federation; ³Kirensky Institute of Physics, Krasnoyarsk, Russian Federation
P1B11-10 Improving sonoporative cellular drug-delivery with microbubble size Kang-Ho Song¹, Alexander Fan¹, Tammy Trudeau¹, Arthur Gutierrez-Hartmann², Mark Borden¹ ¹Mechanical Engineering, University of Colorado at Boulder, USA; ²Department of Medicine, Biochemistry, & Molecular Genetic, University of Colorado at Denver, USA	P2B1-6 Spatial Optimal Filter for Ultrasound Based Imaging of Vehicle Environments Alexander Urban¹, Sergio Flores Contreras², Martin Vossiek² ¹Folkswagen, Germany; ²Institute of Microwaves and Photonics, University of Erlangen-Nuremberg, Germany	P2B2-5 Fabrication, operation and evaluation of microfluidic device Brian Reinhardt¹, Feng Guo², Jun Huang², Bernhard Titmann³ ¹ESM, Penn State University, University Park, USA; ²Penn State University, USA; ³Engineering Science and Mechanis, Pennsylvania State University, USA	P3B1-9 Comparative Study of Lithium Niobate Crystal Cuts for use as High Voltage Acoustic Wave Sensors Nishant Patel^{1,2}, Darren Branch¹, Ed Schamiloglu², Stefan Cular¹ ¹Ningbo University, China, People's Republic of; ²University of New Mexico, USA	

P1B1-1-11 In-vitro stimulation of cells of the musculoskeletal system with Focused Low-Intensity Pulsed Ultrasound (FLIPUS): control over the physical output and analyses of cellular responses Josefine Albers¹, Aritra Chakraborty¹, Thomas Ambrosi¹, Anke Kadow-Romacker¹, Kay Rauli¹, Regina Puts¹ ¹Berlin-Brandenburg School for Regenerative Therapies, Julius Wolff Institute, Charité, Berlin, Germany	P2B1-7 Contextual use of pulse-compression and post-processing to improve Ultrasonic Non Destructive Testing of high diffusing materials. Lee Davis¹, Stefano Laureti^{1,2}, Marco Ricci², Pietro Burrascano², David Hutchins¹ ¹School of Engineering, University of Warwick, Coventry, United Kingdom, ²Dipartimento di Ingegneria, Università di Perugia, Terni, Italy	Session P2B3. Transducers Chair: Donald Yuhua Industrial Measurement Systems	P3B1-2 Design and Performance Evaluation of Phased Parametric Array for the Detection of Geological Conditions Ahead of Drill Bit Xiumei Zhang¹, Weijun Lin¹, Xiuming Wang¹ ¹State key laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, China, People's Republic of	Session P3B2. General Physical Acoustics 2 Chair: Mihir Patel Schlumberger-Doll Resear
Session P2B1. Signal Processing and NDE Methods Chair: Erdal Oruklu Illinois Institute of Technology	Withdrawn	P2B3-1 Transverse Horizontal Ultrasonic Transducers Made from Piezoelectric Fiber Composites Ching-Chung Yin¹, Wei-Che Tsa², Jing-Shi Chen¹, Shih-Ming Hsu² ¹Department of Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan, ²National Chiao Tung University, Taiwan	P3B1-3 The matrix of resonators with a lateral electric field on a single piezoelectric plate Irina Borodina¹, Boris Zaitsev¹, Andrey Teplykh¹, Iren Kuznetsova² ¹Saratov Branch, Institute of Radio Engineering and Electronics of RAS, Saratov, Russian Federation, ²Institute of Radio Engineering and Electronics of RAS, Moscow, Russian Federation	P3B2-1 Ultrasonic studies of onlon-like carbons/polydimethylsiloxane composites Vytautas Samulionis¹, Jan Macutkevici¹, Juras Banys¹, Jaroslavas Belovickis¹, Olga Shenderova² ¹Physics Faculty, Vilnius University, Vilnius, Lithuania, ²International Technology Center, USA
P2B1-1 Resolution Limit of Overlapping Ultrasound Chirplet Echoes via Hypotheses Testing Ramazan Demireli¹, Jafar Samiie² ¹Department of Radiology, University of Pennsylvania Medical School, Philadelphia, PA, USA, ²Illinois Institute of Technology, Chicago, IL, USA	Session P2B2. Microfluidics Chair: Lawrence Kessler Sonoscan Inc.	P2B3-2 A Reciprocity-Based Method to Determine Hydrophone Complex Sensitivity and Tested at Frequencies from 1 to 7 MHz Everardo Oliveira¹, Rodrigo Costa-Felix¹, João Machado² ¹Division of Scientific and Industrial Metrology, National Institute of Metrology, Quality and Technology, Duque de Caxias, Brazil, ²Biomedical Engineering Program, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil	P3B1-4 New approach to ultrasonic absorption in subgrain-free Co_{0.2}Hf_{0.8}Te crystals Yaroslav Oliikh¹, Oleg Oliikh², Igor Lysyuk¹ ¹Institute of Semiconductor Physics, National Acad. of Sci. of Ukraine, Kyiv, Ukraine, ²Faculty of Physics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine	P3B2-2 Acoustics of a finite-aperture Laguerre-Gaussian vortex beam Farid G. Mitri¹ ¹Chevron Area 52 Technology, Santa Fe, New Mexico, USA
P2B1-2 Dynamically Reconfigurable Analog Front-End for Ultrasonic Imaging Applications Vidya Vasudevan¹, Pramod Govindan¹, Jafar Sami¹ ¹Electrical and Computer Engineering, Illinois Institute of Technology, USA	P2B2-1 Single nano particle collecting by using ultrasonic humidifier Jungsoon Kim¹, Minkun Bae², Moojoon Kim², Kangyeol Ha², Mincheol Chu³ ¹Media Engineering, Tongmyong University, Korea, Republic of, ²Pukyong National University, Korea, Republic of, ³Korea Research Institute of Standards and Science, Korea, Republic of	P2B3-3 New Tonpilz Type Ultrasonic Vector Sensor for Underwater Applications Yongrae Roh¹, Youngsub Lim¹ ¹School of Mechanical Engineering, Kyungpook National University, Daegu, Daegu, Korea, Republic of	P3B1-5 The influence of electrical boundary conditions close to free surface of piezoelectric lateral electric field excited resonators on their characteristics Boris Zaitsev¹, Alexander Shikhobudinov¹, Andrey Teplykh¹, Irina Borodina¹, Iren Kuznetsova² ¹Saratov Branch, Institute of Radio Engineering and Electronics of RAS, Saratov, Russian Federation, ²Institute of Radio Engineering and Electronics of RAS, Moscow, Russian Federation	P3B2-3 Density and viscosity of liquids determination using an Inverse Method for Love wave propagation Piotr Kielczynski¹, Marek Szalewski¹, Andrzej Balcerzak¹, Krzysztof Wieja¹ ¹Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland

Poster --- Friday, September 5, 2014

8:00 am - 5:00 pm

Salon C

P3B2-4 Ultrasonic evaluation of thermodynamic parameters of liquids under high pressure Piotr Kiciński¹, Marek Szalewski¹, Andrzej Balcerzak¹, Krzysztof Wieja¹, Aleksander Rostocki¹, Ryszard Sieciechowski¹ ¹Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland, ²Institute of Physics, Warsaw University of Technology, Poland	P4B1-1 Second-Harmonic Suppression in DART-SFIT devices Gunter Martin¹, Eduard Chilla², Hagen Schmidt¹ ¹IFW Dresden, Germany, ²Vecron International GmbH, Germany	Session P4B2. Materials and Propagation Chair: Jyrki Kaitila Avago Technologies	P5B1-1 Adhesive-free dual layer piezoelectric PVDF copolymer transducers used with sender and receiver separation Sanat Wagle¹, Aditi Decharat¹, Frank Melandso¹ ¹Department of Physics and Technology, The University of Tromsø, Tromsø, Norway	P5B1-9 An induced state with dominant shear vibration mode originated from domain reconfiguration in [001] PMN-PT single crystals Yaoyao Zhang¹, Philip Garland², Robert Adamson¹, Jeremy Brown¹ ¹School of Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada, ²Department of Mechanical Engineering, University of New Brunswick, Fredericton, New Brunswick, Canada	Session P5B2. Biomedical Diagnosis and Imaging Transducers Chair: Paul Reynolds Consulting
P3B2-5 Quantifying Errors in the Numerical Simulation of Transcranial Ultrasound James Robertson¹, Ben Cox¹, Bradley Treeby¹ ¹Medical Physics and Bioengineering, University College London, London, United Kingdom	P4B1-2 Improved SAW Slanted Array Compressor Structure for Achieving > 20,000 Time-Bandwidth Product Pierre Duflie¹, Clement Valerio¹, Tom Martin¹ ¹Phonon Corporation, Simsbury, Connecticut, USA	P4B2-1 Investigation of Platinum Based Periodic Gratings on Langasite for High Temperature SAW Applications Gudrun Bruckner¹, Nicolay Pascal¹, Jochen Bardong¹ ¹Sensor Development, CTR AG, Villach, Austria	P5B1-2 Graded Piezocomposite for the Construction of Air-Coupled Ultrasound Transducer David Costa¹, Luis Segura², Francisco Espinosa², Flavio Buiocchi¹ ¹Mechatronics Engineering, University of Sao Paulo, Brazil, ²Center for Applied Acoustics and Non-Destructive Evaluation, CSIC, Madrid, Spain		
P3B2-6 Optic and Acoustic detection of laser-induced optical breakdown in DDFP Yi Feng¹, Dai Qin¹, Chenxiang Ma¹, Yujin Zong¹, Mingxi Wan¹ ¹The Key Laboratory of Biomedical Information Engineering of Ministry of Education, China, People's Republic of	P4B1-3 140MHz narrowband MEMS filters based on aluminum nitride Lamb wave resonators Ji Liang¹, Hongxiang Zhang¹, Hao Zhang¹, Dailua Zhang¹, Wei Pang¹ ¹Tianjin University, Tianjin, China, People's Republic of	P4B2-2 Theoretical and experimental investigation of Lamb wave characteristics in AlN/TiN/NCVD composite membrane. Ali Solami¹, Abdelkrim talbi², Abdallah Bassam¹, Vincent Mortet¹, Jean Claude De Jaeger¹, Philippe Pernot² ¹ITEM-UMR CNRS 8520, PRES Université Lille Nord de France, France, ²LIA LICIS-EMN UMR CNRS 8520, ECLille, PRES Université Lille Nord de France, France, ³Atomic Energy Commission Syrian, BP 6091, Damascus, Syrian Arab Republic, Syrian Arab Republic, ⁴Physics, Academy of Sciences, CZ-1821 Prague, Czech Republic, Czech Republic	P5B1-3 Growth and Piezo-/Ferroelectric Properties of Pb(Mg1/3Nb2/3)O3-PbTiO3-Bi(Zn1/2Ti1/2)O3 Ternary Single Crystals Reagan Belan¹, Hamel Tailor², Zuo-Guang Ye³ ¹Chemistry, Simon Fraser University, Burnaby, British Columbia, Canada, ²Simon Fraser University, Canada, ³Chemistry, Simon Fraser University, Canada	P5B2-1 256-element density-tapered spiral matrices for ultrasound phased imaging Alessandro Ramail¹, Piero Tortoli¹ ¹Information Engineering Dept., University of Florence, Florence, Italy	
P3B2-7 Numerical Study of the Acoustic Streaming and Mean Excess Pressure Produced in a Small Gap between a Vibrating Surface and a Thin Boundary Arturo Santillan¹ ¹Department of Technology and Innovation, University of Southern Denmark, Odense M, Denmark	P4B1-4 Q-enhancement with electrode materials in the FBAR for timing devices Motoaki Hara¹, Hiroki Kuwano¹ ¹Department of Nanomechanics, Tohoku University, Sendai, Japan	P4B2-3 Simulation for viscoelastic effects of SH-SAW biosensor Mikihito Goto^{1,2}, Hiromi Matsuda^{1,3}, Jun Kondoh² ¹Japan Radio Co., Ltd., Japan, ²Graduate School of Science and Technology, Shizuoka University, Japan, ³OL-Bio Ltd., United Kingdom	P5B1-4 Preparation, structure and properties of potentially high-Tc ferroelectric complex perovskite solid solutions based on Bi(Zn_{0.25}Nb_{0.75})O₃ Alisa Paterson¹, Hoi Ting Wong¹, Zuo-Guang Ye¹ ¹Department of Chemistry and 4D Labs, Simon Fraser University, Burnaby, BC, Canada	P5B2-2 Detection of Elastic Guided Waves Using an Axial Transmission Method: Performance Comparison Between PZT and cMUT Technologies Jean-Gabriel Minonzo¹, Audren Boulmé², Mathieu Legros³, Philippe Vince⁴, Pascal Laugier¹, Dominique Certon² ¹Laboratoire d'Imagerie Biomédicale, UMR CNRS 7371 - INSERM U1146 - UPMC, Paris, France, ²Université François-Rabelais de Tours, GREMAN, UMR-CNRS 7347, Tours, France, ³Vernon S.A., Tours, France, ⁴Université François-Rabelais de Tours, CETU Althais Technologies, Tours, France	

P3B2-8 Analytical theory of thickness acoustic resonances in liquid drop on solid substrate Anna V. Begar¹, Ilya A. Nedospasov¹, Vladimir G. Mozhaev¹ ¹Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation	P4B1-5 Balanced Wideband Fan-Shaped Three-Transducer Saw Filters With Reduced Insertion Loss And Improved Frequency Response Sergei Doberstein¹ ¹OMIP, Omsk, Russian Federation	P4B2-4 Surface acoustic wave scattering by substrate edges Alexander Darinskii¹, Manfred Weinacht^{2,3}, Hagen Schmidt² ¹Institute of Crystallography RAS, Russian Federation, ²IFW Dresden, Dresden, Germany, ³InnoXes, Dippoldiswalde, Germany	P5B1-5 Lead-Free BNT based piezoelectric films for high-frequency ultrasonic transducer applications Jinyan Zhao¹, Xinwei Yan¹, Wei Ren¹, Qifa Zhou², K. Kirk Shung² ¹Yin Jiaotong University, Xi'an 710049, China, ²People's Republic of ³University of Southern California, Los Angeles, CA, USA	P5B2-3 An array transmitter for contrast enhanced intravascular ultrasound imaging Zhuochen Wang¹, Jiaoguo Ma¹, Karl Martin², Paul Dayton², Xiaoning Jiang¹ ¹Department of Mechanical & Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, ²Joint Department of Biomedical Engineering, University of North Carolina and NC State University, Chapel Hill, NC, USA
P3B2-9 Improvement of the time-reversal focalization through a multiple scattering medium by using a coherent wave compounding technique Nicolas Bencech¹, Yamil Abraham¹, Diego Carrasco¹, Carlos Negreira¹ ¹Laboratorio de Acústica Ultrasonora, Instituto de Física, Facultad de Ciencias, Montevideo, Uruguay	P4B1-6 Ultrawide-Band Ladder Filter using SH₀ Mode Plate Wave in LiNbO₃ Plate Michio Kadota¹, Shuji Tanaka², Yasuhiro Kuratani¹, Tetsuya Kimura¹ ¹Microsystem Integration Center, Tohoku University, Sendai, Miyagi prefecture, Japan, ²Graduate School of Engineering, Tohoku University, Sendai, Miyagi prefecture, Japan, ³New Technology & Products Department Group, Murata Manufacturing Co., Ltd., Yatsu, Shiga prefecture, Japan	P4B2-5 Investigation of UHF attenuation of synthetic Ila type diamond single crystal Arseniy Telichko^{1,2}, Boris Sorokin^{1,2}, Gennadiy Kvashinin¹, Georgy Gordeev^{1,2} ¹Technological Institute for Superhard and Novel Carbon Materials, Moscow Troitsk, Russian Federation, ²Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russian Federation	P5B1-6 Pulse Monitoring by Sol-Gel Composite Flexible Piezoelectric Sensors Takahiro Ikari¹, Shugo Kurose¹, Tomohiko Iigasaki¹, Makiko Kobayashi¹ ¹Kumamoto University, Japan	P5B2-4 A bi-frequency 7.5MHz/15MHz co-linear array Zhuochen Wang¹, Sibo Li¹, Ruibin Liu², Xuechang Geng², Xiaoning Jiang¹ ¹Department of Mechanical & Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, ²Black, Inc., State College, PA, USA
P3B2-10 High Frequency Scattering Measurements of a Live Single Cell Changyang Lee¹, Hayong Jung¹, Kwok Ho Lam², Changhan Yoon¹, K. Kirk Shung¹ ¹Department of Biomedical Engineering, University of Southern California, USA, ²Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong	P4B1-7 Tunable Transversal and Resonator Filters Using the Variable Velocity Inter-Digital Transducers with the Variable Capacitors Kazuhiko Yamanouchi¹, Hiroyuki Otagawa², Ikuya Iwai³ ¹Tohoku University, Research Institute of Elect. Comm., Japan, ²Kumamoto National College of Technology, Japan	P4B2-6 Optimization of Aperture in SAW and STW Resonators on Langasite Natalya Naumenko¹ ¹Acousto-Optical Research Center, National University of Science and Technology "MISIS", Moscow, Russian Federation	P5B1-7 Feasibility of lead-free piezoceramic based power ultrasonic transducers Andrew Mathieson¹, Dominick DeAngelis² ¹School of Engineering, University of Glasgow, United Kingdom, ²Mechanical Engineering, Ultrasonics Group, Kulicke & Soffa Industries, USA	P5B2-5 Development of a wearable ultrasonic sensor and method for continuous monitoring of mechanical properties of planter soft tissue for diabetic patients Bruno Trindade^{1,2}, Yuo Ono¹, Edward Lemaire² ¹Department of Systems and Computer Engineering, Carleton University, Ottawa, ON, Canada, ²Centre for Rehabilitation Research and Development, University of Ottawa, Ottawa, ON, Canada
Session P4B1. Innovative Device Concepts Chair: Marc Solal Triquint Semiconductor	P4B1-8 Three-Dimensional Electric Charge Distribution on Finitely-thick Bus-bars in Micro-acoustic Devices Alireza Baghai-Wadji¹ ¹Electrical Engineering, University of Cape Town, Rondebosch, Western Cape, South Africa	Session P5B1. Transducer Materials Chair: Paul Reynolds Consulting	P5B1-8 Transparent glass windowed ultrasound transducers Torstein Yddal^{1,2}, Spiros Kotropoulis^{1,2}, Odd Helge Gilje^{2,3}, Sandy Cochran⁴, Michiel Postema¹ ¹Institute of Physics and Technology, University of Bergen, Bergen, Norway, ²National Center for Ultrasound in Gastroenterology, Haukeland University Hospital, Bergen, Norway, ³Department of Clinical Medicine, University of Bergen, Bergen, Norway, ⁴Institute for Medical science and Technology, University of Dundee, Dundee, United Kingdom	P5B2-6 Crossed Array Transducer for Real-Time 3D Imaging Andrew Joyce¹, Geoff Lockwood¹ ¹Physics, Queen's University, Kingston, ON, Canada

Poster --- Friday, September 5, 2014					Salon C
8:00 am - 5:00 pm					
P5B2-7 Fabrication and Characterization of a 20 MHz Microlinear Phased Array Transducer for Intervention Guidance Chi Tat Chiu ¹ , Jay A. Williams ¹ , Bong Jin Kang ¹ , Theodore Abraham ² , K. Kirk Shung ¹ , Hyung Ham Kim ¹ ¹ Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, USA, ² InnoScion LLC, Baltimore, MD, USA					
P5B2-8 Realistic acoustic simulation of 2D probe elements in simulated annealing sparse array optimization Emmanuel Roux ^{1,2} , Bakary Diarra ¹ , Marc Robini ¹ , Christian Cauchard ¹ , Piero Tortoli ² , Hervé Liebgott ¹ , ¹ CREATIS, Université de Lyon, CNRS UMR 5220 INSERM U1044, Université Claude Bernard Lyon 1; INS4-Lyon, France; ² Information Engineering Dept, Università degli Studi di Firenze, Italy					
P5B2-9 Improvement of Driving Efficiency of Ultrasonic Motor by Improvement of Vibration Configuration Shogo Kumamoto ¹ , Kenjiro Takemura ¹ , Kyohei Hosoda ¹ ¹ Kao Univ, Japan					
P5B2-10 Analysis of transmitter-receiver designs for a miniature matrix TEE probe Shreyas Raghunathan ¹ , Sandra Blaak ² , Deep Berni ³ , Chao Chen ⁴ , Michiel Pertijs ⁴ , Johan Bosch ³ , Nico de Jong ^{1,3} , Martin Verweij ¹ ¹ Lab. Of Acoustic Wavefield Imaging, Delft University of Technology, Delft, Netherlands; ² Oldelft Ultrasound, Delft, Netherlands; ³ Dept. of Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands; ⁴ Electronic Instrumentation Laboratory, Delft University of Technology, Delft, Netherlands					

