FRANCE
TOURS

2016 IUS

IEEE
INTERNATIONAL
ULTRASONICS
SYMPOSIUM

september 18-21, Tours, France

PROGRAM BOOK

September 18-21, 2016, **TOURS, FRANCE**

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM

VINCI CONVENTION CENTER

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Message from the 2016 IEEE International Ultrasonics Symposium General Chair

Ayache Bouakaz

Inserm Research Director
Imaging and Brain Laboratory
INSERM U930
University of Tours
France

"

Welcome to Tours !

The 2016 edition of IEEE International Ultrasonics Symposium is coming to TOURS, FRANCE, 18 to 21 September and will be held in the VINCI convention center. It is an honor to host this wonderful symposium and to bring together academic and industrial researchers from over 50 countries to allow scientific exchange, inspire new ideas and projects.

TOURS has a long history with ultrasound in France. In the late sixties, Professor Léandre Pourcelot brought to market the first European CW Doppler system. With his research group, he developed one of the first real-time ultrasound imaging systems based on electronic scanning of a linear array. His work paved the way to more than 40 years of innovations in medical ultrasound.

TOURS city is situated in the LOIRE VALLEY, nicknamed "Jardin de la France" (Garden of France), a UNESCO world heritage, popular for a number of famous castles such as Chenonceau, Amboise, Chambord, Villandry…

TOURS located in the center of France, is easily accessible and a major touristic region renowned for its unique history, gastronomy, heritage and culture.

I am looking forward to seeing you in TOURS, FRANCE

Very sincerely.

"

CONFERENCE VENUE

VINCI Convention center

Venue Address:
26-28 Boulevard Heurteloup, 37000 Tours
Tel :+33 2 47 70 70 70

REGISTRATION AND FEES (Euros)

IUS 2016 REGISTRATION FEE (IN EUROS)		
Registration Status	Before August 12, 2016	After August 12, 2016
IEEE Members*	620 €	750 €
Non-IEEE Members*	830 €	965 €
Student* *(Show valid Student ID at conference)*	220 € (IEEE Members)	350 € (IEEE Members)
	370 € (Non-IEEE Members)	500 € (Non-IEEE Members)
Student 1Day Registration*	100 €	100 €
Retirees*	220 €	350 €
Life IEEE Member* *(Show life member card at conference)*	220 €	350 €
One-Day Registration**	370 €	370 €
One Short Course***	230 € (One Short Course)	345 € (One Short Course)
	390 € (Two Short Courses)	465 € (Two Short Courses)
Student & Retiree ***	130 € (One Short Course)	230 € (One Short Course)
	230 € (Two Short Courses)	390 € (Two Short Courses)
Guest****	100 €	100 €
Conference Proceedings DVD	20 €	20 €
Symposium Banquet *Banquet ticket is included (expect for one day, short course and guest registration). You may purchase additional tickets for accompanying guests.*		

Entitlement

***Registration fees for IEEE Members, Non-IEEE Members, Student, Retiree and Life IEEE Member**

- Admission to all scientific sessions and exhibition
- Admission to symposium social programs (Welcome Reception, Opening ceremony & Banquet)
- Symposium kit
- Refreshment during the symposium
- Include password-controlled Internet access to the conference proceedings for a period of one year for downloading the papers.

**Registration fees for One Day Registrants

- Password-protected internet access to the conference proceedings for a period of one year for downloading the papers
- Ticket to the Welcome Reception ONLY

***Registration fees for Short Course(s) Registrants

- Includes password-controlled Internet access to the conference proceedings for a period of one year for downloading the papers

****Registration fees for Guest

- Admission to symposium social programs (Welcome Reception & Opening Ceremony)
- Refreshment during the symposium

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.

Cancellation and Refund Policy

Notification of cancellation and request for refunds must be sent in writing to the IUS 2016 Symposium Secretariat (fabienne.zelmat@univ-tours.fr). The following cancellation and refund policies will apply:

- Before August 17, 2016 Refund of prepaid fees except for an administration charge of 50 Euros
- After August 17, 2016, 11.59 pm (PST): No refund is applicable.
- Authors who have uploaded their papers are NOT entitled to any refunds. All refund will be processed 1 month after the congress has concluded.

CONFERENCE PROCEEDINGS

In order for the 2016 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. Conference attendees will receive electronic access to the conference proceedings containing all the papers presented at the conference as part of their full registration fee.

As the Proceedings is a record of the 2016 IEEE International Ultrasonics Symposium, only those papers which are actually presented and defended at the Symposium by the author at 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.

The paper submission deadline is September 4, 2016 11:59 pm (PDT) (two weeks before the conference). IEEE takes the protection of intellectual property seriously. Accordingly, all submissions will be screened for plagiarism using CrossCheck. By submitting your work you agree to allow IEEE to screen your work. For more information please visit: http://www.crossref.org/crosscheck/index.html.

VISA ASSISTANCE

Unless for exempted citizens, a visa is required and should be applied for in the country of residence before departure. Usually, an appointment with the French Consulate in the country of residence is required to submit an application for a visa.

Visa-Exempt Entry

Citizens of a European Union (EU) member state, the European Economic Area (EEA) and Switzerland are exempted to ***short-stay visa***.

Visitor Visa for Attending Conference

Short-stay visa (also known as *Schengen visa*): The short-stay visa allows visitors to move freely within the countries in the Schengen area. This allows an uninterrupted stay or several successive stays of up to 90 days in a six-month period. This visa is usually issued for tourist and business trips.

Travelers can file their visa application forms with the necessary documents and visa fee at French Diplomatic and Consular Offices.

REQUIREMENTS	DESCRIPTION
Completed and signed application form	Online Visa Application Form
Photograph	***Visa Photograph Requirement***
Passport (original and photocopy)	Valid for more than 3 months with blank pages
Visa Letter	***Request for visa letter***
Evidence of documents	Visa letter and traveller's ID
Other additional documents	Accommodation (Proof of a hotel booking) and Travel (Ticket, Proof of a travel agency) forms
Entry and stay visas	Application fees

Documents to Present on Entering France

The travelers exempt to present documents are:

- Foreign citizens in possession of a French residence permit
- Citizens of an EU member state, the EEA, Switzerland, Andorra and Monaco
- Foreign citizens with following mention on their visas: French family, EU family, Travel visa, Residence permit to be requested upon arrival in France

In order to enter France, all foreign citizens must able to present:

- A passport recognized by France, which must be valid for more than 3 months (the expire date of the short-stay visa)
- A valid visa indicating the reason for and duration of the intended stay (except for the visa-exempt citizens)
- Documents regarding means of support during the stay and repatriation guarantees
- Documents depending on the purpose of the stay:
  - Tourist trip: Conditions of the stay
  - Business trip: Details on the establishments the traveler will be visiting
  - Family visit: Proof of accommodation
  - Transit: Details of the stay and accommodation during transit; Ticket and visa for the country of destination

French Diplomatic and Consular Offices

For further information, you should consult the relevant consular authority for your place of residence.

Visa Official Invitation Letter

IUS 2016 invitation letter can be issued to participants who have completed registration payment. If you require an official invitation letter or further assistance on France visitor visa you may contact Fabienne Zelmat (fabienne.zelmat@univ-tours.fr).

2016 ULTRASONICS SPECIAL ISSUE OF THE IEEE TRANSACTIONS ON ULTRASONICS, FERROELECTRICS AND FREQUENCY CONTROL

Following the IUS 2016 conference, select papers will be invited to submit a full manuscript for publication consideration in the **2016 Ultrasonics Special Issue of the IEEE T-UFFC**. Furthermore, the invited speakers and the student paper finalist are also encouraged to submit papers to this special issue.

Deadline for Paper Submission: December 1, 2016

- Guest Editors: Scott Smith – smithls@ge.com
  Ton van der Steen
  Lori Bridal
  Mario Kupnik
  Koen W.A. van Dongen
  Omer Oralkan
  Robert Weigel

PUBLICATION OF ARTICLES IN IEEE PERIODICALS BASED UPON IEEE CONFERENCE PROCEEDINGS

Transactions on Ultrasonics, Ferroelectrics and Frequency Control (T-UFFC)

IEEE's technical publications shall include original material, which appears only once in the archival literature. Nevertheless, it is common in technical publishing for material to be presented at various stages of its evolution by publishing early ideas in a workshop, more developed work in a conference, and most fully developed contributions as journal or transactions articles. IEEE recognizes the importance of this evolutionary publication process as a significant means of scientific communication and fully supports this publishing paradigm, but IEEE requires that this evolutionary process be fully referenced. Accordingly, the publication in an IEEE periodical of original technical material contained in a conference article or articles is permitted provided that:

- 1. The manuscript contains **substantial additional technical material**. This must be justified based on one or more of the following: new theoretical or experimental results, enhanced modeling and characterization, descriptions of new applications, better placing the study in its context, greater depth of discussion, more elaborate analysis of results and additional references.

- 2. As a guideline for authors, the T-UFFC have set the quantitative threshold for **substantial additional technical material** to be 40-50%. Final validation that this guideline is respected is at the discretion of the Editor-in-Chief.

- 3. The conference version(s) must be declared when submitting the journal paper in two places: (i) in the cover letter to the Editor-in-Chief together with a specific statement describing the differences between the submitted journal manuscript and the original conference paper (ii) in the journal paper through an appropriate citation to the conference paper(s). The conference paper(s) **must** be uploaded as supporting document(s).