P5B2-11 Rigorous Analytical Analysis of Resonant Euler-Bernoulli Beams with Constant Thickness and Polynomial Width Roman Beigelbeck ¹ , Michael Schneider ² , Michael Stifter ¹ , Thomas Voglhuber-Brunnmaier ^{1,3} , Franz Keplinger ² , Ulrich Schmid ² , Bernhard Jakoby ³ ¹ Center for Integrated Sensor Systems, Daimler University Krems, Wiener Neustadt, Austria; ² Institute of Sensor and Actuator Systems, Vienna University of Technology, Vienna, Austria; ³ Institute for Microelectronics and Microsystems, Johannes Kepler University Linz, Linz, Austria			

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FRIDAY POSTER

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Oral --- Saturday, September 6, 2014							
8:00 am - 9:30 am		Session 1H. MIM: Ultrasound Tools to Guide Cardiac Interventions		Session 2H. MEL: Elasticity Imaging Methods II		Session 3H. MSD: Special Applications of Advanced Ultrasound Systems	
		Chair: John Hossack Univ. of Virginia, Charlottesville		Chair: Caterina Gallippi University of North Carolina, Chapel Hill		Chair: Alfred Yu The University of Hong Kong	
Grand Ballroom		Waldorf		Boulevard		Marquette	
		Session 2H. MEL: Elasticity Imaging Methods II		Session 3H. MSD: Special Applications of Advanced Ultrasound Systems		Session 4H. Wave Propagation	
		Chair: Caterina Gallippi University of North Carolina, Chapel Hill		Chair: Alfred Yu The University of Hong Kong		Chair: Bernhard Tittman Pennsylvania State University	
		Session 5H. Thin-Films 1		Session 6H. Nonlinearity and Tunability		Session 7H. Electronic Control and Needle Actuation	
		Chair: Yook-Kong Yong Rugers University		Chair: Jan Kuypers Sand 9, Inc.		Chair: Mark Schafer Sonic Tech Inc.	
Oral --- Saturday, September 6, 2014							
8:00 am		1H-1 Augmented Trans-esophageal Ultrasound for Guidance of Cardiac Interventions		2H-1 Micro-Elasticity (Au-E): Contrast, CNR, and Resolution of Acoustic Radiation Force Impulse Imaging and Single- and Multiple Track Location Shear Wave Elasticity Imaging for Visualizing Small Targets.		3H-1 Multiparametric Characterization of a Single Cell by an Ultrasound and Optical Combined Microscope	
		Terry Peters ¹ ¹ Robarts Research Institute, Canada		Peter Hollender ¹ , Stephen Rosenzweig ¹ , Kathy Nightingale ¹ , Gregg Trahey ^{1,2} ¹ Biomedical Engineering, Duke University, Durham, North Carolina, USA; ² Radiology, Duke University, Durham, North Carolina, USA		Yoshifumi Saito ¹ , Koki Yoshida ¹ , Joe Shikama ¹ , Ryo Nagao ¹ , Mototaka Arakawa ¹ , Kazuto Kobayashi ² ¹ Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan, ² Division of Research and Development, Honda Electronics Co. Ltd., Toyohashi, Japan	
8:15 am		2H-2 High Frame Rate Ultrasound Displacement Vector Imaging		3H-2 A Co-registered Open System for Acoustic Angiography and High-Resolution B-Mode Imaging		4H-2 Three-Dimensional Modeling of Lamb Wave Propagation Induced by Piezoelectric Transducers	
		Pieter Kruijzinga ¹ , Frits Mastik ¹ , Johannes G Bosch ¹ , Nico de Jong ^{1,2} , Gijs van Soest ¹ , Antonius FW van der Steen ^{1,3} ¹ Thorax Center, Erasmus MC, Netherlands, ² Delft University of Technology, Delft, Netherlands, ³ Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, People's Republic of		Yang Li ¹ , Jiansuo Ma ² , Karl Martin ³ , Hojong Choi ¹ , Paul Dayton ³ , Xiaoning Jiang ² , K Kirk Shang ¹ , Qifa Zhou ¹ ¹ NIH Ultrasonic Transducer Resource Center and Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, USA, ² Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA, ³ Joint Department of Biomedical Engineering, University of North Carolina/North Carolina State University, Chapel Hill, NC, USA		Kanyar Firouzi ¹ , Amin Nikoozadeh ² , Butrus T. Khuri-Yakub ³ ¹ Mechanical Engineering, Stanford University, STANFORD, California, USA, ² Electrical Engineering, Stanford University, Stanford, California, USA, ³ Electrical Engineering, Stanford University, STANFORD, California, USA	
		Williford A		Williford B		Williford C	
		6H-1 Effective Suppression Method for 2nd nonlinear signals of SAW Devices		5H-1 Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure		4H-1 Optical Visualization of Ultrasonic Pulses in the Total Internal Reflection Ultrasonic Sensor	
		Ryo Nakagawa ¹ , Haruki Kyoya ¹ , Kihara ¹ ¹ Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan		Shoko Hiyama ¹ , Takahiko Yanagitani ¹ , Shinji Takayanagi ¹ , Yoshiya Kato ¹ , Mami Matsukawa ¹ ¹ Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan, ² Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan		Alexander Yurchenko ¹ , Polshko Oleksandr ¹ , Pilgun Yuri ¹ , Eugene Smirnov ¹ ¹ Quantum Radiophysics, Taras Shevchenko National University of Kyiv, Kiev, Ukraine	
		Williford B		Williford A		Williford C	
		6H-2 Application of a rigorous nonlinear P-matrix method to the simulation of third order intermodulation in test devices and duplexers		5H-2 Effect of process parameters on structure and piezoelectric properties of AlN and Al _{0.5} Sc _{0.5} N films deposited by pulsed magnetron sputtering		4H-2 Three-Dimensional Modeling of Lamb Wave Propagation Induced by Piezoelectric Transducers	
		Markus Mayer ¹ , Werner Ruile ¹ , Andreas Mayer ² , Elena Mayer ² , John Johnson ¹ , Juergen Kivitt ¹ , Romeo Jr San Jose ³ , Ingo Bleyl ¹ , Karl Wagner ¹ ¹ TDK corporation, Germany, ² Hochschule Offenburg, Germany, ³ TDK corporation, Singapore		Stephan Barth ¹ , Hagen Bartzsch ¹ , Daniel Gless ¹ , Peter Frach ¹ , Olaf Zywicki ¹ , Thomas Herzog ² , Susan Walter ³ , Henning Heuer ³ ¹ Fraunhofer Institute for Electron Beam and Plasma Technology (FEP), Dresden, Germany, ² Fraunhofer Institute for Ceramic Technologies and Systems, Materials Diagnostics (IKTS-MD), Dresden, Germany		Kanyar Firouzi ¹ , Amin Nikoozadeh ² , Butrus T. Khuri-Yakub ³ ¹ Mechanical Engineering, Stanford University, STANFORD, California, USA, ² Electrical Engineering, Stanford University, Stanford, California, USA, ³ Electrical Engineering, Stanford University, STANFORD, California, USA	
		Williford B		Williford A		Williford C	
		6H-1 Effective Suppression Method for 2nd nonlinear signals of SAW Devices		5H-1 Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure		4H-1 Optical Visualization of Ultrasonic Pulses in the Total Internal Reflection Ultrasonic Sensor	
		Ryo Nakagawa ¹ , Haruki Kyoya ¹ , Kihara ¹ ¹ Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan		Shoko Hiyama ¹ , Takahiko Yanagitani ¹ , Shinji Takayanagi ¹ , Yoshiya Kato ¹ , Mami Matsukawa ¹ ¹ Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan, ² Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan		Alexander Yurchenko ¹ , Polshko Oleksandr ¹ , Pilgun Yuri ¹ , Eugene Smirnov ¹ ¹ Quantum Radiophysics, Taras Shevchenko National University of Kyiv, Kiev, Ukraine	
		Williford B		Williford A		Williford C	
		6H-2 Application of a rigorous nonlinear P-matrix method to the simulation of third order intermodulation in test devices and duplexers		5H-2 Effect of process parameters on structure and piezoelectric properties of AlN and Al _{0.5} Sc _{0.5} N films deposited by pulsed magnetron sputtering		4H-2 Three-Dimensional Modeling of Lamb Wave Propagation Induced by Piezoelectric Transducers	
		Markus Mayer ¹ , Werner Ruile ¹ , Andreas Mayer ² , Elena Mayer ² , John Johnson ¹ , Juergen Kivitt ¹ , Romeo Jr San Jose ³ , Ingo Bleyl ¹ , Karl Wagner ¹ ¹ TDK corporation, Germany, ² Hochschule Offenburg, Germany, ³ TDK corporation, Singapore		Stephan Barth ¹ , Hagen Bartzsch ¹ , Daniel Gless ¹ , Peter Frach ¹ , Olaf Zywicki ¹ , Thomas Herzog ² , Susan Walter ³ , Henning Heuer ³ ¹ Fraunhofer Institute for Electron Beam and Plasma Technology (FEP), Dresden, Germany, ² Fraunhofer Institute for Ceramic Technologies and Systems, Materials Diagnostics (IKTS-MD), Dresden, Germany		Kanyar Firouzi ¹ , Amin Nikoozadeh ² , Butrus T. Khuri-Yakub ³ ¹ Mechanical Engineering, Stanford University, STANFORD, California, USA, ² Electrical Engineering, Stanford University, Stanford, California, USA, ³ Electrical Engineering, Stanford University, STANFORD, California, USA	
		Williford B		Williford A		Williford C	
		6H-1 Effective Suppression Method for 2nd nonlinear signals of SAW Devices		5H-1 Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure		4H-1 Optical Visualization of Ultrasonic Pulses in the Total Internal Reflection Ultrasonic Sensor	
		Ryo Nakagawa ¹ , Haruki Kyoya ¹ , Kihara ¹ ¹ Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan		Shoko Hiyama ¹ , Takahiko Yanagitani ¹ , Shinji Takayanagi ¹ , Yoshiya Kato ¹ , Mami Matsukawa ¹ ¹ Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan, ² Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan		Alexander Yurchenko ¹ , Polshko Oleksandr ¹ , Pilgun Yuri ¹ , Eugene Smirnov ¹ ¹ Quantum Radiophysics, Taras Shevchenko National University of Kyiv, Kiev, Ukraine	
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		6H-2 Application of a rigorous nonlinear P-matrix method to the simulation of third order intermodulation in test devices and duplexers		5H-2 Effect of process parameters on structure and piezoelectric properties of AlN and Al _{0.5} Sc _{0.5} N films deposited by pulsed magnetron sputtering		4H-2 Three-Dimensional Modeling of Lamb Wave Propagation Induced by Piezoelectric Transducers	
		Markus Mayer ¹ , Werner Ruile ¹ , Andreas Mayer ² , Elena Mayer ² , John Johnson ¹ , Juergen Kivitt ¹ , Romeo Jr San Jose ³ , Ingo Bleyl ¹ , Karl Wagner ¹ ¹ TDK corporation, Germany, ² Hochschule Offenburg, Germany, ³ TDK corporation, Singapore		Stephan Barth ¹ , Hagen Bartzsch ¹ , Daniel Gless ¹ , Peter Frach ¹ , Olaf Zywicki ¹ , Thomas Herzog ² , Susan Walter ³ , Henning Heuer ³ ¹ Fraunhofer Institute for Electron Beam and Plasma Technology (FEP), Dresden, Germany, ² Fraunhofer Institute for Ceramic Technologies and Systems, Materials Diagnostics (IKTS-MD), Dresden, Germany		Kanyar Firouzi ¹ , Amin Nikoozadeh ² , Butrus T. Khuri-Yakub ³ ¹ Mechanical Engineering, Stanford University, STANFORD, California, USA, ² Electrical Engineering, Stanford University, Stanford, California, USA, ³ Electrical Engineering, Stanford University, STANFORD, California, USA	
		Williford B		Williford A		Williford C	
		6H-1 Effective Suppression Method for 2nd nonlinear signals of SAW Devices		5H-1 Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure		4H-1 Optical Visualization of Ultrasonic Pulses in the Total Internal Reflection Ultrasonic Sensor	
		Ryo Nakagawa ¹ , Haruki Kyoya ¹ , Kihara ¹ ¹ Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan		Shoko Hiyama ¹ , Takahiko Yanagitani ¹ , Shinji Takayanagi ¹ , Yoshiya Kato ¹ , Mami Matsukawa ¹ ¹ Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan, ² Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan		Alexander Yurchenko ¹ , Polshko Oleksandr ¹ , Pilgun Yuri ¹ , Eugene Smirnov ¹ ¹ Quantum Radiophysics, Taras Shevchenko National University of Kyiv, Kiev, Ukraine	
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		6H-2 Application of a rigorous nonlinear P-matrix method to the simulation of third order intermodulation in test devices and duplexers		5H-2 Effect of process parameters on structure and piezoelectric properties of AlN and Al _{0.5} Sc _{0.5} N films deposited by pulsed magnetron sputtering		4H-2 Three-Dimensional Modeling of Lamb Wave Propagation Induced by Piezoelectric Transducers	
		Markus Mayer ¹ , Werner Ruile ¹ , Andreas Mayer ² , Elena Mayer ² , John Johnson ¹ , Juergen Kivitt ¹ , Romeo Jr San Jose ³ , Ingo Bleyl ¹ , Karl Wagner ¹ ¹ TDK corporation, Germany, ² Hochschule Offenburg, Germany, ³ TDK corporation, Singapore		Stephan Barth ¹ , Hagen Bartzsch ¹ , Daniel Gless ¹ , Peter Frach ¹ , Olaf Zywicki ¹ , Thomas Herzog ² , Susan Walter ³ , Henning Heuer ³ ¹ Fraunhofer Institute for Electron Beam and Plasma Technology (FEP), Dresden, Germany, ² Fraunhofer Institute for Ceramic Technologies and Systems, Materials Diagnostics (IKTS-MD), Dresden, Germany		Kanyar Firouzi ¹ , Amin Nikoozadeh ² , Butrus T. Khuri-Yakub ³ ¹ Mechanical Engineering, Stanford University, STANFORD, California, USA, ² Electrical Engineering, Stanford University, Stanford, California, USA, ³ Electrical Engineering, Stanford University, STANFORD, California, USA	
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8:30 am	1H-2 Segmentation of multiple heart cavities in wide-view fused 3D transesophageal echocardiograms Alexander Haak ¹ , Harriet Mulder ² , Ben Ren ³ , Gonzalo Vegas-Sanchez-Ferrero ³ , Gerard van Burckel ⁴ , Marin van Stralen ² , Antonius van der Steen ⁵ , Josten Pluijm ⁵ , Theo van Walsum ⁶ , Johan Erasmus MC, Rotterdam, Netherlands; ² Image Sciences Institute, University Medical Center Utrecht, Netherlands; ³ Cardiology, Erasmus MC, Netherlands; ⁴ Image Processing Laboratory, Valladolid University, Spain; ⁵ Erasmus MC, Netherlands; ⁶ Medical Informatics & Radiology, Erasmus MC, Netherlands	2H-3 Two Frequencies Push-Pull Differential Imaging Andrzej Nowicki ¹ , Michal Byra ¹ , Jerzy Lamewski ¹ , Janusz Wojcik ¹ ¹ Ultrasound Department, Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland	3H-3 Towards Wireless Capsule Endoscopic Ultrasound (WCEU) John Lee ¹ , Carl Schoellhammer ¹ , Giovanni Traverso ^{1,2} , Daniel Blankschtein ¹ , Robert Langer ¹ , Kai Thomenius ¹ , Duane Boning ¹ , Brian Anthony ¹ ¹ Massachusetts Institute of Technology, Cambridge, MA, USA; ² Division of Gastroenterology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA	4H-3 Propagation behaviors of wedge waves interacting with defects along wedge tips Che-Hua Yang ¹ , Pei-Yuan Lo ² ¹ Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan; ² National Taipei University of Technology, Taiwan	5H-3 Acoustic Filters Based on Thin Single Crystal LiNbO₃ Films: Status and Prospects Alexandre Reinhardt ¹ , Lamine Benaissa ¹ , Jean-Baptiste David ¹ , Emmanuel Delaf ¹ ¹ CEA, Leti, Minatex Campus, Grenoble, France	6H-3 Origin of IMD2 Signal Generation in Surface Acoustic Wave Devices Ken-ya Hashimoto ¹ ¹ Dept. EEE, Chiba University, Chiba, Japan	7H-3 Automatic frequency tracking system for needle actuating device Lin Gu ¹ , Xiaojia Xie ¹ , Yang Kuang ¹ , Sandy Cochran ² , Zhihong Huang ³ ¹ School of Engineering, Physics and Mathematics, University of Dundee, Dundee, Scotland; ² Institute for Medical Science and Technology, Dundee, Scotland; ³ University of Dundee, Dundee, Scotland
8:45 am	1H-3 Augmented reality based tools for echocardiographic acquisitions Gabriel Kiss ¹ , Sigurd Storve ¹ , Bjorn Olav Haugen ¹ , Hans Torg ¹ ¹ MI Lab and Department of Circulation and Medical Imaging, ISB, NTNU, Trondheim, Norway	2H-4 Strain Estimator based on Analytical Phase Tracking Lili Yuan ¹ , Peder C Pedersen ¹ ¹ ECE, Worcester Polytechnic Institute, Worcester, MA, USA	3H-4 Head motion tracking for functional MRI using an air ultrasound array Qi Wang ¹ , Mark Howell ¹ , Sheronica James ¹ , Gregory Clement ¹ ¹ Cleveland Clinic, USA	4H-4 Visualization of Time-Evolving Wavefront Advance in Polycrystalline Materials James Blackshire ¹ ¹ AFRL/RXCA, Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA		6H-4 Bandwidth-tunable Filter Consisting of SAW Resonators and BaSrTiO₃ Varactors Directly Fabricated on a LiTaO₃ Wafer Tetsuya Kimura ¹ , Hideaki Kobayashi ¹ , Yutaka Kishimoto ¹ , Hideyuki Kato ¹ , Mao Inaba ¹ , Ken-ya Hashimoto ² , Takeshi Matsumura ³ , Hideki Hirano ⁴ , Michio Kadota ⁴ , Masayoshi Esashi ⁴ , Shuji Tanaka ⁴ ¹ Murata Manufacturing Co., Ltd., Japan; ² Graduate School of Engineering, Chiba University, Japan; ³ National Institute of Information and Communications Technology, Japan; ⁴ Microsystem Integration Center, Tohoku University, Japan	7H-4 Characterization of Langevin transducers incorporating Mn-doped piezocrystal material Andrew Mathieson ¹ , Muhammad Sadiq ² , Sandy Cochran ² , Margaret Lucas ³ ¹ School of Engineering, University of Glasgow, United Kingdom; ² Institute for Medical Science and Technology, University of Dundee, United Kingdom

8:00 am - 9:30 am

Oral --- Saturday, September 6, 2014

9:00 am 1H-4 Identification and Optimization of Response to Cardiac Resynchronization Therapy using Electromechanical Wave Imaging	2H-5 Analyzing the impact of increasing Mechanical Index (MI) and energy deposition on shear wave speed (SWS) reconstruction in human liver Yufeng Deng ¹ , Mark Palmer ¹ , Ned Rouze ² , Stephen Rosenzweig ³ , Manal Abdelmalek ² , Kathy Nightingale ¹ ¹ Biomedical Engineering, Duke University, Durham, NC, USA, ² Gastroenterology-Hepatology, Duke University Medical Center, Durham, NC, USA	3H-5 MEMS-Based Silicon Ultrasonic Twin-Nozzle Nebulizer for Inhalation Drug Delivery* R. W. Mao ¹ , S. K. Lin ¹ , S. C. Tsai ² , M. Brenner ³ , S. Mahon ⁴ , G. Boss ⁵ , G. Smaildone ⁶ , Chen Tsai ¹ ¹ Electrical Eng & Computer Science, University of California, Irvine, Irvine, CA, USA, ² Chemical Eng and Materials Science, University of California, Irvine, Irvine, CA, USA, ³ Division of Pulmonary and Critical Care Medicine, University of California, Irvine, Irvine, CA, USA, ⁴ Beckman Laser Institute and Medical Clinics, Univ of California, Irvine, Irvine, CA, USA, ⁵ Medicine, Univ of California, San Diego, CA, USA, ⁶ Medicine, Pulmonary/Critical Care Div, State Univ of New York at Stony Brook, NY, USA	4H-5 Guided Ultrasonic Waves in Steel Pipe with Welded Bend with Defect Jin Jack Tan ¹ , Anthony Guo ¹ , Xin Wang ¹ , Jee-Hou Ho ² ¹ Monash University Malaysia, Malaysia, ² University of Nottingham Malaysia Campus, Malaysia	5H-4 Investigation of ferroelastic domain relaxation of PZT thin-film in the GHz range using Picosecond Acoustics Arnaud Devos ^{1,2} , Fabrice Casset ³ , Sabrina Sadler ² , Arnaud Lelouan ² , Gwenaél Le Rhun ² , Christel Dieppedale ³ , Patrick Emery ² , Stéphane Farget ³ , Emmanuel Dela ³ ¹ JEMV CNRS, Lille, France, ² MENAPIC, Lille, France, ³ CEA-LETI, France	6H-5 Reconfigurable Mode of Vibration in AIN MEMS Resonators Using Phase Change Materials Gwendolyn Hummel ¹ , Yu Hui ¹ , Matteo Rinaldi ¹ ¹ Electrical and Computer Engineering, Northeastern University, Boston, MA, USA	7H-5 Performance Optimization of Ultrasonic Needle Actuating Device for Insertion Operation into Tissue Mimics Xiaochun Liao ¹ , Yang Kuang ¹ , George Corner ² , Sandy Cochran ³ , Zhong Huang ¹ ¹ School of Engineering, Physics and Mathematics, University of Dundee, Dundee, Scotland, United Kingdom, ² Department of Medical Physics, Ninewells Hospital and Medical School, Dundee, Scotland, United Kingdom, ³ Institute for Medical Science and Technology, University of Dundee, Dundee, Scotland, United Kingdom
9:15 am 1H-5 Ultrasound current source density imaging of the electrocardiogram in live rabbit hearts	2H-6 Shear waves generated with magnetomotive force on an embedded sphere Matthew Urban ¹ , Randall Kinnick ¹ , Mohammad Mehrmohammadi ¹ , James Greenleaf ¹ ¹ Mayo Clinic College of Medicine, Rochester, MN, USA	3H-6 An Ultrasonic Micro-Scanner for Thickness Assessment of the Vestibular Jawbone: In-Vitro Accuracy Evaluation Daniel Habor ¹ , Thorsten Volbm ² , Fabrice Chuembou ¹ , Klaus Radermacher ¹ , Katharina Degen ³ , Juliana Marotti ³ , Stefan Wolart ² , Stefan Heger ³ ¹ Chair of Medical Engineering, Helmholtz Institute for Biomedical Engineering, RWTH Aachen University, Aachen, Germany, ² Department of Prosthodontics and Biomaterials, Medical Faculty, RWTH Aachen University, Aachen, Germany, ³ Institute for Biomedical Engineering, Mannheim University of Applied Science, Germany	4H-6 Modeling Guided waves propagating in Bones with a Multilayer Model Ming-Yen Lee ¹ , Che-Hua Yang ¹ ¹ Department of Mechanical Engineering, National Taipei University of Technology, Taiwan	5H-5 Second overtone mode polarization inverted resonator consisting of (001)/(00-1) PbTiO ₃ thin film Takahiko Yanagitani ¹ , Katsuyoshi Katada ¹ , Masashi Suzuki ¹ , Kiyotaka Wase ² ¹ Nagoya Institute of Technology, Japan, ² Kyoto University, Japan	6H-6 Bandwidth-tunable SAW Filter Based on Wafer-level Transfer-integration of BaSrTiO ₃ Film for Wireless LAN System using TV White Space Hideki Hirano ¹ , Tetsuo Samoto ¹ , Tetsuya Kimura ¹ , Masahiro Inaba ¹ , Ken-ya Hashimoto ¹ , Takeshi Matsumura ¹ , Kousuke Hikichi ¹ , Michio Kadota ¹ , Masayoshi Esashi ¹ , Shuji Tanaka ¹ ¹ Tohoku University, Japan, ² Murata Manufacturing Co. LTD, Japan, ³ Chiba University, Japan, ⁴ National Institute of Information and Communication Technology, Japan	7H-6 Enhanced US-Guided Needle Intervention through Ultrasound Actuation of a Standard Needle Muhammad Sadiq ¹ , Xiaochun Liao ¹ , Lin Shengtao ¹ , Sandy Cochran ² , Zhihong Huang ¹ ¹ University of Dundee, Dundee, United Kingdom

Oral --- Saturday, September. 6, 2014					
10:30 am - 12:00 pm	Session 11 MCA: Contrast Agents: New Technologies Chair: Ayache Bonakaz INSERM, Tours	Session 21 MPA: Photoacoustics III Chair: Stanislav Emelianov Univ. of Texas at Austin, Austin	Session 31 MTH: Blood-brain barrier and sonoporation Chair: Kullervo Hynynen Univ. of Toronto, Toronto	Session 41 Transducers Chair: Kentaro Nakamura Tokyo Institute of Technology	Session 51 Ultrasonic Motors and Multi-Modal Thin Film Transducers Chair: Jörg Wallaschek Leibniz Universität Hannover
Grand Ballroom					
10:30 am	71-1 In Vivo Acoustic Single Bubble Tracking at Super- Resolution Kirsten Christensen-Jeffries ¹ , Richard J Browning ¹ , Meng Xing Tang ² , Christopher Dunsby ^{3,4} , Robert J Eckersley ¹ ¹ Biomedical Engineering Department, Division of Imaging Sciences, Kings College London, London, United Kingdom; ² Department of Bioengineering, Imperial College London, London, United Kingdom; ³ Department of Physics, Imperial College London, London, United Kingdom; ⁴ Centre for Histopathology, Imperial College London, London, United Kingdom	21-1 Two-wavelength identification of lipid in atherosclerotic plaques by intravascular photoacoustic imaging at 1.7 µm Min Wu ¹ , Gijis van Soest ¹ , Krista Jansen ^{1,2} , Antonius F. W. van der Steen ^{1,2} ¹ Department of Biomedical Engineering, Thorax Center, Erasmus University Medical Center, Netherlands; ² Interuniversity Cardiology Institute of the Netherlands, Netherlands	31-1 Focused ultrasound- mediated blood-brain barrier opening for treatment of Alzheimer's disease. Alison Burgess ¹ , Sonam Dubey ^{1,2} , Isabelle Aubert ^{1,2} , Kullervo Hynynen ^{1,2} ¹ Sunnybrook Research Institute, Canada; ² University of Toronto, Canada	41-1 Phased Array Inspection at Elevated Temperatures Mohammad Hassan Marvasti ¹ , Anthony N. Sinclair ¹ ¹ Mechanical and Industrial Engineering, University of Toronto, Canada	51-1 Evaluation of a Novel Reflector in a Surface Acoustic Wave Motor Deqing Kong ¹ , Minoru Kuribayashi Kurosawa ¹ ¹ Tokyo Institute of Technology, Yokohama, Japan
		61-1 CTGS material parameters obtained by versatile SAW measurements Sergey Biryukov ¹ , Hagen Schmidt ¹ , Andrey Somkov ^{1,2} , Manfred Wehnacht ¹ , Sergey Sakharov ¹ , Oleg Buzanov ² ¹ IFW Dresden, Dresden, Germany; ² Loeffe Physical- Technical Institute, St. Petersburg, Russian Federation; ³ JSC Fonos- Materials, Moscow, Russian Federation	61-2 Temperature coefficients of fluorine- doped amorphous-SiO2 thin films measured by picosecond ultrasonics Akira Nagakubo ¹ , Satoru Matsuda ² , Hirotsugu Ogi ¹ , Masahiko Hirao ¹ ¹ Engineering Science, Osaka University, Toyonaka-City, Japan; ² Taiyo Yuden Co., LTD, Japan		
10:45 am	71-2 Super-resolution ultrasound imaging with "blinking" microbubbles Geoffrey Luke ^{1,2} , Alexander Hannah ¹ , Stanislav Emelianov ^{1,2} ¹ Biomedical Engineering, The University of Texas at Austin, Austin, Texas, USA; ² Electrical and Computer Engineering, The University of Texas at Austin, Austin, Texas, USA	21-2 Integrated Catheter for Real-Time Intravascular Ultrasound and Photoacoustic Imaging Andrei Karpionuk ¹ , Don Vanderlaan ¹ , Doug Yeager ¹ , Stanislav Emelianov ¹ ¹ Biomedical Engineering, University of Texas at Austin, Austin, Texas, USA	31-2 Effect of drug injection protocol on delivery of liposomal doxorubicin to the brain using ultrasound mediated blood brain barrier disruption Muna Aryal ^{1,2} , Yong-Zhi Zhang ¹ , Nathan McDannold ¹ ¹ Radiology, Harvard Medical School, Boston, MA, USA; ² Physics, Boston College, Chestnut Hill, MA, USA	41-2 Design of an Electromagnetic Acoustic Transducer for in-line inspection Miguel Freitas ¹ , Jean Pierre von der Weid ¹ , Thomas Grimsley ² ¹ CPT/CETUC, PUC-Rio, Rio de Janeiro, Brazil; ² Ritec Inc, Warwick, RI, USA	51-2 Performance of Micro Ultrasonic Motor using One Cubic Millimeter Stator Tomonaki Mashimo ¹ ¹ Toyohashi University of Technology, Toyohashi, Aichi, Japan
		61-2 Temperature coefficients of fluorine- doped amorphous-SiO2 thin films measured by picosecond ultrasonics Akira Nagakubo ¹ , Satoru Matsuda ² , Hirotsugu Ogi ¹ , Masahiko Hirao ¹ ¹ Engineering Science, Osaka University, Toyonaka-City, Japan; ² Taiyo Yuden Co., LTD, Japan	71-2 Piezoelectric Ceramics in Ultrasound – 3203HD and Beyond Gerald Strunford ¹ , Thomas Vancill ¹ , David Williams ¹ , Bruce Johnson ¹ , Lillian Gutierrez ¹ , ¹ CIS Electronic Components, Albuquerque, NM, USA		
Marquette					
Williford A					
Williford B					
Williford C					

11:00 am	11-3 Theoretical and experimental resolution limit of Sono-Activated Ultrasound Localization Microscopy (SAULM) Yann Desailly ¹ , Juliette Pierre ¹ , Olivier Couture ² , Mickael Tanter ¹ ¹ Institut Langevin, ESPCI ParisTech, CNRS, INSERM, Paris VII university, Paris, France	21-3 Photoacoustic imaging of the carotid artery Pieter Kruijenga ¹ , Geert Springeling ² , Jan Lukas Robertus ² , Aad van der Lugt ³ , Nico de Jong ^{1,4} , Antonius FW van der Steen ^{1,5} , Gijb van Soest ¹ ¹ Thorax Center, Erasmus MC, Netherlands, ² Department of Pathology, Erasmus MC, Netherlands, ³ Department of Radiology, Erasmus MC, Netherlands, ⁴ Delft University of Technology, ⁵ Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of	31-3 Pharmacodynamic analysis for efficient drug delivery through the FUS-induced BBB opening in Non-Human Primates in vivo Gesthimani Samiotaki ¹ , Shih-Ying Wu ¹ , Maria Eleni Karakatsani ¹ , Matthew Downs ¹ , Sachin Jambhwalkar ² , Elisa Konofagou ^{1,2} ¹ Biomedical Engineering, Columbia University, USA, ² Department of Radiology, Columbia University, USA	41-3 A Robust Air Coupled Ultrasonic Piezoelectric-Carbon Fiber Reinforced Polymer (CFRP) Sensor for Mobile Robot Navigation Sergio Flores Contreras ¹ , Martin Vossiek ¹ ¹ Institute of Microwaves and Photonics, University of Erlangen-Nuremberg, Erlangen, Germany	51-3 Ultrasonic Motor for sample spinning of solid-state nuclear magnetic resonance spectrometer in high magnetic field Daisuke Yamaguchi ¹ , Dai Takeda ¹ , Takefumi Kanda ¹ , Koichi Suzumori ¹ ¹ Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan	61-3 Power Durable Electrode Metallization: Material Choice, Failure Mode, and Characterization Ryoichi Takayama ¹ , Hidekazu Nakanishi ¹ , Ken-ya Hashimoto ² ¹ Automotive & Industrial Systems Company, Panasonic Corporation, Kadoma, Japan, ² Dept. Electrical and Electronic Engineering, Chiba University, Chiba, Japan	71-2 Lead-free piezoelectric materials and composites for high frequency medical ultrasound transducer applications Tanikan Thongchai ¹ , Yun Jiang ¹ , Yang Bai ¹ , Carl Meggs ¹ , Alex Matousek ² , Pavel Toft ² , Hana Hughes ² , Tim Button ^{1,2} ¹ School of Metallurgy and Materials, University of Birmingham, Birmingham, United Kingdom, ² CEITEC – Central European Institute of Technology, Brno, Czech Republic
11:15 am	11-4 Quantification of Molecular Marker Concentration in Large Blood Vessels Shiyang Wang ¹ , F William Mauldin Jr ¹ , Alexander L Klibanov ^{1,2} , John A Hossack ¹ ¹ Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA, ² Division of Cardiovascular Medicine, University of Virginia, Charlottesville, Virginia, USA	21-4 Ultrahigh Resolution Photoacoustic Microscopy and Endomicroscopy Ruimin Liu ¹ , Xiaosong Bai ¹ , Xiaojing Gong ¹ , Wei Song ¹ , Liang Song ^{1,2} ¹ Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, ² Beijing Center for Mathematics and Information Interdisciplinary Sciences (BCMIS), China, People's Republic of	31-4 FOCUSED Ultrasound-Induced Blood-Brain Barrier Opening in Non-Human Primates With Transcranial Cavitation Detection In Vivo Shih-Ying Wu ¹ , Carlos Sierra Sanchez ² , Matthew Downs ^{1,2} , Amanda Bueh ² , Gesthimani Samiotaki ¹ , Vincent Ferrera ² , Elisa Konofagou ^{1,3} ¹ Biomedical Engineering, Columbia University, USA, ² Neuroscience, Columbia University, USA, ³ Radiology, Columbia University, USA	41-4 Numerical simulations of a cross-dipole transducer for acoustic well logging Yuyu Dai ¹ , Penglai Xin ¹ , Zhengbo Wang ¹ , Hongbin He ¹ , Xueming Wang ¹ ¹ Institute of Acoustics, Chinese Academy of Sciences, China, People's Republic of	51-4 Theoretical and experimental study of layered SAW magnetic Sensor Meriem ELHOSNI ¹ , Omar Elmazria ¹ , Sébastien Petitwatelet ¹ , Laurent Bouvot ¹ , Michel Hehn ¹ , Abdelkrim Talbi ² , Nicolas Tiercelin ¹ , Vladimir Prokhorzhensky ² , Philippe Pernod ² , Olivier Boumatar ² ¹ Institut Jean Lamour, UMR 7198, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France, ² LIA LEMAC/LICS - IEMN UMR CNRS 8520, ECLille -USTL, PRES Université Lille Nord de France, Villeneuve d'Ascq, France	71-3 Highly c-Axis Oriented Monocrystalline Pb(Zr, Ti)O₃ Based Thin Film on Si Wafer by Sputter Deposition with Fast Cooling Process Hiroaki Hanzawa ¹ , Shinya Yoshida ¹ , Kiyotaka Wasa ¹ , Shuji Tanaka ¹ ¹ Tohoku University, Sendai, Miyagi, Japan, ² Yokohama City University, Yokohama, Kanagawa, Japan	
11:30 am	11-5 StemBells: a novel stem cell delivery platform using microbubbles and acoustic radiation force Tom Kokhuis ^{1,2} , Ilya Skachkov ¹ , Benno Naaijkens ^{2,3} , Lynda Jullermans ^{2,4} , Otto Kamp ^{2,5} ¹ Antonius van der Steen ^{1,2} , Michel Verschuik ^{4,6} , Nico de Jong ^{1,2} ¹ Biomedical Engineering, Erasmus Medical Center, Rotterdam, Netherlands, ² Netherlands Heart Institute, ICIN, Utrecht, Netherlands, ³ Pathology, VU Medical Center, Amsterdam, Netherlands, ⁴ Physiology, VU Medical Center, Amsterdam, Netherlands, ⁵ Cardiology, VU Medical Center, Amsterdam, Netherlands, ⁶ Physics of Fluids Group, University of Twente, Enschede, Netherlands, ⁷ Institute of Biomedical Technology and Technical Medicine, MIRA, Enschede, Netherlands	21-5 Clinically translatable ultrasound/photoacoustic imaging for real-time needle biopsy guidance Chen-wei Wei ¹ , Thu-Mai Nguyen ¹ , Jinjun Xia ¹ , Bastien Arnal ¹ , Ivan Pelivanov ^{1,2} , Matthew O'Donnell ¹ ¹ University of Washington, Seattle, Washington, USA, ² International Laser Center, Moscow State University, Moscow, Russian Federation	31-5 Sonoporation: From the lab to human clinical trials. Spiros Kotopoulos ^{1,2} , Georg Dimevski ¹ , Bjorn Tore Giersten ¹ , Odd Helge Gilja ^{1,3} , Emmet McCormack ³ , Michiel Postema ² ¹ National Center for Ultrasound in Gastroenterology, Haukeland University Hospital, Bergen, Norway, ² Department of Physics and Technology, University of Bergen, Bergen, Norway, ³ Department of Clinical Science, University of Bergen, Bergen, Norway	41-5 High temperature piezoelectric transducers Makiko Kobayashi ¹ ¹ Graduate School of Science and Technology, Kumamoto University, Kumamoto, Japan	51-5 RF bias induced polarity inversion of ScAlN film for overtone mode BAW resonator Masashi Suzuki ¹ , Takahiko Yanagita ¹ ¹ Nagoya Institute of Technology, Japan	71-4 Growth and Characterization of Pb(Zr_{1-x}Ti_x)O₃ Single Crystals Zuo-Guang Ye ^{1,2} , Yujun Xie ¹ , Bixia Wang ¹ , Alexei Bokov ¹ , Nan Zhang ¹ , Wei Ren ² ¹ Simon Fraser University, Canada, ² Xian Jiaotong University, China, People's Republic of	