- 4. IEEE policy now requires that all IEEE content be screened for possible plagiarism. Therefore, all submissions will be screened via CrossCheck – which compares submitted manuscripts against a large database of published technical papers (as well as over 6 billion Web pages), and provides editors with a summary report that highlights any similarity to previously published work.

- 5. If responding to a Special Issue call:

- a. All special issue manuscripts shall undergo the standard peer review process.
- b. The article should be identified as Manuscript Type "Special Issue" during submission.
- c. Late manuscripts may or may not be included in the special issue, depending on whether the review of the manuscript is completed in time for the special issue. The special issue will not be delayed to accommodate late manuscripts. Manuscripts with incomplete reviews shall be included in a subsequent regular issue, if accepted.

- 6. For full IEEE Publications Policy and further details concerning material reuse please see Sections **8.1.7** and Section **8.2.4.G** of the IEEE Publications Operations Manual http://www.ieee.org/documents/opsmanual.pdf

- Text is adapted with permission from IEEE PSPB Operations Manual 8.1.7.E [http://www.ieee.org/documents/opsmanual.pdf]
- T-UFFC Editor in Chief S.Freear@leeds.ac.uk

PICMUS: PLANE WAVE IMAGING CHALLENGE

For the first time, a challenge in medical ultrasound (Plane-wave Imaging Challenge in Medical Ultrasound: PICMUS) will be organized during IEEE IUS 2016. The session for the challenge is **Wednesday, September 21th from 12 pm to 2 pm Room Jeanne d'Arc – Level +1**. The topic of this first challenge is Plane wave imaging: https://www.creatis.insa-lyon.fr/Challenge/IEEE_IUS_2016/.

A brief analysis of the litterature in the field of ultrasound plane wave imaging led to the following remarks: an important part of the contributions done in our field is computational research; there are many algorithms/methods developed for image construction/beam forming especially for high frame rate plane wave imaging and currently there are no means to compare them all in a fair manner ,i.e. same configurations, simulations, experiments, metrics, optimal tuning of each method etc... In response to these observations and inspired by what is already done for other medical imaging modalities in other conferences, we propose to organize a challenge on plane wave imaging. The challenge is supported by a specific web platform: https://www.creatis.insa-lyon.fr/Challenge/IEEE_IUS_2016/ . It will be presented at the next IEEE International Ultrasonics Symposium 2016 in Tours (France). Some datasets consisting of the pre-beamformed single element signals for several angle of insonnification (simulations and experiments) are be provided to the challengers. They will have to construct/beamform images at a specific grid imposed by the organizers and upload their final envelope image on the platform. The datasets are designed to enable the evaluation of the following image quality metrics: resolution, contrast, penetration. These datasets will also be used to ensure that no geometric distortion is introduced during image construction and to ensure that speckle is preserved.

The competition is organized in order to motivate participants. For each participant, the results for the different metrics will be used to allocate points. These points will serve to classify and rank the challengers and designate a winner. Several categories will be organized. In three categories the maximum number of angles will be imposed (low medium and high number of angles) and only the image quality metrics will be used for attributing points and make the ranking. In a last category, challengers will be free to use the number of angles they want and this number will be included as a correction factor for the attribution of the number of points. The aim of the challenge goes much beyond the simple designation of a winner. The aim is also to analyse more finely the different methods. For all details and information connect to the following site: https://www.creatis.insa-lyon.fr/Challenge/IEEE_IUS_2016/

STUDENT-INDUSTRY NETWORKING

The 2016 IEEE international Ultrasonics Symposium in Tours, France, will host for the first time a student-industry networking event. The motivation is to connect students close to graduation with jobs in industry and academia.

Why have this event?

The motivation is to retain the great talent we observe each year attending the annual conference in a related field beyond graduation. The field of ultrasound, physical acoustics and related material research requires training and dedication to make it to the level to present scientific work at the annual conference and these contributions are the basis of a innovative and dynamic society. The vast job opportunities in the field of acoustics are often unknown to students, and this event tries to address this by very specifically introducing a prospective student to open jobs.

How does it work?

The event will take place on **Sunday, September 18th from 6 pm to 8 pm Room Langeais – Level +2** at the VINCI Convention Center. The actual event will consist of a 90 min slot, in which 25 students will be each allotted 3 min to present their profile to industry members with open positions. A one page slide master is provided that will contain your contact information, graduation date, skills and interests. Use of this template ensures all students to have the same time and opportunity.

After the 90 mins of presentations, there will be a social mixer with snacks and drinks during which the students and industry members can mix. The idea is that from the information provided during the presentations industry members take down the contact information of prospective students and can either approach them during the social mixer or contact them later on.

For students: How to register to participate?

Only the first 25 students to register will be able to attend and present their profile. Eligible students must either be available to accept a job within 6 months or have an estimated graduation date prior to August 2018.

The registration will open on March 1st (identical to the abstract submission deadline) and **will close April 15th**, 2016.

A valid registration requires:

- Must be a student
- Agreeing to arrive prior to Sunday 18th and attending the industry networking event
- Submitting the slide to uffc4students@gmail.com prior to April 15th

We will acknowledge the receipt of all submission by April 30th, providing you with your registration number that will reflect what number in the queue you are.

Confirmation of attendance required. With the abstract acceptance being communicated to all authors on May 30th and related travel arrangements this will have an impact on the ability to attend or not. We will reach out to **all** students **August 1st** that have registered whether they will attend or not. We ask you to confirm your attendance no later than **August 30th**. We will then create the final list of 25 students and confirm your acceptance.

For industry member: How to register?

To enable an efficient exchange of industry members and students we are limiting the attendance of industry members to 50. Eligible industry members should have at least one open position to be staffed in the coming 12 months.

The registration will open on March 1st (identical to the abstract submission deadline) and **will close April 15th**, 2016. A valid registration requires:

- Name, title
- Name of company, position held
- Description of positions available
- Agreeing to arrive prior to Sunday 18th and attending the industry networking event

We will acknowledge the receipt of all submissions by April 30th, providing you with your registration number that will reflect what number in the queue you are.

Confirmation of attendance required. With the abstract acceptance being communicated to all authors on May 30th and related travel arrangements this will have an impact on the ability to attend or not. We will reach out to **all** industry members on **August 1st** that have registered whether they will attend or not. We ask you to confirm your attendance no later than **August 30th**. We will then create the final list of all 50 industry members and confirm your acceptance.

Any Questions?

Does something need clarification? We are organizing this event for the first time and we want to provide as much information as possible. If you have any questions please let us know, we will display the questions and answers on this page. You can reach us at uffc4students@gmail.com.

STUDENT TRAVEL SUPPORT

Student Travel Support will be available Tuesday, September 20th, 1:00 pm in the registration area. Please have identification and travel receipts available.

WOMEN IN ENGINEERING

All women active in the technical areas of the IEEE IUS are invited to attend a complimentary cocktail and networking event organized by the women in UFFC group on **Monday September 19, Room Jeanne d'Arc – Level +1 from 6:30 – 7:30 pm** at the Vinci congress center of Tours. The event will offer a highlight career development workshop and presentation supported by L'Oréal Women in Science Program. This is also a great opportunity to network with fellow women in the ultrasound field and organization members of the UFFC society and the IUS conference.

For additional information please contact IEEE UFFC liaison to WIE, Dr. Zhen Xu, at zhenx@umich.edu. Local contact Emma Kanbar (emma.kanbar@etu.univ-tours.fr) and Lori Bridal (lori.bridal@upmc.fr).

IEEE EVENT PHOTOGRAPHY STATEMENT

No flash photography may 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.

SOCIAL PROGRAM

WELCOME RECEPTION

Date
Monday, September 19th, 2016

Location
City Hall

Time
7:30 pm-09:00 pm

The welcome reception will take place in the city hall. The city hall is at a walking distance from the Vinci Convention Center.

GALA DINNER

Date
Tuesday, September 20th, 2016

Location
La Grange de Meslay

Time
6:30 pm-10:30 pm

The gala dinner will be held in LA GRANGE DE MESLAY, one of the oldest fortified farms dating from the 13th century.

Departure by bus at 6:30 pm in front of Vinci Convention Center. Return by bus at 10:30 pm from La Grange de Meslay to the venue.

(a) Two women, two personalities, two voices mingle supported a diatonic accordion. They transpose feel of the street under the stage lights . The quality of both voice and interpretation stage takes its full dimension.

(b) The Alumni Association brings together Touraine graduates Conservatory Poulenc (Conservatory and musicology department). Among its members, prestigious artists (Liza Kerob, soloist at the Monte-Carlo Philharmonic; Laurent Couson, Claude Lelouch composer) that help young talents to start their career.

CULTURAL EXCURSIONS

The culture, gastronomy, history and natural environment are among the very best to be found anywhere in France, and Tours is also the ideal starting point to visit the châteaux and vineyards of the Loire. With the support of Tourism Office of Tours, the local organizing committee offers you different cultural excursions.