SATURDAY ORAL

Oral --- Saturday, September. 6, 2014					
10:30 am - 12:00 pm					
11:45 am	11-6 In vivo acoustic contrast enhancement via simultaneous production and injection of microfluidic-produced microbubbles Ali Dhanaliwala ¹ , Adam Dixon ² , Dan Lin ¹ , Alexander Klibanov ¹ , John Hossack ¹ ¹ University of Virginia, USA, ² Biomedical Engineering, University of Virginia, USA	21-6 Non-contact Photoacoustic Characterization of Retinal Vasculature for Assessing Brain Injuries Ashwin Sumpathkumar ¹ , Ronald Silverman ² ¹ F.L. Luzzi Center for Biomedical Engineering, Riverside Research, New York City, New York, USA, ² Department of Ophthalmology, Columbia University Medical Center, New York City, New York, USA	31-6 Involvement of cytoskeleton in sonoporation and drug delivery Aya Zeghlami ¹ , Jean-Michel Escoffier ² , Ayache Bouakaz ¹ ¹ Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France, Tours, France, ² Imaging Division, UMC Utrecht, Utrecht, The Netherlands, Utrecht, Netherlands	51-6 Air-backed optoacoustic transmitter Tachwa Lee ¹ , Cheng Zhang ² , Qiaochu Li ² , Hyung Won Baac ³ , Jong G. Ok ¹ , L. Jay Guo ^{1,2} ¹ Mechanical Engineering, University of Michigan, Ann Arbor, Michigan, USA, ² Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, Michigan, USA, ³ School of Electronic and Electrical Engineering, Sungkyunkwan University, Suwon, Korea, Republic of	61-5 Sezawa mode SAW with high electromechanical coupling at the boundary of polarization-inverted (000-1)/(0001) ZnO, AlN and SCAIN films Shinji Takayanagi ¹ , Takahiko Yanagitani ² , Mami Matsukawa ¹ ¹ Faculty of Science and Engineering, Doshisha University, Kyotanabe, Japan, ² Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan
				71-5 Growth of Piezoelectric Single Crystal for Medical Ultrasound Applications Jian Tian ¹ , Pengdi Han ¹ ¹ H.C. Materials Corporation, Bolingbrook, Illinois, USA	

1:00 pm - 2:30 pm							Oral --- Saturday, September. 6, 2014						
	Session 1J. MIM: Vascular Imaging <i>Chair: Ton van der Steen</i> Erasmus Medical Centre, Rotterdam	Session 2J. MTH: Tumor treatment and monitoring <i>Chair: Elisa Konofagou</i> Columbia University, New York	Session 3J. MTC: Bone <i>Chair: Pascal Laugier</i> Université Pierre et Marie Curie, Paris	Session 4J. Industrial Applications and Flow Sensing <i>Chair: James Friend</i> RMIT University	Session 5J. Phononics 1 <i>Chair: Yan Pennec</i> IEMN / Université de Lille 1	Session 7J. Photoacoustics and other topics <i>Chair: Jian Yuan</i> Philips Shanghai Apex							
Grand Ballroom							Williford C						
	7J-1 Optical Coherence Tomography: The Optical Analogue to Ultrasound Imaging Stephen Boppert ¹ ¹ Departments of Electrical and Computer Engineering, Bioengineering, and Medicine, University of Illinois at Urbana- Champaign, Urbana, IL, USA	2J-1 Intra-operative toroidal HIFU transducer for liver metastases and pancreatic tumors treatment: System development, in vivo studies and clinical evaluation. David Melodelima ^{1,2} , Jeremy Vincenot ¹ , Yao Chen ² , Aurelien Dupré ² , Anthony Kocot ¹ , Michel Rivoire ² , Jean-Yves Chapelon ¹ ¹ LabTAU - INSERM U1032, France, ² Centre Leon Berard, France	3J-1 Anisotropic elasticity of human tibial cortical bone measured by resonant ultrasound spectroscopy Simon Bernard ¹ , Johannes Schneider ² , Robert Wendlandt ³ , Quentin Grimal ¹ , Kay Raun ² , Peter Varga ⁴ , Pascal Laugier ¹ ¹ Laboratoire d'Imagerie Biomedicale, Sorbonne Universités, UPMC Univ Paris 06, INSERM, CNRS, Paris, France, ² Julius Wolff Institute for Biomechanics and Musculoskeletal Regeneration, Charité Universitätsmedizin, Berlin, Germany, ³ Labor für Biomechanik, Universitätsklinikum Schleswig Holstein, Luebeck, Germany	4J-1 Numerical Analysis of Transducer Installation Effect on Ultrasonic Gas Flowmeter Longhui Qin ¹ , Zhuoyuan Tang ¹ , Liang Hu ¹ , Xin Fu ¹ ¹ State Key Laboratory of Fluid Power Transmission and Control, Zhejiang University, Hangzhou, China, People's Republic of	5J-1 Monolithic surface phonon polariton phononic crystals Didit Yudistira ¹ , Andreas Boes ^{1,2} , Bahram Rouhani ³ , Yan Pennec ³ , Leslie Yeo ⁴ , Arnan Mitchell ^{1,2} , James Friend ³ ¹ School of Electrical and Computer Engineering, RMIT University, Melbourne, Victoria, Australia, ² RC Centre of Excellence for Ultrahigh bandwidth Devices and Optical Systems, Australia, ³ Institut d'Electronique, de Micro electronique et de Nanotechnologie, UMR CNRS 8520, Villeneuve d'Ascq Cedex, France, ⁴ Micro/Nanophysics Research Laboratory, RMIT University, Melbourne, Melbourne, Victoria, Australia	7J-1 Microsphere resonator for optoacoustic detection of high frequency ultrasound Takashi Buma ¹ ¹ ECE, Union College, Schenectady, NY, USA							
1:00 pm													
1:15 pm		2J-2 Inertial cavitation at low, simultaneous ultrasound and light intensities using nanoemulsion bead coated with gold nanospheres: application to sonothrombolysis. Bastien Amal ¹ , Camilo Perez ^{1,2} , Chen-Wei Wei ¹ , Jinyun Xia ¹ , Michael Lombardo ¹ , Ivan Pelivanov ^{1,4} , Thomas J. Matula ^{1,2} , Lilo D. Pozzo ³ , Matthew O'Donnell ¹ ¹ Bioengineering, University of Washington, Seattle, WA, USA, ² CIMU, Applied Physics Lab, University of Washington, Seattle, WA, USA, ³ Chemical engineering, University of Washington, Seattle, WA, USA, ⁴ Moscow State University, Russian Federation	3J-2 Ultrasonic guided mode conversion using axial transmission for fracture evaluation in long bones: a tubular phantom study Shixiao Hu ¹ , Kailiang Xu ^{1,2} , Dean Tai ¹ , Jean-Gabriel Minonzio ² , Pascal Laugier ² , Weiqi Wang ¹ ¹ Department of Electronic Engineering, Fudan University, Shanghai, China, People's Republic of, ² Laboratoire d'Imagerie Biomedicale, Sorbonne Universités, UPMC Univ Paris 06, INSERM, CNRS, Paris, France	4J-2 A Discontinuous Galerkin Approach for the Numerical Simulation of Transit-Time Ultrasonic Flowmeters Adrian Luca ^{1,2} , Régis Marchiano ² , Jean-Camille Chassaigne ² , Julien Porre ¹ ¹ Ultraflux, Éryangy, France, ² Institut Jean le Rond d'Alembert (UPMC-CNRS, UMR 7190), Paris, France	5J-2 Beam Path of Flexural Lamb Waves within Phononic Crystals-Based Acoustic Lenses Jinfeng Zhao ¹ , Bernard Bonello ¹ , Rémi Marchal ¹ , Olga Boyko ¹ ¹ INSP (box 840), University Pierre et Marie Curie, Paris, France	7J-2 Piezoelectric Micromachined Ultrasound Array Transducer with 31 Channels for Photoacoustic Imaging Hongmin Ahn ¹ , Kyounghun Beon ¹ , Min Sung ¹ , Wonkyu Moon ¹ ¹ Mechanical Engineering, POSTECH, Pohang, Gyeongsangbuk, Korea, Republic of							

1:30 pm	1J-2 Improved diagnostic accuracy of human coronary atherosclerosis by using a fully integrated intravascular ultrasound and optical coherence tomography (IVUS-OCT) system Teng Ma^{1,2}, Jiawen Li³, Dilbar Mohar⁴, Adrian Correa⁵, Pranav M. Patel⁶, K. Kirk Shung⁷, Zhongping Chen⁸, Qifa Zhou¹ ¹Department of Biomedical Engineering, University of Southern California, USA; ²NH Resource Center on Medical Ultrasonic Transducer Technology, University of Southern California, USA; ³Department of Biomedical Engineering and Beckman Laser Institute and Medical Clinic, University of California, Irvine, USA; ⁴Division of Cardiology School of Medicine, University of California, Irvine, USA; ⁵Department of Pathology Keck School of Medicine, University of Southern California, USA	2J-3 Differential Effects of Nanodroplets and Microbubbles on Tumor Vascularity Following Focused Ultrasound: An Acoustic Angiography Study Linsay Phillips¹, K. Heath Martin¹, Ryan Gessner¹, Paul A. Dayton¹ ¹Joint Dept. of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, USA	3J-3 Temporal Evolution of Fast and Slow Waves During Propagation Through Bovine Cancellous Bone In Vitro Keith Wear¹, Yoshiki Nagatani², Katsunori Mizuno³, Mami Matsukawa⁴ ¹Center for Devices and Radiological Health, US Food and Drug Administration, USA; ²Kobe City College of Technology, Japan; ³University of Tokyo, Japan; ⁴Doshisha University, Japan	4J-3 Towards the Measurement of Local Particle Mass Fractions in Magnetite Suspensions Jan Stener¹, Johan E. Carlsson², Anders Sund¹, Bertil Pålsson¹ ¹Civil, Environmental and Natural Resources Engineering, Lulea University of Technology, Sweden; ²Computer Science, Electrical and Space Engineering, Lulea University of Technology, Sweden	5J-3 Active control of a piezoelectric phononic crystal using electrical impedance Sid Ali Mansour¹, Pierre Maréchal¹, Bruno Morvan¹, Anne-Christine Hladky-Hennion², Bertrand Dubus² ¹Laboratoire Ondes et Milieux Complexes, University of Le Havre, Le Havre, France; ²Groupe Acoustique, IEMN Lille, Lille, France	7J-3 Waveguide optical micromachined ultrasound transducer (WOMUT) for high frequency ultrasound detection Mohammad Amin Tadayoni¹, Martha-Elizabeth Baylor², Shai Ashkenazi¹ ¹Biomedical Engineering, University of Minnesota, Minneapolis, Minnesota, USA; ²Physics and Astronomy, Carleton College, Northfield, Minnesota, USA	
1:45 pm	1J-3 Fast 3-D Reconstruction of the Carotid Artery Bifurcation Based on Real-time 2-D Segmentation Daniel H. Iversen¹, Sigurd Størve², Torbjørn Dahl^{1,2}, Hans Torp¹, Lasse Lovstakken¹ ¹Dept. Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway; ²St. Olavs University Hospital, Trondheim, Norway	2J-4 Laser-activated PLGA theranostic agents for cancer therapy in vivo Yang Sun¹, Yan Wang², Chengcheng Niu¹, Eric Strohm², Yuanyi Zheng¹, Haitao Ran¹, Dong Wang¹, Rongzhong Huang¹, Yuping Gong¹, Di Zhou¹, Zhigang Wang¹, Michael Kolios² ¹Institute of Ultrasound Imaging, Department of Ultrasound, The Second Affiliated Hospital of Chongqing Medical University, Chongqing, China; ²People's Republic of Department of Physics, Ryerson University, Toronto, Ontario, Canada	3J-4 Polarity of piezoelectric properties in bone induced by ultrasound irradiation Hiroko Tsunoda¹, Isao Mano¹, Elena Hernanz², Katsunori Mizuno³, Takahiko Yangtani⁴, Shinji Takayanagi⁴, Mami Matsukawa⁴ ¹Wave electronics research center, Laboratory of ultrasonic electronics, Doshisha University, Japan; ²Inst. Industrial Science, The University of Tokyo, Japan; ³Nagoya Institute of Technology, Japan	4J-4 Sonocrystallization under various frequencies and powers Judy Lee¹ ¹Chemical and Biomolecular Engineering, The University of Melbourne, Australia	5J-4 Interaction of surface acoustic waves with a monolayer of microspheres Nicholas Boechler^{1,2}, Jeffrey K. Eliason³, Anshuman Kumar^{1,3}, Tian Gan¹, Alexei A. Maznev¹, Keith A. Nelson¹, Nicholas Fang¹ ¹Department of Mechanical Engineering, MIT, Cambridge, USA; ²Department of Mechanical Engineering, University of Washington, Seattle, USA; ³Department of Chemistry, MIT, Cambridge, USA	7J-4 Development of a High Temperature Transducer Backing Element with Porous Ceramics Mohammad Hossain Amini¹, Thomas Coyle², Anthony Sinclair¹ ¹Mechanical & Industrial Dept., University of Toronto, Toronto, Outside US, Canada; ²Material Science and Engineering Department, University of Toronto, Toronto, Outside US, Canada	

1:00 pm - 2:30 pm						Oral --- Saturday, September. 6, 2014							
2:00 pm	1J-4 Fully Automated Carotid Plaque Segmentation in Combined B-mode and Contrast Enhanced Ultrasound	Zeynettin Aktus¹, Diego D.B. Carvalho², Sijm C.H. van den Oord³, Arend F.L. Schinkel⁴, Nico de Jong⁴, Wiro J. Nissen^{2,4}, Antonius F.W. van der Steen^{1,4}, Stefan Klein², Johan G. Bosch¹ ¹Biomedical Engineering Department, ErasmusMC, Rotterdam, ²Netherlands, ³Biomedical Imaging Group Rotterdam, Deps. of Medical Informatics & Radiology, ErasmusMC, Rotterdam, ⁴Netherlands, ⁵Department of Cardiology, Thoraxcenter, ErasmusMC, Rotterdam, Netherlands, ⁶Imaging Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Delft, Netherlands	2J-5 In vivo pancreatic tumor detection and high-intensity focused ultrasound ablation monitoring using harmonic motion imaging technique	Hong Chen¹, Yang Han¹, Camille Palermo², Kenneth Olive³, Elia Konoigou^{1,3} ¹Biomedical Engineering, Columbia University, USA, ²Herbert Irving Comprehensive Cancer Center, Columbia University, USA, ³Department of Radiology, Columbia University, USA	3J-5 In vivo measurements of guided wave at the forearm	Quentin Vallet¹, Jean-Gabriel Minonzi¹, Christine Chappard², Maryline Talmant¹, Pascal Laugier¹ ¹Laboratoire d'Imagerie Biomédicale, Sorbonne Universités, UPMC Univ Paris 06, INSERM, CNRS, Paris, France, ²B2OA, UMR CNRS7052, University Denis Diderot, PRES Sorbonne Paris Cité, Paris, France	4J-5 Investigation on using two types of sonoreactors for Kraft lignin fractionation	Eric Loranger¹, Guillaume Milot¹, Claude Daneault¹ ¹Lignocellulosic Materials Research Centre (CRM), Université du Québec à Trois-Rivières (UQTR), Trois-Rivières, Quebec, Canada	5J-5 Ultrasonic Screening Based on the Interaction of Resonant Cavities	Alvysin El Ayouch¹, Mahmoud Addouche¹, Philippe Lasaygues², Abdelkrim Khelif¹ ¹MIN2S, Femto-ST, Besançon, France, ²LMA, Marseille, France	7J-5 Design and prototyping of dual layer linear arrays	Tung Manh¹, Lars Hoff¹, Tommi F. Johansen^{2,3} ¹Department of Micro and Nano Systems Technology, Buskerud and Vestfold University College, Norway, ²Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Norway, ³Department of Acoustics, SINTEF ICT, Norway	
	1J-5 Estimation of arterial wall motion using ultrafast imaging with transverse oscillations	Sebastien salles¹, Simon Laf², Damien Garcia¹, Alfred Yu¹, Didier Vray¹, Hervé Liebgott¹ ¹CNRS UMR 5220, INSERM U1044, Université de Lyon, Insa de Lyon, France, ²Biomedical Ultrasound Laboratory, University of Hong Kong, China, ³People's Republic of RUBIC, CRCHUM, University of Montreal, Department of radiology, Canada	2J-6 Detection Of Hifu Lesion Using Passive Elastography : A Preliminary Study On Porcine Pancreas	ali zargani¹, Jérémy Vincenot¹, Anthony Kocot¹, Paul Ledue¹, Yao cher¹, Rémi Souchon¹, Stefan Catheline¹, David Melodelima¹ ¹UMR 1032 INSERM, Lyon, France, ²Lyon UNICANCER, Lyon, France, ³Lyon UNICANCER, France	3J-6 Evaluation of anisotropy in cortical bone by micro-Brillouin scattering	Yuki Imoto¹, Mami Matsukawa¹, Ryo Tsubota¹ ¹Wave Electronics Research Center, Doshisha University, Kyotanabe, Kyoto, Japan	4J-6 Ultrasonic welding of electronic parts and devices using a long and thin complex vibration welding tip	Jiromaru Tsujino^{1,2}, Eiichi Sugimoto¹ ¹Kanagawa University, Yokohama, Kanagawa, Japan, ²Asahi EMS Co. Ltd, Yokohama, Kanagawa, Japan, ³Asahi EMS Co. Ltd, Tokyo, Japan	5J-6 Airborne sound transmission loss analysis through acoustic metamaterial plate	Mourad Oudich¹, Badreddine Assouar¹, Xiaoming Zhou¹ ¹Institut Jean Lamour, UMR CNRS 7198, University of Lorraine, Vandoeuvre-lès-Nancy, France, Metropolitan	7J-6 Sol-Gel Composite Film Fabrication by Paint Stencil Printing	Tsukasa Kaneko¹, Kazuki Iwata¹, Makiko Kobayashi¹ ¹Kumamoto University, Japan	
2:15 pm													

3:30 pm - 5:00 pm						Oral --- Saturday, September. 6, 2014					
3:30 pm	Session 1K. MEL: Liver Elasticity Imaging <i>Chair: Huirong Zheng</i> <i>Shenzhen Institutes of Advanced Technology, Shenzhen</i>	Session 2K. MBB: Beamforming III <i>Chair: Steven Freear</i> <i>University of Leeds</i>	Session 3K. MBE: Ultrasound Induced Biological Effects <i>Chair: Alfred Yu</i> <i>The University of Hong Kong</i>	Session 4K. Airborne Ultrasound <i>Chair: Mario Kupnik</i> <i>Brandenburg University of Technology</i>	Session 5K. Opto-Acoustics <i>Chair: Vincent Laude</i> <i>FEMTO-ST / CNRS</i>						
	Waldorf			Boulevard		Marquette		Williford A			
3:30 pm	1K-1 Liver Elasticity Imaging Using External Vibration Multi-directional Ultrasound Shearwave Elastography (EVMUSE) Heng Zhao ¹ , Pengfei Song ¹ , Duane D. Meixner ² , Randall R. Kinnick ¹ , Matthew R. Callstrom ² , William Sanchez ³ , Matthew W. Urban ¹ , Armando Manduca ¹ , James F. Greenleaf ¹ , Shigao Chen ¹ ¹ Physiology & Biomedical Engineering, Mayo Clinic College of Medicine, USA, ² Radiology, Mayo Clinic College of Medicine, USA, ³ Gastroenterology & Hepatology, Mayo Clinic College of Medicine, USA	2K-1 Clinical feasibility of computed ultrasound tomography in echo mode (CUTE) Michael Jaeger ¹ , Martin Frenz ¹ ¹ University of Bern, Switzerland	3K-1 Sonoporation Induced Persistent Disruption of Balance between Filamentary and Globular Actin Cytoskeleton Xian Chen ¹ , Ruen Shan Leow ¹ , Jennifer M. F. Wan ¹ , Alfred C. H. Yu ¹ ¹ Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong, ² School of Biological Sciences, The University of Hong Kong, Hong Kong	4K-1 Application of Air-Coupled Ultrasound to Full-Scale Concrete Columns Using Tomography Hajin Choi ¹ , John S. Popovics ² ¹ University of Illinois at Urbana-Champaign, Champaign, IL, USA, ² Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA	5K-1 Attenuation of high-order sub-THz thickness resonances in thin Si membranes Alexei Maznev ¹ , Felix Hofmann ² , John Cuffe ¹ , Jeffrey K. Eliason ¹ , Keith A. Nelson ¹ ¹ Department of Chemistry, MIT, Cambridge, USA, ² Department of Engineering Science, University of Oxford, Oxford, United Kingdom, ³ Department of Mechanical Engineering, MIT, Cambridge, USA						
	1K-2 A new portable probe for real-time ultrasound elastic-tensor imaging in fibrous tissues Simon Chatelin ¹ , Mafalda Correia ¹ , Jean-Luc Gennisson ¹ , Mickael Tanter ¹ , Mathieu Pernot ¹ ¹ Institut Langevin - ESPCI ParisTech, INSERM Paris U979 - CNRS UMR 7387, Paris, France	2K-2 192-element 1.5D phased array with elliptic footprint Svetoslav Nikolov ¹ , Jens Munk Hansen ¹ , Henrik Jensen ¹ , Dean McHenry ² , Christopher Beers ² ¹ RD Applications and Technologies, BK Medical Aps, Herlev, Denmark, ² Sound Technology, State College, PA, USA	3K-2 Cavitation characterization in the safety assessment of FUS-enhanced blood-brain barrier opening Tao Sun ¹ , Shutao Wang ¹ , Camilo Acosta ¹ , Elisa Konofogou ^{1,2} ¹ Biomedical Engineering, Columbia University, USA, ² Radiology, Columbia University, USA	4K-2 Fully contactless ultrasonic system to characterized concrete structure with guided wave approach and energy attenuation Suyun Han ¹ , John S. Popovics ¹ ¹ civil engineering, University of Illinois at Urbana Champaign, Urbana, Illinois, USA	5K-2 Cavity modes and optomechanic interactions in phonic crystals Said EL-JALLAL ^{1,2} , Mourad Oudich ³ , Yan Pennec ¹ , Bahram Djafarz-Rouhani ¹ , Abdelkader Makhout ⁴ , Jordi Gomis-Bresco ⁵ , Daniel Navarro-Urrios ⁵ , Alejandro Martinez ³ , Clivia Sotomayor ^{1,2} ¹ Institut d'Electronique, de Microelectronique et de Nanoelectronique, Université Lille 1, Villeneuve d'Ascq, France, ² Physique du Rayonnement et de l'Interaction Laser-Matière, Université Moulay Ismail, Meknes, Morocco, ³ Institut Jean Lamour, Université de Lorraine, Vandœuvre-lès-Nancy, Nancy, France, ⁴ Physique du Rayonnement et de l'Interaction Laser-Matière, Université de Moulay Ismail, Meknes, Morocco, ⁵ ICN2 - Institut Català de Nanotecnologia i Nanoelectronica, Campus UAB, 08193 Bellaterra, Barcelona, Spain, ⁶ Nanophotonics Technology Center, Universitat Politècnica de València, Valencia, Spain, ⁷ ICREA - Institut Catalana de Recerca i Estudis Avançats, 08010, Barcelona, Spain						