Registration deadline: August 31st, 2016 (min. 20 persons/excursion)

AMBOISE AND CLOS LUCE EXCURSION
SEPTEMBER 19TH
from 49.00 €

AMBOISE VOUVRAY
SEPTEMBER 21ST
from 38.00 €

BIKE TOUR
SEPTEMBER 18TH
from 35.00 €

BIKE TOUR
SEPTEMBER 21st
from 35.00 €

CHENONCEAU-VOUVRAY
SEPTEMBER 18th
from 49.00 €

CHENONCEAU-VOUVRAY
SEPTEMBER 20th
from 44.00 €

CHENONCEAU-VOUVRAY
SEPTEMBER 22nd
from 44.00 €

GUIDED TOUR OF TOURS
SEPTEMBER 20th
from 9.00 €

STROLL ON THE ROYAL RIVER
SEPTEMBER 19th
from 38.00 €

STROLL ON THE ROYAL RIVER
SEPTEMBER 22nd
from 38.00 €

SPONSORS AND EXHIBITORS

VERMON
www.vermon.com

VERMON is committed to serve the industry, designing and manufacturing advanced and unique transducer technologies.

Long term strategy is to support our customer's innovative ultrasound diagnostic modalities as well as strengthening their long term market position with superior ultrasound imaging performance. Vermon has been leading 1-3 piezoelectric composite technology development and industrialization to enhance ultrasound transducers state of the art. To achieve and further extend this position, Vermon designs, produces and controls all probe acoustic components, manufacturing tools and technologies.

The industrial organization addresses a very diverse customer base, from early stage R&D performers to ultrasound market leaders over a very broad product portfolio. All transducers are manufactured in Tours Headquarters facilities under our ISO 9001,ISO 13485 and ISO 14001 Quality Management System.

Booth N°11 & 12

VERASONICS
www.Verasonics.com

VERASONICS designs, manufactures and sells state-of-the-art Vantage ultrasound research systems for academic and commercial investigators.

Vantage systems support biomedical applications requiring low or high frequencies, high frame rates, high power such as focused ultrasound, and high channel count. In industrial applications and NDT/NDE, the Vantage systems' open architecture and very high sensitivity enable the development of new methods for evaluation of materials and structures.

With leading technologies, exceptional customer support, technology licensing and consulting services, Verasonics has become the worldwide leader in research ultrasound.

Booth N°17
PZ Flex
www.pzflex.com

Welcome reception Sponsor

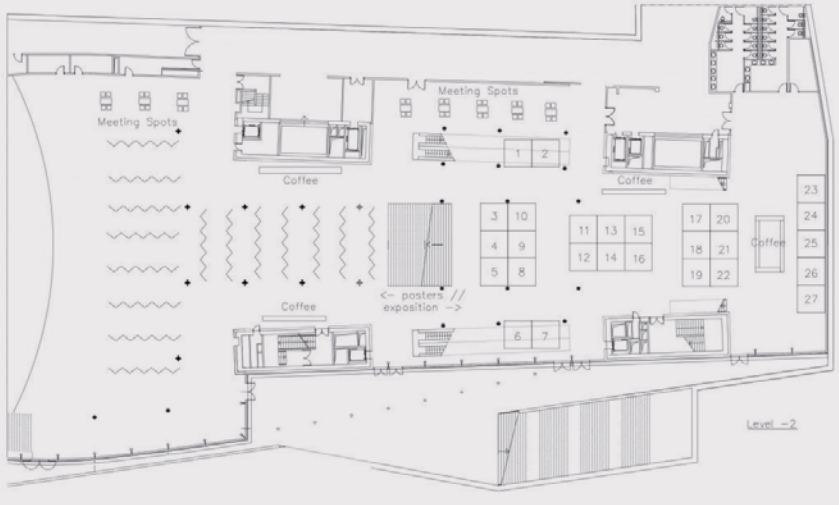
Fast, highly-efficient Finite Element (FE) software for piezoelectric and wave-propagation applications, PZFlex has been at the cutting edge of product design and analysis for over 20 years. Heavily used by leading global companies and universities, PZFlex allows engineers to run accurate simulations in drastically reduced time-frames, driving the need for physical prototypes down and accelerating product design cycles.

INSTITUTIONAL SPONSORS AND PARTNERS

EXHIBITORS

Exhibitors hall will be located at the -2 floor of the Vinci congress center and will be open from Monday morning to Wednesday afternoon. Refreshments and coffee breaks will be served in this space every day from 9:30 to 10:30 and 15:00 to 16:00.

Below the layout of the exhibitor hall, located on the right side of the floor plan. The left area of the -2 floor is dedicated to poster sessions that will run from Monday to Wednesday.