4:00 pm	1K-3 Detection of Steatosis through Shear Speed Dispersion Christopher Barry ¹ , Christopher Hazard ² , Gang Cheng ³ , Zaoyouo Hui ⁴ , Kuang-Hsiang Chuang ⁵ , Alexander Partin ⁶ , Robert Mooney ⁷ , Wendong Cao ⁸ , Deborah Kubens ⁹ , Kevin Parker⁴ ¹ Surgery, University of Rochester Medical Center, USA, ² CE Global Research, China, ³ People's Republic of ⁴ Electrical & Computer Engineering, University of Rochester, Rochester, New York, USA, ⁵ Pathology & Laboratory Medicine, University of Rochester Medical Center, USA, ⁶ Radiology, University of Rochester Medical Center, USA	2K-3 A Dicing-free Transducer-Based on Beamforming by Spatial Matched Filtering Yuling Chen ¹ , Jesse Yan ¹ ¹ Biomedical Engineering, University of Southern California, Los Angeles, CA, USA	3K-3 Targeting Endothelial Cells in Cancer Therapy Using Ultrasound Activated Microbubbles Azza Al-Mahrouki ^{1,2} , Emily Wong ^{1,2} , Gregory Czarnota ^{1,2} ¹ Department of Radiation Oncology and Imaging Research, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ² Physical Sciences, Sunnybrook Health Sciences Centre, Toronto, ON, Canada	4K-3 Air-Coupled Flexural Electrodynamical Acoustic Transducers Tobias Johan Robert Eriksson ¹ , Michael Laws ¹ , Sivaram Nishal Ramadas ² , Steve Dixon ¹ ¹ Department of Physics, University of Warwick, Coventry, United Kingdom; ² Elster NVSA, Essen, Belgium	5K-3 Acoustic Pulses at Crystal Wedges Studied by Laser Ultrasonics Alexey M. Lomonosov ^{1,2} , Pavel D. Popyrev ^{1,3} , Peter Hess ² , Andreas P. Mayer³ ¹ General Physics Institute, Moscow, Russian Federation; ² University of Heidelberg, Heidelberg, Germany; ³ HS Offenburg - University of Applied Sciences, Gengenbach, Germany		
4:15 pm	1K-4 Use of a Radon-like summation algorithm to estimate viscoelastic model parameters from shear wave propagation following impulsive excitation in vivo human liver Ned Rouze ¹ , Mark Palmeri ¹ , Kathryn Nightingale ¹ ¹ Biomedical Engineering, Duke University, Durham, North Carolina, USA	2K-4 Delay-encoded Transmission in Synthetic Aperture Imaging (DE-SA) Ping Gong ¹ , Arash Moghimi ¹ , Michael Kolios ¹ , Yuan Xu ¹ ¹ Physics, Ryerson University, Toronto, ON, Canada	3K-4 Shockwave Lithotripsy with Renoprotective Pause is Associated with Renovascular Vasoconstriction in Humans Michael Bailey ^{1,2} , Franklin Lee ² , Ryan Hsi ² , Maria Pan ¹ , Barbra Dunmire ³ , Ziyue Liu ⁴ , Jonathan Harper ⁵ , Mathew Sorensen ^{2,4} ¹ CIMU, Applied Physics Laboratory, University of Washington, Seattle, WA, USA, ² Department of Urology, University of Washington, Seattle, WA, USA, ³ Department of Biostatistics, Indiana University School of Medicine, Indianapolis, IN, USA, ⁴ Division of Urology, Puget Sound Veterans Affairs Medical Center, Seattle, WA, USA	4K-4 Ultrasonic Wireless Communication in Air using OFDM-OOK Modulation Wentao Jiang ¹ , William Wright ¹ ¹ Electrical and Electronic Engineering, University College Cork, Cork, Ireland	5K-4 Acousto-optical modulator based on elastic energy trapping in high aspect ratio interdigital transducers Sarah Benchabane ¹ , Ludovic Socié ¹ , Luca Furfaro ¹ , Vincent Laude ¹ ¹ FEMTO-ST, Besançon, France		
4:30 pm	1K-5 Application of Attenuation Measuring Ultrasound Shearwave Elastography in 8 Post-Transplant Liver Patients Ivan Nenadic ¹ , Matthew Urban ¹ , Heng Zhao ¹ , William Sanchez ¹ , Paige Morgan ¹ , James Greenleaf ¹ , Shigao Chen ¹ ¹ Mayo Clinic, USA	2K-5 An Improved 3D Ultrasound Computer Tomography System Hartmut Gemmeke ¹ , Michael Zapf ¹ , Torsten Hopp ¹ , Nicole Rüter ¹ ¹ IPE, KIT, Eggenstein-Leopoldsdorf, Germany	3K-5 Non-invasive cardiac stimulation by MRI-guided focused ultrasound: a feasibility study on isolated beating pig heart Fabrice Marquet ¹ , Pierre Bour ¹ , Sami Amraoui ¹ , Fanny Vaillant ¹ , Rémi Dubois ¹ , Bruno Quesnot ¹ ¹ INSERM U1045, IHU LIRYC, France	4K-5 Feasibility of pulse-echo thickness measurements in air with a laterally displaced receiver Grunde Waag ^{1,2} , Petter Norli ² , Lars Horf ³ ¹ Department of Maritime Technology and Innovation, Buskerud and Vestfold University College, Norway; ² Høfve AS, Høvik, Norway; ³ Department of Micro and Nano Systems Technology, Buskerud and Vestfold University College, Norway	5K-5 Dynamic control of optically generated ultrasound fields using binary amplitude holograms Michael Brown ¹ , Thomas Allen ¹ , Ben Cox ¹ , Bradley Treeby ¹ ¹ Medical Physics and Bioengineering, University College London, London, United Kingdom		

3:30 pm - 5:00 pm	1K-6 Single Tracking Location Viscosity Estimation by Maximum Likelihood Estimation Jonathan Langdon¹, Stephen McAleavey² ¹Biomedical Engineering, University of Rochester, Rochester, New York, USA	2K-6 Algebraic Reconstruction Considering Curved Ray For ultrasound Tomography with Ring Array to Integrate HIFU Therapeutic System Hirofumi Nakamura¹, Haruka Imoto¹, Takashi Azuma¹, Satoshi Tamano², Kiyoshi Yoshinaka³, Akira Sasaki¹, Shu Takagi¹, Shin-ichiro Unemura², Yoichiro Matsumoto³ ¹The University of Tokyo, Japan, ²Tohoku University, Japan, ³Advanced Industrial Science and Technology, Japan	3K-6 Study of factors affecting drug delivery when using low intensity ultrasound Sophie Tardoski^{1,2}, Evelyne Gineys¹, Anthony Kocot¹, Philippe Clezardin², David Melodelima¹ ¹INSERM UMR1032, France, ²INSERM UMR1033, France	4K-6 Non-contact thermoacoustic imaging based on laser and microwave vibrometry Yexian Qin¹, Pier Ingram¹, Xiong Wang², Tao Qin¹, Hao Xin¹, Russell Witte^{1,3} ¹Medical Imaging, University of Arizona, Tucson, Arizona, USA, ²Electrical and Computer Engineering, University of Arizona, Tucson, Arizona, USA, ³College of Optical Sciences, University of Arizona, Tucson, Arizona, USA	5K-6 Controlled generation of micro-bubble at solid surface by focused nanosecond pressure pulse Taehwa Lee¹, Hyoung Won Baek², Jong G. Ok¹, Hong Seok Yoon¹, L. Jay Guo^{1,3} ¹Mechanical engineering, University of Michigan, Ann Arbor, Michigan, USA, ²School of Electronic and Electrical Engineering, Sungkyunkwan University, Suwon, Korea, Republic of, ³Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, Michigan, USA
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Poster --- Saturday, September 6, 2014				Salon C
8:00 am - 5:00 pm Session P1C1. MBB: Beamforming III Chair: Roberto Lavarello <i>Pontificia Universidad Católica del Perú</i>	P1C1-8 Interpolation methods for economical pulse-echo signal synthesis Pedro Nariyoshi¹ , Robert J. McCough ¹ ¹ Electrical and Computer Engineering, Michigan State University, East Lansing, Michigan, USA	P1C2-5 Finite difference implementation of power law attenuation in the Khokhlov – Zabolotskaya – Kuznetsov (KZK) equation for continuous-wave nonlinear ultrasound simulations in FOCUS Xiaofeng Zhao¹ , Robert J. McCough ¹ ¹ Electrical and Computer Engineering, Michigan State University, East Lansing, Michigan, USA	P1C3-5 A compound speckle model for vascular complexity quantification in nonlinear contrast-enhanced ultrasonography Matthew R. Lowrison^{1,2} , M. Nicole Hague ^{1,3} , Ann F. Chambers ^{2,3} , James C. Loefer ^{1,2} ¹ IC Research Institute, Canada, ² Medical Biophysics, Western University, Canada, ³ London Regional Cancer Program, Canada	P1C4-2 Oxygen-Filled Surfactant Microbubbles for Overcoming Tumor Hypoxia-Associated Radiotherapy Resistance Lorenzo Albali¹ , John Eisenbrey ² , Flemming Forsberg ³ , Patrick O'Kane ⁴ , Margaret Wheatley ¹ ¹ School of Biomedical Engineering, Science and Health Systems, Drexel University, Philadelphia, PA, USA, ² Department of Radiology, Thomas Jefferson University, Philadelphia, PA, USA
P1C1-1 A New Nonlinear Zone-based Beamforming Method for Point-of-Care Ultrasound Imaging Pilsu Kim¹ , Jeeun Kang ¹ , Jaesin Lee ¹ , Gi-Duck Kim ² , Yangmo Yoo ^{1,3} , Tai-kyong Song ¹ 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	P1C1-9 Pulse-Echo Ultrasound Imaging Using Compressed Sensing and the Fast Multipole Method Martin Schiffer¹ , Georg Schmitz ¹ ¹ Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany	P1C2-6 A Multi-threaded Version of Field II Jørgen Arendt Jensen¹ ¹ Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark	P1C3-6 Perfusion Signal Processing for Optimal Detection Performance Craig Abbey¹ , MinWoo Kim ² , Michael Insana ² ¹ UC Santa Barbara, USA, ² University of Illinois Urbana-Champaign, USA	P1C4-3 Ultrasound based dosimetry for radiotherapy: in-vitro proof of principle Erik Verhoeven¹ , Emiliano D'Agostino ² , Jan D'hooge ³ , Helge Pfeiffer ⁴ , Koen Van Den Abeele ¹ ¹ Physics, KU Leuven Kulak, Kortrijk, Belgium, ² DoseVue NV, Hasselt, Belgium, ³ Cardiovascular Sciences, KU Leuven, Leuven, Belgium, ⁴ Metallurgy and Materials Engineering, KU Leuven, Leuven, Belgium
P1C1-2 Implementation of synthetic aperture imaging on a hand-held device Martin Christian Hemmsen¹ , Thomas Kjeldsen ² , Lee Lassen ² , Borislav G. Tomov ¹ , Jesper Mosegaard ² , Jørgen Arendt Jensen ¹ ¹ Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, Kgs. Lyngby, Denmark, ² Computer Graphics Lab, Alexandra Institute, Aarhus, Denmark	P1C1-10 Improving Performance of GPU-based Software Beamforming using Transform-based Channel Data Compression U-Wai Lok¹ , Pai-Chi Li ¹ ¹ National Taiwan University, Taiwan	P1C2-7 Beamforming designs for breast sonography Nghia Nguyen¹ , Craig Abbey ^{2,3} , Michael Insana ⁴ ¹ ECE, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA, ² Psychology, University of California at Santa Barbara, Santa Barbara, California, USA, ³ Psychology, University of California, Santa Barbara, California, USA, ⁴ Bioengineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA	P1C3-7 Non-invasive Estimation of Pressure Gradients in Pulsatile Flow using Ultrasound Jacob Bjerring Olesen¹ , Marie Sand Traberg ¹ , Michael Johannes Pihl ¹ , Jørgen Arendt Jensen ¹ ¹ Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Kgs. Lyngby, Denmark	P1C4-4 Regulating Nonlinear Properties of Lipid-Coated Microbubbles Using Polymer Network Scaffolds for Ultrasound Drug Delivery Applications Shih-Tsung Kang¹ , Jian-Liang Lin ¹ , Chung-Hsin Wang ¹ , Chih-Kuang Yeh ¹ ¹ Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan
P1C1-3 Synthetic Aperture Sequential Beamforming implemented on multi-core platforms Thomas Kjeldsen¹ , Esben Jern ² , Lee Lassen ¹ , Jesper Mosegaard ¹ , Martin Christian Hemmsen ² , Borislav G. Tomov ² , Jørgen Arendt Jensen ² ¹ Computer Graphics Lab, Alexandra Institute, Aarhus N, Denmark, ² Center for Fast Ultrasound Imaging, Dept. of Elec. Eng., Technical University of Denmark, Kgs. Lyngby, Denmark	Session P1C2. MBB: Beamforming IV Chair: Kai Thomenius MIT	Session P1C3. MBF: Methods and Applications for Blood Velocity Estimation Chair: Abigail Swilleas Ghent University	P1C3-8 Optimal Method of Intraventricular Pressure-Difference Imaging for Vector Flow Mapping Tomohiko Tanaka¹ , Takashi Okada ² ¹ Hitachi Ltd., Japan, ² Hitachi Aloka Medical Ltd., Japan	P1C4-5 Evaluation of Microbubble Vascular Disrupting Agents and Radiation in Bladder Cancer Using Quantitative Ultrasound William Tyler Tran¹ , Alborz Gorjizadeh ² , Gregory J Czarna ^{1,3} ¹ Sunnybrook Health Sciences Centre, Canada, ² physical Sciences, Sunnybrook Health Sciences Centre, Canada, ³ radiation Oncology, Sunnybrook Health Sciences Centre, Canada

P1C1-4 A novel beamforming method for wireless ultrasound smart probe MooHo Bae¹, Nam Ouk Kim¹, Sung-Bae Park², Sung-Jae Kwon³ ¹Hallym University, Korea, Republic of; ²Alpion Medical Systems, Korea, Republic of; ³Daejin University, Korea, Republic of	P1C2-1 2D Localization Of Specular Reflections Using Ultrasound Raja Sekhar Bandam¹, Anders Sornes¹, Jan Dhooge², Eigil Samset^{1,3} ¹GE Vingmed Ultrasound, Oslo, Norway; ²Cardiovascular Imaging & Dynamics, KU Leuven, Leuven, Belgium; ³Department of Informatics, University of Oslo, Oslo, Norway	P1C3-1 Design of Atherosclerotic Artery Phantoms with Modulated Vessel Thickness and Regional Stiffness Variations Adrian J. Y. Chee¹, Simon S. M. Lai¹, C. K. Ho¹, Alexander K. K. Poon¹, Billy Y. S. Yui¹, Alfred C. H. Yu¹ ¹Medical Engineering Program, The University of Hong Kong, Pokfulam, Hong Kong	P1C3-9 Staggered multiple-PRF ultrafast color Doppler Daniel Posada¹, Boris Chayer¹, Guy Cloutier¹, Damien Garcia¹ ¹University of Montreal Hospital, Montreal, Canada	P1C4-6 Dynamics of Volatile Phase-Change Contrast Agents: Theoretical Model and Experimental Measurements Alexander Domkov¹, Paul Sheeran², Ayache Bouakaz¹, Paul Dayton² ¹INSERM U930, Université François Rabelais, Tours, France; ²Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, NC, USA
P1C1-5 Optimization of free-moving elements in 2D ultrasound sparse arrays Bakary Diarra¹, Marc Robini¹, Emmanuel Roux^{1,2}, Piero Tortoli², Hervé Liebgott¹, Christian Cachard¹ ¹CREATIS, Université de Lyon; ²CNRS UMR 5220; INSERM U1044; Université Lyon 1; INSA Lyon, Villeurbanne, France; ³Information Dept., Università degli Studi di Firenze, Florence, Italy	P1C2-2 Bi-static passive mapping of the field distribution of single element transducer in agar phantom Trong Nguyen¹, Michael Oszle¹, Minh Do¹ ¹Electrical and Computer Engineering, University of Illinois at Urbana Champaign, Urbana, Illinois, USA	P1C3-2 An Analytical Model of the Doppler Spectrum for Peak Blood Velocity Detection Stefano Ricci¹ ¹Information Engineering, University of Florence, Florence, Italy	P1C3-10 Microvascular Blood Flow in the Thyroid: Preliminary Results with a Novel Imaging Technique Flemming Forsberg¹, Priscilla Machado¹, Sharon Segal¹, Yoko Okamura², Gilles Guenette³, Cynthia Ranp³, Andrei Lyschick¹ ¹Radiology, Thomas Jefferson University, Philadelphia, PA, USA; ²Toshiba America Medical Systems, USA; ³Toshiba Medical Research Institute USA, Inc., USA	P1C4-7 Modelling rheological shear with finite elements for non-spherical microbubble modes Gael V. V. Léauté¹, James McLaughlin¹, Sevan Harput¹, David Cowell¹, Steven Freear¹ ¹School of Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom
P1C1-6 Beamforming techniques for ultrasound microcalcification detection Sheng-Wen Huang¹, Jean-Luc Robert¹, Emil Radulescu¹, Francois Vignon¹, Ramon Erkamp¹ ¹Philips Research North America, USA	P1C2-3 Simulation of fast and realistic nonlinear radio-frequency ultrasound images using a pseudo-acoustic strategy François Varray¹, Hervé Liebgott¹, Christian Cachard¹, Didier Vray¹ ¹Université de Lyon, CREATIS; CNRS UMR5220; INSERM U1044; INSA-Lyon; Université Lyon 1, Villeurbanne, France	P1C3-3 An Improved Method of Determining Peak Blood Velocity Stefano Ricci¹, David Vilkomerson², Riccardo Matera¹, Piero Tortoli¹ ¹Information Engineering, University of Florence, Florence, FI, Italy; ²DIY LLC, Princeton, NJ, USA	P1C4-8 Lattice of nonlinear coupled oscillators: an acousto-mechanical analogy of gas microbubble Jennifer Chaline¹, Ayache Bouakaz¹, Victor Sanchez-Morcillo², Noé Jiménez², Serge Dos Santos^{1,3} ¹Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France; ²IGTC, Universidad Politécnica de Valencia, Gao de Gandia, Spain; ³INSA Centre Val de Loire, Campus Blois, Blois, France	
P1C1-7 Broad-Band, Large Delay Range, High Precision, and Variable Analog Delay Lines for a High-Frequency Phased Array Beamformer Katherine Latham¹, Craig Arthur², Jeremy Brown¹ ¹Biomedical Engineering, Dalhousie University, Canada; ²Capital Health, Nova Scotia, Canada	P1C2-4 Nonlinear Reconstruction of the Speed of Sound in Soft Tissues: A Comparison between the Simulation Results Applying Kaczmarz and Contrast Source Inversion Methods Leif Salehi¹, Georg Schmitz² ¹Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany	P1C3-4 Stress phase angle depicts differences in hemodynamics due to change in arterial stiffness Liu Jia¹, Niu Lili², Xu Lisheng¹, Qin Qianli¹, Qian Ming³, Zheng Huihong³ ¹Sino-Dutch Biomedical and Information Engineering School, Northeastern University, Shenyang, China, People's Republic of; ²Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, People's Republic of	P1C4-1 Increasing nanoparticles delivery and accumulation in a mouse breast tumor model using microbubbles Josquin Foiret¹, Hua Zang¹, Lisa Mahakian¹, Sarah Tam¹, Chun-Yen Lai¹, Katherine W. Ferrara¹ ¹Department of Biomedical Engineering, University of California, Davis, CA, USA	P1C4-9 Estimation of microbubble resonance frequency from lipid intermolecular forces Mark Borden¹ ¹Mechanical Engineering, University of Colorado, Boulder, Colorado, USA

8:00 am - 5:00 pm

Poster --- Saturday, September 6, 2014

Salon C

P1C4-10 Non-linear behavior of gas vesicle nano-structures at high ultrasound frequencies Enmanuel Cherin¹, Ray Bourdeau², Melissa Yin¹, Mikhail Shapiro³, F. Stuart Foster¹ ¹Imaging Research, Sunnybrook Research Institute, Toronto, Ontario, Canada, ²Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, California, USA	Session P1C5, MEL: Cardiovascular Elasticity Imaging Chair: Brett Byram Vanderbilt University	P1C5-7 Using Ultrasound to Evaluate an Abdominal Aortic Fluid-Structure Interaction Model Marie Sand Traber¹, Jorgen Arendt Jensen¹ ¹Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark	P1C5-8 In Vivo ARFI Surveillance of Subcutaneous Hemorrhage (ASH) For Monitoring rFVIII Dose Response in Hemophilia A Dogs Rebecca Geist¹, Timothy Nichols^{2,3}, Elizabeth Merricks³, Melissa Caughey², Caterina Gallipoli⁴ ¹Department of Biomedical Engineering, University of North Carolina, Chapel Hill, NC, USA, ²Department of Medicine, University of North Carolina, USA, ³Department of Pathology and Laboratory Medicine, University of North Carolina, USA, ⁴Department of Biomedical Engineering, University of North Carolina, USA	P1C6-4 Loading ramp effects in uniaxial compression creep device Carolina Amador¹, Alireza Nabavizadeh², Randall Kinnick¹, Mostafa Fatemi¹ ¹Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, ²Biomedical Informatics and Computational Biology, University of Minnesota, USA	P1C7-1 Estimation of respiratory breathing signal from 2D US sequences and 4DCT of the liver Dominik Spinczyk¹, David Melodelima^{2,3}, Remi Blanc¹, Simon Rit¹, David Sarrut¹ ¹CREATIS, Université de Lyon, Lyon, France, ²Inserm, U1032, LabTul, Université de Lyon, Lyon, France, ³Centre Léon Bérard, Lyon, France	P1C7-9 Improved Microcalcification Detection in Breast Ultrasound: Phantom Studies Sara Bahramian¹, Michael Insana² ¹University of Illinois at Urbana Champaign, Urbana, Illinois, USA, ²University of Illinois at Urbana Champaign, USA	Session P1C8, MTC: Noncancer Applications of Tissue Characterization Chair: Mami Matsukawa Doshisha University, Kyoto, Japan	
P1C5-1 RF-based motion estimation using non-rigid image registration techniques: in-silico and in-vivo feasibility Brecht Heyde¹, Martino Alessandrini¹, Ling Tong², Jan Dhooze³ ¹Lab on Cardiovascular Imaging and Dynamics, KU Leuven, Leuven, Belgium, ²Center for Biomedical Imaging Research, Tsinghua University, Beijing, China, ³People's Republic of Medical Imaging Lab, Norwegian Institute for Science & Technology, Trondheim, Norway	P1C5-9 Wall Stress Analysis of Abdominal Aortic Aneurysms using 3D Ultrasound Annette M. Kok¹, V. Lai Nguyen², Lambert Speelman³, Geert-Willem H. Schurink³, Frans N. van de Vosse¹, Richard G.P. Lopata¹ ¹Biomedical Engineering, Eindhoven University of Technology, Netherlands, ²Vascular Surgery, Maastricht University Medical Center, Netherlands, ³Thorax Centre, Erasmus MC, Netherlands	P1C6-5 A two-dimensional finite difference model of shear wave propagation in anisotropic soft tissue Yiqun Yang¹, Matthew W. Urban², Robert J. McGough¹ ¹Electrical and Computer Engineering, Michigan State University, East Lansing, Michigan, USA, ²Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA	P1C6-6 Shear Wave Speed Estimation from Crawling Wave Sonoelastography: A comparison between AM-FM Dominant Component Analysis and Phase Derivation Methods Juvenal Ormachea¹, Renan Rojas¹, Paul Rodriguez², Roberto Lavarello¹, Kevin Parker², Benjamin Castaneda¹ ¹Departamento de Ingeniería, Pontificia Universidad Católica del Perú, Lima, Lima, Peru, ²Department of Electrical & Computer Engineering, University of Rochester, Rochester, New York, USA	P1C6-7 Assessing tissue motions induced by orthogonal-frequency pulses and binary pulses using a laser vibrometer Yi Zheng¹, Haoming Ling², Xin Chen², Panpang Lai², Tianli Wang², Siping Chen² ¹Electrical and Computer Engineering, St. Cloud State University, St. Cloud, MN, USA, ²School of Medicine, Shenzhen University, Shenzhen, China, People's Republic	P1C7-2 An Automated System To Assess Axillary Lymph Node Malignancy From Sonographic Images Aneta Chmielewski¹, Paul Dufort¹, Ryan Ramos¹, Anabel Scarnelob¹ ¹Joint Department of Medical Imaging, University Health Network, Toronto, Ontario, Canada	P1C7-3 A fully automated method for carotid plaques segmentation in ultrasound images based on motion estimation and level-set Francesca Galluzzo¹, Luca De Marchi¹, Nicola Testoni¹, Mahdi Tabassian¹, Nicolò Speciale¹, Guido Masetti¹ ¹DEI-Department of Electrical, Electronic and Information Engineering "Guglielmo Marconi", University of Bologna, Bologna, Italy	P1C8-1 Early Detection of Fatty Liver Disease in Mice via Quantitative Ultrasound Aiguo Han¹, John W. Erdman, Jr.², Douglas G. Simpson³, Michael P. Andre⁴, William D. O'Brien, Jr.¹ ¹Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA, ²Food Science and Human Nutrition, University of Illinois at Urbana-Champaign, Urbana, IL, USA, ³Statistics, University of Illinois at Urbana-Champaign, Champaign, IL, USA, ⁴Radiology, University of California-San Diego, La Jolla, CA, USA	P1C8-2 Accurate Diagnosis of Non-Alcoholic Fatty Liver Disease in Humans via Quantitative Ultrasound Michael P. Andre¹, Elhamy Heba², Jonathan Hooker³, Rohit Loomba³, Claude B. Sirlin⁵, John W. Erdman, Jr.⁶, William O'Brien, Jr.⁵ ¹Radiology, University of California-San Diego, La Jolla, CA, USA, ²Radiology, University of California-San Diego, San Diego, CA, USA, ³Medicine, University of California-San Diego, San Diego, CA, USA, ⁴Food Science and Human Nutrition, University of Illinois at Urbana-Champaign, Urbana, IL, USA, ⁵Bioacoustics Research Laboratory, University of Illinois, Urbana, IL, USA
Withdrawn								

P1C5-3 Electromechanical Wave Imaging of Atrial Arrhythmias using Frequency Analysis Processing Techniques: Validation in vivo. Alexandre Costel¹, Eithan Bunting¹, Julien Grandin¹, Stanley Okrasinski¹, Alok Gambhir^{1,2}, Elisa Konoigou¹ ¹Biomedical Engineering, Columbia University, New York, New York, USA; ²Medicine-Cardiology, Columbia University, New York, New York, USA	Session P1C6. MEI: Shear Wave Imaging Methods 2 Chair: David Melodelima <i>LabTAU - INSEERM U1032</i>	P1C6-8 Elastic modulus contrast enhancement in shear wave imaging using mechanical nonlinearity: In vitro tissue mimicking phantom study Dae Woo Park¹, Kang Kim^{1,2} ¹Center for Ultrasonic Molecular Imaging and Therapeutics & Heart and Vascular Institute, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA; ²Biomechanical Engineering, University of Pittsburgh, Pittsburgh, Pennsylvania, USA	P1C7-5 Fixed Point Motion Estimation for Frame Rate Up Conversion in Cardiac Ultrasound Hani Nozari Mirarkolaei¹, Sten Roar Snares¹, Lars Høfoss Breivik¹, Erik Normann Steen², Anne H Schistad Solberg¹ ¹Department of Informatics, University of Oslo, Oslo, Norway; ²GE Vingmed Ultrasound, Oslo, Norway	P1C8-3 Comparison of acoustic properties in various rat organs using high frequency ultrasound So Irie¹, Kenji Yoshida², Kazuto Kobayashi³, Jonathan Mamou⁴, Hitoshi Maruyama⁵, Tadashi Yamaguchi² ¹Graduate School of Engineering, Chiba University, Chiba, Japan; ²Center for Frontier Medical Engineering, Chiba University, Japan; ³Honda Electronics Co., Japan; ⁴Reverside Research, USA; ⁵Graduate School of Medicine, Chiba University, Japan
P1C5-4 Acoustic radiation force (ARF) generation with a novel dual-frequency intravascular transducer Tomasz Czernuszewicz¹, Zhuochen Wang², Jianguo Ma², Xiaoning Jiang², Caterina Gallipoli^{1,3} ¹Joint Department of Biomedical Engineering, University of North Carolina/North Carolina State University, Chapel Hill, NC, USA; ²Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA; ³Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA	P1C6-1 Comparison of Simulation Methods for Ultrasound Shear Wave Elastography: FEM vs. Green's Functions Shiwei Zhou¹, Sheng-Wen Huang¹, Hua Xie¹, Jean-Luc Robert¹, Vijay Shandasani² ¹Philips Research North America, USA; ²Philips Healthcare, USA	P1C6-9 Shear waves in anisotropic media mimicking skeletal muscle Armen Sarvazyan¹, Oleg Rudenko², Salavat Aglyamov³ ¹ARTANN Laboratories, Lamberville, New Jersey, USA; ²Department of Physics, Moscow State University, Moscow, Russian Federation; ³Department of Biomedical Engineering, University of Texas at Austin, Austin, Texas, USA	P1C7-6 A visualization tool for improved assessment and follow-up with ultrasound Gabriel Kiss¹, Daniel Hoyer Iversen¹, Øyvind Krøvel-Velle Standal¹, Jochen Matthias Raul¹, Hans Torp¹, Lasse Lovstakken¹, Svein-Erik Måsoy¹ ¹MI Lab and Department of Circulation and Medical Imaging, ISB, NTNU, Trondheim, Norway	P1C8-4 Measurement of acoustic impedance for normal, fibrosis and NASH liver by using bio-acoustic microscopy Kazuho Ito¹, Kenta Inoue¹, Hitoshi Maruyama², Kazuto Kobayashi³, Kenji Yoshida⁴, Tadashi Yamaguchi⁴ ¹Graduate School of Engineering, Chiba University, Japan; ²Graduate School of Medicine, Chiba University, Japan; ³Honda Electronics Co., Ltd., Japan; ⁴Research Center for Frontier Medical Engineering, Chiba University, Japan
P1C5-5 A dedicated guided-search displacement algorithm for cardiovascular strain imaging Niels J. Pettersen¹, Frans N. van de Vosse¹, Richard G.P. Lopata¹ ¹Biomedical Engineering, Eindhoven University of Technology, Netherlands	P1C6-2 Improving the Accuracy of Shear Wave Speed Reconstructions using 4D Directional Filters in the Presence of Reflection Artifacts. Samantha Lipman¹, Ned Rouze¹, Michael Wang¹, Mark Palmeri¹, Kathryn Nightingale¹ ¹Biomedical Engineering, Duke University, Durham, North Carolina, USA	P1C6-10 Effect of frequency adaptation based on the attenuation coefficient to optimize shear wave displacement magnitudes Abderrahmane Ouared¹, Emmanuel Montagnon¹, Guy Cloutier¹ ¹University of Montreal Hospital, Canada	P1C7-7 Supervised classification of long-axis echocardiograms Hanan Khamis¹, Grigoriy Zurakhov¹, Zvi Friedman¹, Dan Adam¹ ¹Department of Biomedical Engineering, Technion-Israel Institute of Technology, Haifa, Israel; ²GE Ultrasound, Tirat Carmel, Israel	P1C8-5 Carotid Plaque Characterization with Histology and Quantitative Ultrasound Xiao Wang¹, Shahriar Salamat², Tony Varghese¹, Robert Dempsey³ ¹Department of Medical Physics, University of Wisconsin-Madison, Madison, WI, USA; ²Department of Pathology and Laboratory Medicine, University of Wisconsin-Madison, Madison, WI, USA; ³Department of Neurological Surgery, University of Wisconsin-Madison, Madison, WI, USA
P1C5-6 Evaluating the Intensity Level of Acoustic Radiation Force Impulse (ARFI) Imaging for Intravascular Ultrasound (IVUS): the Preliminary In Vitro Results Cho-Chiang Shih¹, Chih-Chung Huang¹ ¹Department of Biomedical Engineering, National Cheng Kung University, Taiwan	P1C6-3 Effects of Phase Aberration on Acoustic Radiation Force-Based Shear Wave Generation Carolina Amador¹, Sara Aristizabal¹, James F. Greenleaf¹, Matthew Urban¹ ¹Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA	Session P1C7. MIM: Image processing and classification Chair: Massimo Mischi <i>Eindhoven University of Technology</i>	P1C7-8 Computer-Aided-Diagnosis Using Quantitative Ultrasound Spectroscopy and Maximum Mean Discrepancy in Locally Advanced Breast Cancer Mehrdad Gangehi^{1,2}, Hadi Tadayyon^{1,2}, Lakshmanan Samathi^{1,2}, Ali Sadeghi-Naini^{1,2}, William Tran^{1,2}, Gregory Czarnota^{1,2} ¹Departments of Medical Biophysics and Radiation Oncology, University of Toronto, Toronto, Ontario, Canada; ²Department of Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, and Sunnybrook Research Institute, Toronto, Ontario, Canada	P1C8-6 Toward recognising the vulnerable asymptomatic atheromatous plaque from B-mode ultrasound: the importance of the morphology of the plaque shoulder Spyretta Golemati¹, Symeon Leharas¹, Nikolaos Tsiaparas², Amilia Gastounioti², Achilleas Chatziannou¹, Konstantina Nikita¹, Despina Perrea¹ ¹National Kapodistrian University of Athens, Greece; ²National Technical University of Athens, Greece

8:00 am - 5:00 pm

Poster --- Saturday, September 6, 2014

Salon C

P1C8-7 Quantification of the scatterer distributions for liver fibrosis using modified Q-Q probability plot Mikito Ito¹, Kenji Yoshida², Jonathan Mamou³, Tadashi Yamaguchi² ¹Chiba University, Chiba-shi, Chiba, Japan, ²Center for Frontier Medical Engineering, Chiba University, Japan, ³Lizi Center for Biomedical Engineering, Riverside Research, USA	P1C9-3 The Effect of Low Scatterer Number Density on Ultrasound Attenuation Estimation Nicholas Rubert¹, Tony Varghese^{1,2} ¹Medical Physics, University of Wisconsin-Madison, Madison, WI, USA, ²Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA	Session P1C10. MTH: Cancer treatment and monitoring Chair: Chih-Kuang Yeh National Tsing Hua University	P1C10-8 Micro/Nanobubble-based Contrast-enhanced Ultrasound for Evaluating and Enhancing the Efficacy of Chemotherapeutics Chung-Hsin Wang^{1,2}, Hong-Jen Chion³, Chih-Kuang Yeh¹ ¹Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan, ²Trust Bio-sonics, Inc., Taiwan, ³Department of Radiology, Taipei-Veterans General Hospital, Taiwan	P1C11-4 Extracorporeal Acute Cardiac Pacing by High Intensity Focused Ultrasound Amit Livneh¹, Eitan Kimmel¹, Dan Adam¹ ¹Biomedical Engineering, Technion - Israel Institute of Technology, Haifa, Israel
P1C8-8 Estimation method using modified Q-Q probability plot in high-frequency ultrasound Kazuki Tamura¹, Kenji Yoshida², Jonathan Mamou³, Tadashi Yamaguchi² ¹Graduate School of Engineering, Chiba University, Japan, ²Center for Frontier Medical Engineering, Chiba University, Japan, ³Lizi Center for Biomedical Engineering, Riverside Research Institute, USA	P1C9-4 Simulation of Absolute Backscattering Coefficient in Field II Bernard Shieh¹, Karim Sabra¹, F. Levent Degertekin¹ ¹G. W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA	P1C10-1 Release, uptake and cytotoxicity of doxorubicin loaded lipopolyplexes exposed to low intensity ultrasound Francois Yu¹, Xucai Chen¹, Jianjun Wang¹, Bin Qin¹, Regeant Panday¹, Flordeliza Villanueva¹ ¹Heart and Vascular Institute, University of Pittsburgh, USA	P1C10-9 Spatial and temporal control of hyperthermia using real time thermal strain imaging with motion compensation Josquin Foiret¹, Dustin E. Kruse¹, Katherine W. Ferrara¹ ¹Department of Biomedical Engineering, University of California, Davis, CA, USA	P1C11-5 Real-time Feedback of Histotripsy Thrombolysis using Bubble-induced Color Doppler Xi Zhang¹, Ryan M. Miller¹, Adam D. Maxwell¹, Charles A. Cain¹, Zhen Xu¹ ¹Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA
P1C8-9 New approach for objective cataract classification based on ultrasound techniques using multiclass SVM classifiers Miguel Caixinha¹, Elena Veltc², Mário Santos¹, Jaime Santos¹ ¹Department of Electrical and Computers Engineering, University of Coimbra, Portugal, ²Department of Physics, University of Coimbra, Portugal	P1C9-5 Improving the quality of attenuation imaging using full angular spatial compounding Omar Zenteno¹, Adam Luchies², Michael Oelze², Roberto Lavarello¹ ¹Departamento de Ingeniería, Pontificia Universidad Católica del Perú, Lima, Lima, Peru, ²Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA	P1C10-2 Image-guided ultrasound and microbubble-assisted targeted delivery of 120 nm therapeutic nanocarrier into tumors in vivo Tzu-Yin Wang¹, Jung Woo Choe¹, Kanyi Pu¹, Steven Machale¹, Rammohan Devulapally¹, Butrus Khuri-Yakub¹, Jianghong Rao¹, Ramasamy Paulmurugan¹, Jürgen Willmann¹ ¹Stanford University, USA	P1C10-10 Real-time Localized Motion Imaging for Coagulation Monitoring using Acoustic Radiation Force Ryusuke Sugiyama¹, Takashi Azuma¹, Ryosuke Aoyagi¹, Keisuke Fujiwara², Hideki Takeuchi¹, Hiroki Shimizu¹, Kazunori Imai², Kiyoshi Yoshinaka³, Akira Sasaki¹, Shu Takagi¹, Yoichiro Matsumoto¹ ¹The University of Tokyo, Tokyo, Japan, ²Hitaichi Aloka, Japan, ³Advanced Industrial Science and Technology, Japan	P1C11-6 Sonoreperfusion Efficacy is Greater With Venous Thrombi Compared to Arterial Thrombi in an In Vitro Model of Arterial Microvascular Obstruction John Black¹, Rick Schmatz², Francois Yu², Xucai Chen², Flordeliza Villanueva², John Pasella² ¹University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, USA, ²Heart and Vascular Institute, University of Pittsburgh Medical Institute, Pittsburgh, Pittsburgh, USA
P1C8-10 Characterization of the Heart Muscle Anisotropy Using Ultrasound Nakagami Imaging Xue Yu¹, Wei-Ning Lee¹ ¹University of Hong Kong, Hong Kong	P1C9-6 Development of a FPGA-based quantitative ultrasound system for assessing stress-strain properties of Achilles tendon Guan-Chun Chen¹, Jian-Xing Wu¹, Yi-Chun Du², Tamsong Chen¹ ¹Department of Biomedical Engineering, National Cheng Kung University, Taiwan, ²Department of Electrical Engineering, Southern Taiwan University of Science and Technology, Taiwan	P1C10-3 Investigating Tumour Response Mechanisms in Ultrasound-Stimulated Microbubble Treatments Combined With Radiation And The Anti-Angiogenic Sunitinib. Ahmed El Kafas^{1,2}, Azza Al-Mahrouki¹, Anoja Giles¹, Gregory Czarnota² ¹Departments of Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, Canada, ²Departments of Medical Biophysics and Radiation Oncology, University of Toronto, Canada	P1C10-11 The role of cavitation in the ultrasonic atomization of liquids and tissues Juliana Simon¹, Oleg Sapozhnikov^{1,2}, Vera Khokhlova^{1,2}, Yak-Nam Wang¹, Lawrence Crum¹, Michael Bailey¹ ¹Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, Washington, USA, ²Department of Acoustics, Physics Faculty, Moscow State University, Moscow, Russian Federation	P1C11-7 Enhancement of Direct Brain Infusion with Focused Ultrasound and Microbubbles Shutao Wang¹, Tao Sun¹, Oluwemi Olumolade¹, Geshmani Samiotaki¹, Elisa Konoigou^{1,2} ¹Biomedical Engineering, Columbia University, USA, ²Radiology, Columbia University, USA