Exhibitor Information

Booth N°1

AMSystems
www.amssb.com

Advanced Modular Systems Inc. (also known as AMSystems, or AMS, Inc.) is a world leader in manufacturing of deposition systems for Piezoelectric Aluminum Nitride (AlN) used in FBAR filters made for cell phones and other wireless applications. AMSystems also designs, manufactures and services thin film processing equipment for the coating and ion mill trimming. AMSystems focuses on simplicity of design to deliver an economical and reliable system with a smallest footprint. AMSystems provides:

- A complete and comprehensive solution for FBAR/BAW and piezo-MEMS technologies, including thin film deposition (piezoelectric and electrodes) along with precise thickness and frequency uniformity trimming.
- Frequency trimming solution for SAW Technology.
- Thickness and thickness uniformity trimming process for SOI, Lithium Tantalite, Lithium Niobate and other substrates.

Our main products and services include:

- Systems for Deposition of Piezoelectric (aluminum nitride, AlScN), Dielectric and Metal (molybdenum, tungsten, titanium and other materials) thin films
- Systems for Ion Beam Film Thickness and Frequency Trimming/Tuning
- Foundry Service – PVD Deposition and Etch/Trimming/Tuning Processes
- Deposition and Trimming performed in the same cluster tool

Booth N°2

Kibero
www.kibero.com

Our mission: kibero`s mission is to provide non-invasively morphological and functional insight into biological samples with unpreceeded resolution, contrast and imaging depth. Our imaging systems provide valuable information for research, development and quality control.
Our history: The company was founded in 2007 as a spin-off from the Fraunhofer Institute for Biomedical Engineering (IBMT). The company's focus is the development and implementation of very high frequency ultrasound and photoacoustic imaging systems in the field of life sciences. The imaging systems cover a frequency range from 50 MHz to 2 GHz.
kibero's success started with the product line SASAM©, which was developed at Fraunhofer IBMT and subsequently licensed exclusively to kibero. Further milestones in the companie's development were the introduction of the first photoacoustic clinical imaging system SKINSPECTION US/OA, the microimaging system AMI and the latest preclinical product lines for photoacoustic and acoustic microscopy easyPAM and easySAM.
Our future: Through strong involvement in cooperative research and client specific customization kibero ensures enhancement and refinement of its existing products according to the customer's needs.
Our services: The company develops customized systems such as ultra high frequency transmit receiver systems, high frequency transducers, signal processing algorithms, and complete software solutions.

Booth N°3

IEEE UFFC
www.ieee-uffc.org

IEEE is a worldwide community of over 425,000 technology and engineering professionals in more than 160 countries. They are all united by a common desire to continuously learn, interact, collaborate, and innovate. For over 130 years, IEEE members have helped shape the world's technology future.
IEEE is comprised of many societies with a focus on different technical areas. IEEE Societies provide access to current information, opportunities to network with peers, and enhancement of the worldwide value of your profession. The IEEE Ultrasonics, Ferroelectrics, and Frequency Control (UFFC) Society covers the theory, technology, materials, and applications relating to: the generation, transmission, and detection of ultrasonic waves and related phenomena; medical ultrasound, and associated technologies; ferroelectric, piezoelectric, and piezomagnetic materials; frequency generation and control, timing, and time coordination and distribution. This interest ranges from fundamental studies to the design and/or applications of devices, sensors, systems and manufacturing technologies within the general scope defined above. The society sponsors the International Frequency Control Symposium, the International Symposium on Applications of Ferroelectrics, and the International Ultrasonics Symposium. For additional information about joining IEEE, the UFFC Society, or becoming a more active member of the UFFC society, please visit the booth.

Booth N°4

Advanced OEM Solutions
www.aos-ndt.com

Advanced OEM Solutions (AOS) designs and manufactures high-performance ultrasonic phased array instruments (OEM-PA). Our offerings range from advanced technology like Full-Matrix Capture (FMC), Advanced Total Focusing Method (ATFM), increased data transfer speeds of 140 MB/s to conventional Phased Array (16/16, 32/32, 64/64, 16/128, 32/128, 128/128, 256/256) and multichannel UT (16CH and 32CH).

OEM-PA is based on an open platform concept with open source code examples, tutorial videos, and detailed documentation. Creating custom software and dedicated applications is easy! OEM-PA is small enough to be portable or mount on scanners, saving cost on long, unreliable umbilical cables. Other benefits include: competitive prices, excellent SNR, easy integration for AUT, purchase bare electronics as OEM, advanced features and a software driver compatible with Windows languages (e.g. C++, C#, MATLAB, LabVIEW, etc.). If you're an integrator, service company, instrument manufacturer, reseller, researcher or academic, you can benefit from all OEM-PA has to offer.

Booth N°5

FUJIFILM VisualSonics
www.visualsonics.com

FUJIFILM VisualSonics, Inc is the undisputed world leader in real-time, high-resolution, ultra-high frequency ultrasound imaging; providing the greatest level of anatomical detail for the tiniest of structures.