P1C8-11 Experimental study on the pressure propagation in viscoelastic tube mimicking blood vessels Shohei Nishi¹, Masashi Saito², Takashi Asada², Mamoru Matsukawa¹ ¹Doshisha University, Kyoto, Japan; ²Murata Manufacturing Co., Ltd., Nagaokakyō, Japan	P1C9-7 Detection of subresolution sources of coherent scattering for parametric image formation: Model-free vs model-based parameters Ivan Rosado-Mendez¹, Timothy Hall¹, James Zagzebski¹ ¹Department of Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA	P1C10-4 VEGFR-Targeted Microbubble Radiosensitization of Vascular Endothelial Cells Results in Enhanced Tumour Response to Radiation Therapy Ahmad El-Falou^{1,2}, Azza Al-Mahrouki¹, Ahmed El Kalfas^{1,2}, Emily Wong¹, Ann Hashim¹, Anuja Giles¹, Gregory Czarnota^{1,2} ¹Imaging Research and Radiation Oncology, Sunnybrook Health Sciences Center, Toronto, Ontario, Canada; ²Medical Biophysics and Radiation Oncology, University of Toronto, Toronto, Ontario, Canada	Session P1C11. MTH: Treatment monitoring and novel applications <i>Chair: Ralf Seip</i> <i>Philips Research, Briarcliff Manor</i>	P1C11-8 Frequency-controlled fragmentation of renal calculi by burst wave lithotripsy Adam Maxwell¹, Oleg Sapozhnikov², Bryan Cunitz², Ryan Hsi¹, Jonathan Harper¹, Mathew Sorensen¹, Michael Bailey², Wayne Kreider² ¹Urology, University of Washington School of Medicine, Seattle, WA, USA; ²Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA
Session P1C9. MTC: Tissue Characterization Methodology <i>Chair: Michael Oelze</i> <i>Univ. of Illinois, Urbana-Champaign</i>	P1C9-8 Accuracy of backscatter coefficient estimation in aberrating media using different phase aberration correction strategies – A simulation study Eduardo González¹, Niral Sheth², Benjamin Castañeda¹, Jeremy Dahl³, Roberto Lavarello¹ ¹Pontificia Universidad Católica del Perú, Peru; ²Duke University, USA; ³Duke University, Peru	P1C10-5 Detection and Treatment Monitoring of Post-surgical Human Breast Tumors Using Harmonic Motion Imaging Yang Han¹, Shutao Wang¹, Elisa Konofigou^{1,2} ¹Biomedical Engineering, Columbia University, New York, New York, USA; ²Radiology, Columbia University, New York, New York, USA	P1C11-1 Imaging the microvascular response to ultrasound-stimulated therapy in a preclinical animal model of breast cancer Anna Sorace¹, Kenneth Hoyt² ¹University of Alabama at Birmingham, USA; ²University of Alabama at Birmingham, Birmingham, Alabama, USA	P1C11-9 Thrombolysis enhanced by dual-frequency high-intensity focused ultrasound Sijia Guo¹, Dingjie Suo¹, Jonathan Frank², Wei Li^{1,2,3}, Yun Jing¹, Xiaoning Jiang¹ ¹Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA; ²School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; ³Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
P1C9-1 Iterative reconstruction of the ultrasound attenuation coefficient from the backscattered radio-frequency signal Natalia Ilyina^{1,2}, Jeroen Hermans³, Erik Verboven⁴, Koen Van Den Abeele⁵, Emiliano D'Agostino⁶, Jan Dhooze¹ ¹Dept. of Cardiovascular Sciences, KU Leuven, Leuven, Belgium; ²SCC CEN, Mol, Belgium; ³DoseVue NV, Hasselt, Belgium; ⁴Dept. Of Physics, KU Leuven KULAK, Kortrijk, Belgium	P1C9-9 Pulse-echo sound speed estimation based on a Nakagami model of the echo amplitude Ivan Rosado-Mendez¹, Timothy Hall¹, James Zagzebski¹ ¹Department of Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA	P1C10-6 Harmonic Motion Imaging (HMI) and monitoring of HIFU treatment in real-time using diverging and plane wave Julien Grondin¹, Shutao Wang¹, Elisa E. Konofigou^{1,2} ¹Department of Biomedical Engineering, Columbia University, New York, NY, USA; ²Department of Radiology, Columbia University, New York, NY, USA	P1C11-2 A Mechanism of Ultrasound Balloon Rupture for Fetal Surgery Tomoo Sato¹, Shunsuke Osawa², Hiromasa Yamashita¹, Hiroshi Ohtake³, Jun Yonai¹, Hiroyasu Sasaki¹, Takashi Mochizuki¹, Toshio Chiba¹ ¹Division of Medical Device, National Center for Child Health and Development, Japan; ²Division of Pediatric Surgery, Shiga University, Japan; ³Japan Broadcasting Corporation, Japan; ⁴Image Technology Inc., Japan; ⁵Medical Ultrasound Laboratory, Japan	P1C11-10 Ultrasonic Cavitation Monitoring in High-Intensity Focused Ultrasound Treatment by Pulse Inversion Harmonic Imaging with Plane Wave Transmission Pulses Shin Yoshizawa¹, Ryo Takagi¹, Hiroshi Sasaki¹, Kota Goto¹, Takuya Miyashita¹, Shin-ichiro Umemura¹ ¹Tohoku University, Japan
P1C9-2 Experimental validation of plane wave imaging for spectral tissue characterization of isotropic scatterers Julian Garcia-Duitama¹, Michael L. Oelze², Aiguo Han³, Boris Chayer⁴, Damien Garcia¹, Guy Cloutier¹ ¹University of Montreal Hospital, Canada; ²University of Illinois at Urbana-Champaign, USA	P1C9-10 Optical and acoustic characterization of freeze-thawed poly-vinyl alcohol gels Mustafa Umit Arabul¹, Marcel Rutten¹, Frans van de Vosse², Richard Lopata¹ ¹Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands	P1C10-7 Low intensity continuous ultrasound to enhance the delivery of bisphosphonates in tumor cells. Sophie Tartakski^{1,2}, Jacqueline Ngo¹, Evelyne Gineys¹, Philippe Clézard¹, David Melodelima¹ ¹INSERM UMR1032, France; ²INSERM UMR1033, France	P1C11-3 Application of High Intensity Focused Ultrasound to Tissue Engineering for Local Modulation of Properties Adam Nover¹, Yang Han¹, Shutao Wang¹, Gerard Ateshian^{1,2}, Clark Hung¹, Elisa Konofigou^{1,3} ¹Biomedical Engineering, Columbia University, New York, New York, USA; ²Mechanical Engineering, Columbia University, New York, NY, USA; ³Radiology, Columbia University, New York, New York, USA	P1C11-11 A model based approach to in vivo ultrasound temperature estimation Mahdi Bayat¹, John R. Ballard², Alyona Haritonova³, Elias Wilken-Resman⁴, Emad S. Ebbini¹ ¹Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, USA; ²Medical Devices Center, University of Minnesota, Minneapolis, Minnesota, USA; ³Biomedical Engineering, University of Minnesota, Minneapolis, MN, USA; ⁴Electrical and Computer Engineering, University of Illinois, Urbana, IL, USA

8:00 am - 5:00 pm

Poster --- Saturday, September 6, 2014

Salon C

P1C11-13 HIFU Beam Visualization using Beam Profile Extraction from Tissue Speckle Pattern Kazuhiro Matsui¹, Takashi Azuma¹, Keisuke Fujiwara², Hideki Takeuchi¹, Kazunori Imai², Akira Sasaki¹, Shu Takagi¹, Kiyoshi Yoshinaka¹, Takehiro Ando¹, Eisaku Kobayashi¹, Junchen Wang¹, Ichiro Sakuma¹ ¹The University of Tokyo, Japan; ²Hiroshi Aikawa Medical, Ltd., Japan; ³National Institute of Advanced Industrial Science and Technology, Japan	P2C1-4 An Active Acoustic Back Cover Based on Piezoelectric Elements Nicola Lamberti¹, Giosue' Caliano², Alessandro Savio² ¹DiIn, University of Salerno, Fisciano, Italy; ²University of Roma Tre, Italy	P2C2-5 Development of a 1 Mbps Low Power Acoustic Modem for Underwater Communications Marcos Martins^{1,2}, Elias Jesus¹, José Cabral¹, Senentxu Lanceros-Mendez² ¹Algoritmi Center, Minho University, Guimarães, Portugal; ²Escola Superior de Tecnologias, Instituto Politécnico do Cávado e do Ave, Barcelos, Braga, Portugal; ³Center/Department of Physics, Minho University, Portugal	P2C3-7 AIN-Si ultrasonic MEMs energy harvester for medical sensors Victor Klymko¹, Ruth Houlihan², Brendan O'Flynn², Javier Torres³, John Buckley², Elena Lomonova² ¹Eindhoven University of Technology, Eindhoven, Netherlands; ²Tyndall National Institute, Cork, Ireland	P3C1-7 Measurements of sliding friction forces under ultrasonic oscillations: out-of-plane oscillations Soohyun Kim¹, Youngjae Min^{1,2}, Young H. Kim¹ ¹Applied Acoustics Lab, Korea Science Academy of KAIST, Busan, Korea, Republic of; ²Korea Advanced Institute of Science and Technology, Daejeon, Korea, Republic of
P1C11-14 Motion-Corrected Echo Decorrelation Imaging of In Vivo Focused and Bulk Ultrasound Ablation in a Rabbit Liver Cancer Model Tyler R. Fosligh¹, Fong Ming Hooi¹, Ryan D. Keil¹, Svetlana Subramanian¹, Peter G. Barth², Michael H. Skayton², Yang Wang³, Xiaoping Ren³, Syed Ahmad⁴, T. Douglas Mast¹ ¹Biomedical Engineering, University of Cincinnati, Cincinnati, OH, USA; ²Guided Therapy Systems/Ardent Sound, Mesa, AZ, USA; ³Internal Medicine, University of Cincinnati, Cincinnati, OH, USA; ⁴Surgery, University of Cincinnati, Cincinnati, OH, USA	P2C1-5 Remote Excitation of a Bulk Acoustic Wave Sensing Platform Nicole Curtis-Bray¹, Rahim Stennett¹, Nuri Emanetoglu², John Vetrino³ ¹Electrical and Computer Engineering, University of Maine, USA; ²Electrical and Computer Engineering, University of Maine, Orono, ME, USA; ³Laboratory of Surface Science and Technology, University of Maine, USA	Session P2C3. Industrial Applications and Energy Harvesting Chair: Jiroamaru Tsujino Kanagawa University	Session P3C1. Ultrasonic Motors Chair: Minoru Kurosawa Tokyo Institute of Technology	Session P3C2. Thin-Films 2 Chair: Alexandre Reinhardt CEA-Leti, Minatec Campus
P1C11-15 Elimination of HIFU Noise in Monitoring of High Intensity Focused Ultrasound Lesion Formation Ryo Takagi¹, Shin Yoshizawa², Shin-ichiro Umemura¹ ¹Biomedical Engineering, Tohoku University, Sendai, Japan; ²Communications Engineering, Tohoku University, Sendai, Japan	P2C1-6 Biomarker Quantification in Bodily Fluids at Clinically Relevant Concentrations using Metal Enhanced Fluorescence Combined with Surface Acoustic Waves Samuel Morrill¹, Venkat Bhethanabotla¹, Mandek Richardson² ¹University of South Florida, USA; ²University of South Florida, United Kingdom	P2C3-1 Numerical and Experimental Study on the Frequency Tuning Characteristics of a Rotating Piezoelectric Energy Harvester Dominik Geddon¹, Stefan Johann Rupitsch¹, Reinhard Lerch¹ ¹Chair of Sensor Technology, University Erlangen-Nuremberg, Erlangen, Germany	P3C1-1 Rotary Motion Generated by Synthesized Circular / Elliptic Drive with Straight-Move Ultrasonic Motors Yusuke Nagai¹, Mitsutaka Hikita¹ ¹Faculty of GE, Kogakain Univ., Tokyo, Japan	P3C2-1 Enhancement of piezoelectric properties in Pb(Zr,Ti)O₃ thin films by electric field induced phase transition Veronika Kovacova¹, Nicolas Vaxelaire², Patrice Gergaud², Gwenael Le Rhun², Emmanuel Defay² ¹CEA, Grenoble, France, Metropolitan; ²CEA, France, Metropolitan
P1C11-15 Elimination of HIFU Noise in Monitoring of High Intensity Focused Ultrasound Lesion Formation Ryo Takagi¹, Shin Yoshizawa², Shin-ichiro Umemura¹ ¹Biomedical Engineering, Tohoku University, Sendai, Japan; ²Communications Engineering, Tohoku University, Sendai, Japan	Session P2C2. Ultrasonics and Fluids Chair: Roman Maev University of Windsor	P2C3-2 Ultrasonically induced effects in Schottky barrier structure depending on a γ-irradiation Oleg Olikh¹ ¹Faculty of Physics, Taras Shevchenko Kyiv National University, Kyiv, Ukraine	P3C1-2 A Simple Mathematical Model for Piezoelectric Motor Based on Elastic Beams Maoying Zhou¹, Weiting Liu¹, Xin Fu¹ ¹The State Key Lab of Fluid Power Transmission and Control, Hangzhou, Zhejiang Province, China, People's Republic of	P3C2-2 Effect of sputtering target temperature on crystalline orientations of ZnO piezoelectric films in RF magnetron sputtering Chihiro Takata¹, Shinji Takayanagi¹, Takahiko Yanagita², Mami Matsukawa¹ ¹Faculty of Science and Engineering, Doshisha University, Kyoto, Japan; ²Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan

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P2C1-1 Ultrasonic piezoelectric tube resonator for physical liquid property sensing Hannes Antlinger¹, Roman Beigelbeck^{2,3}, Thomas Voglhuber-Brunnmaier², Stefan Clara¹, Samir Cerimovic^{2,3}, Franz Kepinger², Bernhard Jakob¹ ¹Institute for Microelectronics and Microsystems, Johannes Kepler University, Linz, Austria, ²Center for Integrated Sensor Systems, Danube University Krems, Austria, ³Institute of Sensor and Actuator Systems, Vienna University of Technology, Austria	P2C2-2 Direction Control of a Parametric Speaker Hajime Akahori¹, Hideo Furuhashi¹, Masatoshi Shimizu² ¹Electrical and Electronics Engineering, Aichi Institute of Technology, Toyota, Aichi, Japan, ²Power Engineering R&D Center, Kansai Electric Power Co. Inc., Anagasaki, Hyogo, Japan	P2C3-4 Tunable acoustic energy harvester using Helmholtz resonator and dual piezoelectric cantilever beams Ping Li¹, Aichao Yang², Yumei Wen² ¹College of Optoelectronic Engineering, Chongqing University, Chongqing City, Chongqing, China, ²People's Republic of Chongqing University, China, People's Republic of	P3C1-4 Enlargement of floator size in ultrasonic suspension by arranging the shape of vibrating surface Kota Uchiage¹, Yuji Ishino¹, Masaya Takasaki¹, Takeshi Mizuno¹ ¹Mechanical Engineering, Saitama University, Saitama-shi, Japan	P3C2-4 PZT Films Piezoelectric Properties From Ambient To 340°C Julie Abergel¹, Gwenaél Le Rhun¹, Alexandre Reinhardt¹, Denis Blachier¹, Aurelien Suhl¹, Emmanuel Defay¹ ¹CEA LETI, France
P2C1-2 Enhanced sensitivity of a surface acoustic wave based accelerometer Wen Wang¹, Xinlu Liu¹, Yangang Huang¹, Shitang He¹ ¹Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of	P2C2-3 Nanosecond time-resolved thermoacoustics in refractory metals undergoing laser pulse-induced phase transition: finite difference modelling Istvan Veres¹, Zhandos N. Utegulov², Arthur G. Every³ ¹Recendo, Linz, Austria, ²Department of Physics, School of Science and Technology, Nazarbayev University, Astana, Kazakhstan, ³School of Physics, University of the Witwatersrand, Johannesburg, South Africa	P2C3-5 Enabling Composite Casting by Ultrasonic Cavitation Kai-Alexander Sualbach¹, Christian Demming², Patrik Freytag², Jens Twiefel¹ ¹Institut für Dynamik und Schwingungen, Leibniz Universität Hannover, Hannover, Germany, ²Institut für Werkstoffkunde, Leibniz Universität Hannover, Garbsen, Germany	P3C1-5 Ultrasonic Motors Using Polymer Vibrator Jiang Wu¹, Yosuke Mizuno¹, Kentaro Nakamura¹, Shigeki Kambara², Naoto Okuyama², Kiyoshi Shimizu² ¹Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan, ²DAIICEL Corporation, Japan	P3C2-5 Effect of Sc concentration on shear wave velocities in ScAlN films measured by micro-Brillouin scattering technique Hayato Ichihashi¹, Takahiko Yanagitani², Shinji Takayanagi¹, Mami Matsukawa¹ ¹Doshisha University, Japan, ²Nagoya Institute of Technology, Japan
P2C1-3 Novel method for accurate, inline sizing of nano particles Paul van Nier¹, Amo Volker¹, Guillaume Pierre², Francois Bouvet², Sophie Crozat² ¹Process and Instrumentation Development, TNO, Delft, Netherlands, ²Sonaxis, Besancon, France	P2C2-4 Three-dimensional-positioning measurements based on echolocation using linear-period-modulated ultrasonic signal Natee Thong-un¹, Shimosuke Hirata¹, Yuishiro Orino¹, Minoru K. Kurosawa¹ ¹Tokyo Institute of Technology, Japan	P2C3-6 Matching Layers Design for a Plate Waveguide Ultrasonic Transducer for Flow Measurement in Hostile Environments Michael Laws¹, Sivaram Nishal Ramadas², Sieve Dixon¹ ¹Department of Physics, University of Warwick, Coventry, United Kingdom, ²Elster NV/SA, Essen, Belgium	P3C1-6 Actual Measurement of Surface Acoustic Wave Motor Thrust Minoru Kurosawa¹, Takehiro Yokoyama² ¹Tokyo Institute of Technology, Yokohama, Japan, ²Tokyo Institute of Technology, Japan	Session P3C3. Phononics 2 <i>Chair: Anne-Christine Hladky</i> <i>IEMN</i>