Our cutting edge technology allows clinicians at the world's most prestigious hospitals and medical centers to make diagnoses and improve patient care in pediatrics, dermatology, musculoskeletal and vascular fields like never before possible. For the first time you can see the 30% of the body missed by conventional ultrasound, and when it comes to healthcare, seeing more matters!

Booth N°6

Alpinion Medical Systems
www.AlpinionUSA.com

ALPINION MEDICAL SYSTEMS is dedicated to developing and producing ultrasound research platforms, including our E-CUBE 12R (FDA 510K) which combines a premium clinical ultrasound system and ultrasound research platform. With its innovative beamforming technology, open software based platform and fast frame rate, the E-CUBE 12R allows researchers to access RF data, to build sequence control, and to create more valuable clinical studies such as photoacoustics, Elastography, drug delivery contrast agent imaging, etc.

The E-CUBE 12R (Clinical Research Ultrasound) is the first ultrasound research platform which combines premium clinical ultrasound system and ultrasound research platform. With ALPINION's core values and core technologies, The E-CUBE 12R supports researchers in creating more valuable clinical studies. With its innovative beamforming technology, the E-CUBE 12R allows researchers to manipulate its sequence programming with ease, reconstruct full RF data, and analyze data in depth.

Key Features of E-CUBE 12R:

- Research Platform with Clinical Scanning Capability(FDA 510K)
- Open Software Based Platform and Sequence Control
- Software Beamforming
- Acoustic Radiation Force Impulse (ARFI) Control
- Realtime RF Channel Data Access Without Additional Hardware
- Plane Wave Imaging / Fast Frame Rate Imaging (up to 9,000 fps)
- Realtime Dual Display (ex. Focused and Planewave) using Dual TX/RX Paths

Booth N°7

Polytec
www.polytec.com

Leader in electro-optic since 1967, Polytec has nearly 450 employees worldwide and achieves a turnover of 74 million €. Polytec France has chosen since its inception in 1983, continuous innovation to improve measurement technologies constantly in its areas of expertise. Manufacturer and distributor, Polytec offers innovative solutions for fast and accurate non-destructive tests. These specific equipment are completed by a wide range of optical components. These applications concern both the Public domain and the Industry.

Polytec France is organized around four departments of technical and scientific activities

- Optical measurement systems: real-time control in vibration measurement, speed and length sensors, surface metrology...
- Analytics: equipment for the most complex industrial analyzes from spectrometry to temperature measurement
- Photonics / Vision: partial or total solutions of equipment and components for control and inspection needs (vision machine) and for analytical assessment and diagnosis applications.
- Polymer Technologies: resins and mixing or polymerization equipment

Booth N°8

Imasonic

www.imasonic.com

IMASONIC designs, develops and manufactures ultrasonic transducers for high socio-economic added-value applications, including Monitoring, Diagnosis and Therapy (HIFU) in the medical field and Measurement (flow and distance) and Non-Destructive Testing (NDT) in the industrial field. Most of IMASONIC transducers are custom-designed in order to meet the specific requirements of each customer and each application. They can be developed as single element or Phased arrays (linear, annular or matrix arrays), as unique prototype or built in series, from 200 kHz and up to 20 MHz. They are based on a proprietary piezocomposite technology. IMASONIC is an independent, privately owned company, willing to collaborate over the long term with its customers and partners according to its vocation:

- To act for the benefit of man and his environment, in particular in the interests of health, safety and quality,
- To advance the profession of designer and manufacturer of ultrasound transducers and to do this creatively, innovatively and productively,
- To increase recognition of the company and its leading position through the quality of its relationships with customers and partners.

Located in the east of France, close to Switzerland, in a region famous for its microtechnologies and watch industry, the company has 92 employees and moved to new premises (2007) which have been even recently enlarged (3900 m² to date). IMASONIC is ISO9001: 2008 certified and exports around 80% of its total turnover to all five continents.

Booth N°9

S-Sharp

www.s-sharp.com

S-Sharp is dedicated to providing cutting edge solutions to preclinical and clinical research ultrasound. Our core competence is the ability to leverage rapid advancement of electronics technologies and powerful software computations into biomedical ultrasound and to address our customer's needs.

Our preclinical ultrasound imaging product, Prospect, in an open platform designed to streamline the workflow and enhance the quality of small animal research. In addition, Prospect's unique imaging technologies, including shear wave elasticity measurements and Analog Doppler, assist users to perform high quality preclinical research that was not possible before.

On the other hand, our array ultrasound imaging product, Prodigy, allows real-time channel data acquisition for transducer arrays up to 512 channels. It has an integrated high performance GPU and an ultrasound pulse sequence (UPS) interface for real-time implementation of complex imaging algorithms with user-defined transmit /receive sequences. Furthermore, Prodigy USB, our newly lunched portable 64-channel array ultrasound imaging product that shares the same core technologies and innovations. It's aimed to provide the highest research values to most people in need.