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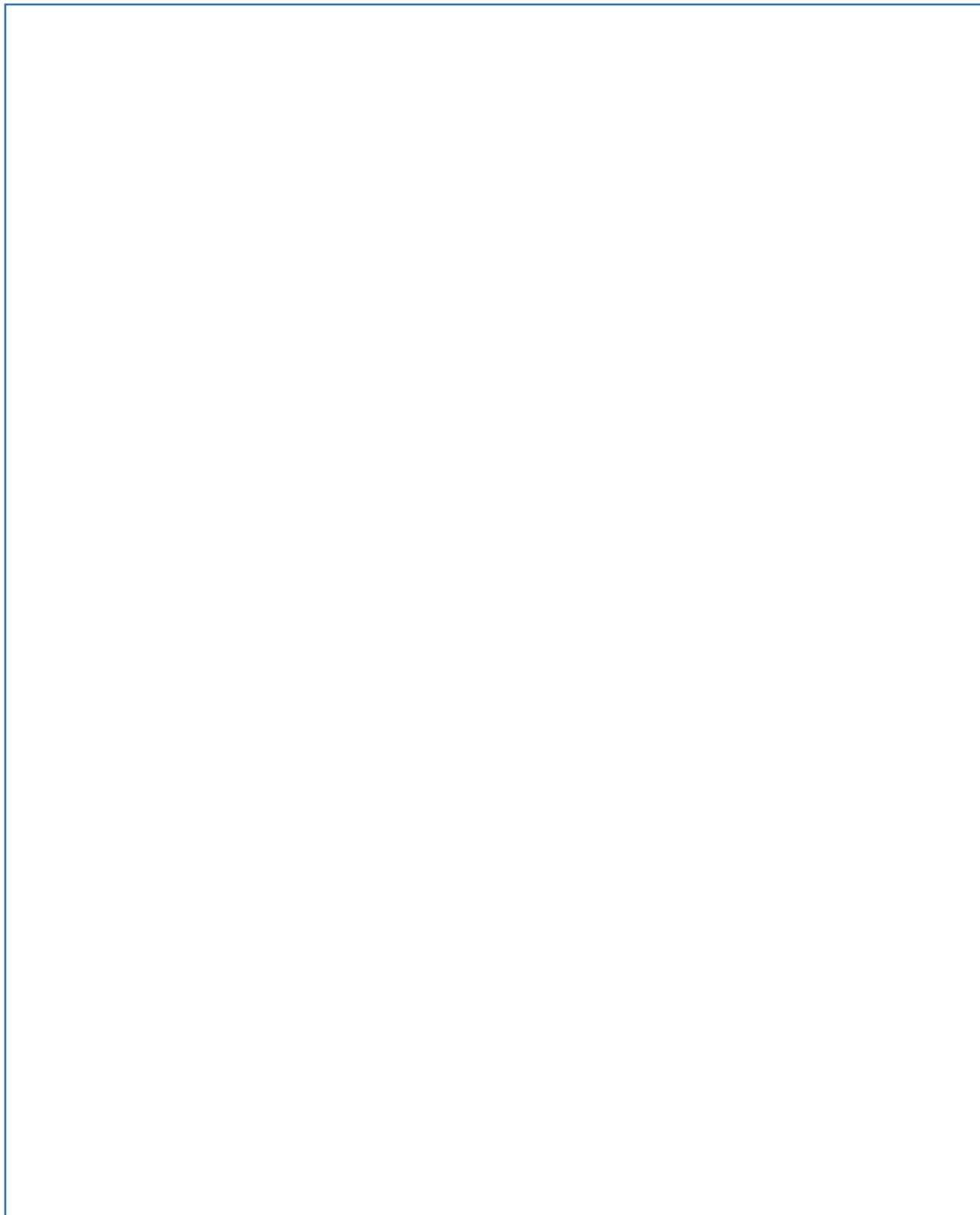
P3C3-1 Extractions of reflection and velocity parameters for surface acoustic wave in two-dimensional piezoelectric phononic crystals Yahui Tian¹, Hongliang Li¹, Yabing Ke¹, Wei Luo², Shitang He¹ ¹Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of China ²School of optical and electronic information, Huazhong university science and technology, Wuhan, China, People's Republic of China	P3C3-9 Sub-wavelength acoustic shielding of Lamb waves through a periodic plate with rectangular holes Rayisa Moiseyenko¹, Yan Ponne¹, Remi Marchal², Bernard Bonello², Bahram Djafari-Roudhaki¹ ¹EMN, villeneuve d'oscy, France, ²INSP, Paris, France	Session P4C2. Innovations for Resonators and Sensors 2 Chair: Natalya Naumenko National University of Science and Technology "MISIS"	P5C1-3 Surface micromachined CMUTs for liquid phase sensing Evaldas Sapclauskas¹, Dovydas Barauskas¹, Gailius Vanagas¹, Darius Virzonis¹ ¹Paneveys Faculty of Technology and Business, Kaunas University of Technology, Lithuania	P5C1-11 Modulation Encoding in Top Orthogonal to Bottom Electrode (TOBE) 2D CMUT Arrays Ryan Chee¹, Alexander Sampaleanu¹, Roger Zemp¹ ¹University of Alberta, Canada
P3C3-2 Time delay estimation and correlation analysis of acoustic signals in granular media using wavelet decomposition Jia Yang¹, Omololu Akanni¹, David Hutchins¹, Peter Thomas¹ ¹School of Engineering, University of Warwick, United Kingdom	P3C3-10 Frequency band gap observation of 2D phononic crystal based on Ni Pillars using slanted IDTs. Yu Du¹, Sergey Yankin^{1,2}, Abdelkrim Talbi¹, Jean Claude Gerbedon¹, Vladimir Preobrazhensky¹, Philippe Pernod¹, Olivier Bou Matar¹ ¹International Associated Laboratory LISC/LEMAC, IEMN, UMR CNRS 8520, PRES Lille Nord de France, EC L, France, ²araton State University, Astrakhanskaya str. 83, 410012, Saratov, Russia, Russian Federation	P4C2-1 Suppression of transverse-mode spurious responses for S0 Lamb wave resonators by bandgap engineering Ventsislav Yantchev¹, Teona Mireva² ¹Uppsala University, Uppsala, Sweden, ²Dpto. Tecnología Electrónica, Universidad Politécnica de Madrid, Madrid, Spain	P5C1-4 Investigation of PDMS as coating on CMUTs for imaging Mette Funding la Cour^{1,2}, Matthias Bo Stuart¹, Mads Bierregaard Laurson², Erik Vilam Thomsen², Jørgen Arendt Jensen¹ ¹Center for Fast Ultrasound Imaging, Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark, ²Department of Micro and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark	P5C1-12 First measurements on a novel type of Optical Micro-machined Ultrasound Transducer Suzanne Leinders¹, Wouter Westerveld^{1,2}, Jose Pozo³, Paul van Nier³, Koen van Dongen¹, Paul Urbach², Nico de Jong¹, Martin Verweij¹ ¹Lab. of Acoustical Wavefield Imaging, Delft University of Technology, Netherlands, ²Optics Research Group, Delft University of Technology, Netherlands, ³Technical Sciences TNO, Delft, Netherlands
P3C3-3 Generation of phonons in a photonic crystal slab cavity by electrostriction and the moving-interface effect Vincent Laude¹, Jean-Charles Beugnot¹, Sarah Benhabane¹, Rémy Braive², Viktor Tsvirkun², Sylvain Barbay², Isabelle Robert-Philip² ¹FEMTO-ST / CNRS, Besancon, France, ²Laboratoire de photonique et de Nanostructures / CNRS, Marcoussis, France	Session P4C1. Acoustic Sensors 2 Chair: Sergie Zhgoon National Research University, Russia	P4C2-2 Novel Submicron Process Development Tool For SAW Device Fabrication James Jacobs¹, Pierre Duffile¹ ¹Phonon Corporation, Simsbury, CT, USA	P5C1-5 Capacitive Micromachined Ultrasound Transducers (CMUT) for Resonant Gravimetric Immunosensing Dovydas Barauskas¹, Gailius Vanagas¹, Asta Makaraviciute², Almira Ramanaviciene², Darius Virzonis¹ ¹Paneveys Faculty of Technology and Business, Kaunas University of Technology, Lithuania, ²Faculty of Chemistry, Vilnius University, Lithuania	P5C1-13 High Frequency Ultrasound Array in Biopsy Needle for Breast Cancer Imaging Thomas Cummins¹, Hojong Choi¹, Payam Eliaho¹, Hyung Kim¹, Mary Yamashita¹, Linda Larsen¹, Julie Lang², Stephen Sener¹, John Vallone⁴, Sue Martin⁴, Kirk Shung¹ ¹Biomedical Engineering, University of Southern California, Los Angeles, California, USA, ²Radiology, Keck School of Medicine, Los Angeles, California, USA, ³Surgery, Keck School of Medicine, Los Angeles, California, USA, ⁴Pathology, Keck School of Medicine, Los Angeles, California, USA
P3C3-4 Analysis of Rayleigh surface acoustic waves propagation on piezoelectric phononic crystal with 3-D finite element model Yahui Tian¹, Hongliang Li¹, Yabing Ke¹, Wei Luo², Shitang He¹ ¹Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of China ²School of optical and electronic information, Huazhong university science and technology, Wuhan, China, People's Republic of China	P4C1-1 Trace moisture measurement of 10 nmol/mol using a 3mm diameter silica coated ball SAW sensor Kazushi Yamanaka¹, Satoshi Hagihara¹, Toshihiro Tsuji¹, Toru Ozumi¹, Nobuo Takeda¹, Shingo Akao^{1,2}, Tsuneo Ohgi², Kosuke Takayama¹, Takayuki Yanagisawa¹, Norihisa Nakaso², Yusuke Tsukihara² ¹Department of Materials Processing, Tohoku University, Sendai, Japan, ²TOPPAN PRINTING CO. LTD., Sugito, Japan	P4C2-3 Temperature Compensated Gallium Nitride Surface Acoustic Wave Resonators for Space Applications Ashwin Shankar¹, Chih-Ming Lin², Debbie Senesky³ ¹Electrical Engineering, Stanford University, Stanford, California, USA, ²Silicon Laboratories, Sunnyvale, California, USA, ³Aeronautics and Astronautics, Stanford University, Stanford, California, USA	P5C1-14 Ultrasonic Beam Formation by pMUTs array using Epitaxial PZT Thin Films on γ-Al₂O₃/Si Substrates Daisuke Akai^{1,2}, Masato Nishimura², Nagaya Okada¹, Makoto Ishida^{1,2} ¹Electronics-Inspired Interdisciplinary Research Institute (EIIIRIS), Toyohashi Tech., Japan, ²Dept. Electrical and Electronic Information Engineering, Toyohashi Tech., Japan, ³Honda Electronics Co. Ltd., Japan	P5C1-6 A Low Frequency Broadband Flexural Mode Ultrasonic Transducer for Immersion Applications Alessandro Stuart Savoia¹, Barbara Mauti¹, Nicola Lamberti², Giosuè Caliano¹ ¹Dipartimento di Ingegneria, Università degli Studi Roma Tre, Roma, Italy, ²Dipartimento di Ingegneria Industriale, Università degli Studi di Salerno, Fisciano, Italy

P3C3-5 Silicon Pillars as Resonators for an Acoustical Metamaterial Bernard Bonello¹, Rémi Marchal¹, Rayisa Moiseyenko², Yan Pennec², Bahram Djafari-Rouhani², Jinfeng Zhao¹, Olga Boyko¹ ¹INSP, University Pierre et Marie Curie, Paris, France, ²EMN-UMR CNRS 8520, University Lille 1, Villeneuve d'Ascq cedex, France	P4C1-2 Application of SAW RFID in the Inspection Management of Aerodrome Lights Ruchuan Shi¹, Chenmiao Zhang¹, Tao Han¹, Jing Chen¹ ¹Shanghai Jiaotong University, Shanghai, China, People's Republic of	P4C2-4 Realization of a SH-SAW phononic device using high density filled microcavities for ultra-low power sensing applications Mandek Richardson¹, Subramanian Sakaranarayanan², Sina Koochakzadeh¹, Venkat Bhethanabotla¹ ¹University of South Florida, USA, ²Argonne National Laboratory, USA	P5C1-7 Dimensional Scaling for Optimized CMUT Operations Anders Lei¹, Thomas Lehrmann Christiansen¹, Søren Elmin Diederichsen¹, Mette Funding la Cour², Jørgen Arendt Jensen², Erik Vilan Thomsen¹ ¹Department of Micro- and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark; ²Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark	Session P5C2. Therapy Transducers <i>Chair: Takashi Buma</i> <i>Union College</i>
P3C3-6 Focusing of Flexural Lamb Waves with "Trampoline-Based" Phononic Crystals Jinfeng Zhao¹, Bernard Bonello¹, Olga Boyko¹, Yan Pennec², Bahram Djafari-Rouhani², Rémi Marchal¹ ¹INSP (box 840), University Pierre et Marie Curie, Paris, France, ²EMN-UMR CNRS 8520, University Lille 1, Villeneuve d'Ascq cedex, France	P4C1-3 Surface Acoustic Wave Mass Sensor Based On 128° Y-cut Lithium Niobate For Thermogravimetric Analysis Hongfei Zu¹, Yizhong Wang¹, Jie-min Xie^{1,2}, Huiyan Wu¹, Qing-Ming Wang¹ ¹Mechanical Engineering and Materials Science, University of Pittsburgh, USA; ²Department of Mechanics, Huazhong University of Science and Technology, Wuhan, Hubei, China, People's Republic of	Session P5C1. Micromachined Ultrasonic Transducers <i>Chair: Takashi Buma</i> <i>Union College</i>	P5C1-8 Electroacoustic Response of cMUT-based Linear Arrays: Role of Inactive Elements Andren Boulme¹, Dominique Gross¹, Mathieu Legros², Dominique Certon¹ ¹Université François-Rabelais de Tours, GREMAN, UMR-CNRS 7347, Tours, France, ²Vernon S.A., Tours, France	P5C2-1 Cell Stimulation System using Low-Intensity Ultrasound by Piezoelectric Micromachined Ultrasonic Transducer Arrays Wonjun Lee^{1,2}, Joontaek Jung^{1,2}, Mijung Bae³, Hyungsoo Han³, Hongsoo Choi^{1,2} ¹Department of Robotics Engineering, DGIST, Daegu, Korea, Republic of; ²DGIST-ETH Microrobot Research Center, DGIST, Daegu, Korea, Republic of; ³Department of Physiology, Kyungpook National University School of Medicine, Daegu, Korea, Republic of
P3C3-7 Topology Optimization of Two-Dimensional Holey Phononic Crystals with Large Band Gaps Hao-Wen Dong¹, Yue-Sheng Wang², Xiao-Xing Su¹ ¹Beijing Jiaotong University, China, People's Republic of; ²Institute of Engineering Mechanics, Beijing Jiaotong University, Beijing, China, People's Republic of	P4C1-4 Love Mode Surface Acoustic Wave Sensors for Cellular Toxicity Sensing Fang Li¹, Lifeng Qin², Huiyan Wu¹, Qing-Ming Wang¹ ¹Mechanical Engineering, New York Institute of Technology, USA, ²Xiamen University, China, People's Republic of; ³University of Pittsburgh, USA	P5C1-1 Designing Efficient CMUT Cells for Airborne Applications Asif Unluogedak¹, A. Sinan Tasdelen¹, Abdullah Atalar¹, Hayrettin Koymen¹ ¹Bilkent University, Ankara, Turkey	P5C1-9 Modeling of CMUTs with Multiple Anisotropic Layers and Incorporated Stress Mathias Engholm¹, Erik Vilan Thomsen¹ ¹Department of Micro and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark	P5C2-2 The study of chain-like materials for use in biomedical ultrasound David Hutchins¹, Jia Yang¹, Omololu Akanni¹, Peter Thomas¹, Steven Freear², Sevan Harput³, Nader Saifari⁴, Pierre Gelat⁵ ¹School of Engineering, University of Warwick, Coventry, United Kingdom, ²School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; ³School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; ⁴Department of Mechanical Engineering, University College London, London, United Kingdom; ⁵Department of Mechanical Engineering, University College London, London, United Kingdom
P3C3-8 Surface acoustic waves in finite-depth air/silicon phononic crystals Jia-Hong Sun¹, Jyun-Hua Jhou¹ ¹Department of Mechanical Engineering, Chang Gung University, Tao-Yuan, Taiwan	P4C1-5 Passive and wireless SAW-based carbon dioxide sensor using a graphene sheet Chen Fu¹, Kekeum Lee¹, Sangsik Yang¹ ¹Department of Electrical and Computer Eng., Ajou University, Suwon, Korea, Republic of	P5C1-2 Design and Fabrication of cMUT using SOI Wafer for Focused Ultrasound Beam In-Hyounk Song¹, Min Gyu Cho², Inn-Yeal Oh², Chul Soon Park² ¹Texas State University, USA, ²Korea Advanced Institute of Science and Technology, Korea, Republic of	P5C1-10 An Ultra-Low-Power Fully Integrated Ultrasound Imaging CMUT Transceiver Featuring a High-Voltage Unipolar Pulser and a Low-Noise Charge Amplifier Alessandro Stuart Savoia¹, Giosuè Caliano¹ Marco Sautio², Andrea Mazzanti², Antonio Davide Leone², Davide Ugo Ghisù², Fabio Quaglia³ ¹Dipartimento di Ingegneria, Università degli Studi Roma Tre, Roma, Italy, ²Dipartimento di Ingegneria Industriale e dell'Informazione, Università degli Studi di Pavia, Pavia, Italy, ³STMicroelectronics, Comaredo, Italy	P5C2-3 Micromachined Self-focusing Piezoelectric Composite Ultrasonic Transducer Xiaohua Jian¹, Zhile Han¹, Yongjia Xiang¹, Zhangjian Li¹, Yaoyao Cui¹ ¹Suzhou Institute of Biomedical Engineering and Technology, Suzhou, Jiangsu, China, People's Republic of

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P5C2-4 Analysis and Design of A Novel Shape of Piezoelectric Coupled with Tube to Increase the Radial Displacement Yung Ting¹, Yen Lung Lee¹, Yun Jui Yang¹ ¹Mechanical Engineering, Chung Yuan Christian University, Chung Li, Taiwan	P5C2-5 A Sparse-element Phased Array System based on Sequentially Multiple Focusing for the Treatment of Large Tumors Munbo Shim¹, Sungjin Kim^{1,2} ¹Samsung Advanced Institute of Technology, Samsung Electronics, Korea, Republic of; ²Samsung Electronics, Korea, Republic of	P5C2-6 Design and Characterization of High-Efficiency Optoacoustic Conversion Lens for Laser-Generated Focused Ultrasound Hyoung Won Baac¹, Taehwa Lee², L Jay Guo² ¹Sungkyunkwan University, Korea, Republic of; ²University of Michigan, Ann Arbor, USA			

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