Booth N°10

France Life Imaging

www.francelifeimaging.fr

The France Life Imaging – FLI- network was launched in 2012 to create a harmonized network of in-vivo imaging platforms and research laboratories. The network's goal is to promote high technological innovation in biomedical imaging and to offer a convenient access to the academic and industrial communities to state-of-the-art in-vivo imaging technologies and integrated services.

FLI gathers 25 imaging platforms organized in regional nodes and distributed over the French territory. This network of coordinated platforms is open to collaborations with external partners both academic and industrial. To support the conduction of population studies through the network, FLI has set up a transverse structure coordinated by the Information Analysis Management- IAM-node to provide a database management and information processing.

The imaging platforms are linked with research laboratories with a known expertise in imaging-related methodology and in translational and medical imaging. FLI aims at coordinating research efforts into four fields; molecular imaging agents, instrumentation and innovative technologies, interventional imaging, and image processing

The FLI offer is built on a privileged access to the technologies and facilities, a support in setting up and developing projects and partnerships with the research teams of the network, and training programs on the different aspects of biomedical imaging.

Booth N°13

US4US

http://us4us.eu

Us4us Ltd. is a spin-off company of the Institute of Fundamental Technological Research (Poland), created by a group of researchers and engineers interested in developing and providing high-tech ultrasonic instrumentation to the research community.

Our flagship product is the Versatile Ultrasound Research Platform. The system is an all-in-one solution featuring 192-channels TX/RX (extensible to 512+), real-time data transfer of 9GB/s, embedded PC, and up to 4 GPU boards. The provided software framework enables the end-user to implement their own algorithm using standard Nvidia® CUDA/OpenCL tools, as well as perform acquisition using simple Matlab® and Python scripts. The Platform is a tool for real-time evaluation of advanced image processing algorithms – including synthetic aperture, plane wave imaging and vector Doppler. We have also developed a portable, low-cost 32-channel ultrasound research system targeted to lower budget applications and biomedical engineering education.

Us4us company is dedicated to providing advanced electronic design services, as well as R&D for medical and industrial applications of ultrasound. Our know-how and experience in quality management systems ISO-9001/ISO-13485 enable us to develop medical devices.

Booth N°14

Onda
www.ondacorp.com

ONDA is the global leader in ultrasound measurement instrumentation and services. Our products are used to acoustically test devices in the medical, industrial, and electronic markets. Over 3,000 hydrophones have been used around the world to support a broad range of applications including medical imaging, therapeutic ultrasound, ultrasonic cleaning, and non-destructive testing. Onda has served over 1,000 unique customers in over 35 countries representing Fortune 10 companies, government research centers, and the most prominent universities. Onda also provides services to design, develop, test, calibrate, and manufacture the most complex ultrasonic devices. Our capability is backed by a fully equipped machine shop with advanced CNC tooling, a complete digital electronics laboratory, and an acoustic measurement laboratory.

Our vision is to be the preferred and most trusted resource for measurements and adaptations of ultrasound in industrial, medical, and academic applications, worldwide.

Products: Hydrophones & Preamplifiers, Scanning Systems, Radiation Force Balances, Water Conditioning Systems, Reference Transducers, Schlieren Acoustic Imaging, HIFU Phantom Gels, Cavitation Meters.

Services: Acoustic Calibrations, Exploratory Measurements, Regulatory Measurements, Acoustic Simulations, Transducer Development, Contract Manufacturing.

Applications: Intravascular Doppler Probes, Diagnostic Imaging, Therapeutic HIFU, Physiotherapy, Lithotripsy, Ultrasonic Cleaning, Cavitation R&D, Non-Destructive Testing, Wire Bonding, Sono-processing.

Booth N°15

Acoustic Life Science
http://als-ultrasound.com

Acoustic Life Science Co., Ltd. (ALS) is a high-tech company dedicated to the research, develop, production and application of advanced medical ultrasound technology.

With cutting-edge technology, professional management team and comprehensive facilities, ALS is a fast-growing company specialized in ultrasound probe technology. We value our talents, patents, as well as key techniques, which are the cornerstones to enable the sustainable development of the company. With expertise on composite and single crystal technology, ALS is specialized on high-end medical imaging ultrasound probes. We provide a variety of selection on phased array, linear array and curved array, with an expanding portfolio on high frequency products for Ophthalmology, Interventional and small animal applications.

ALS is dedicated to innovate and develop state-of-the-art techniques to deliver next generation medical ultrasound products to our customers.

Key products: Single crystal transducers (phased array, curved array), Piezocomposite transducers (Linear array), High frequency transducers (single-element transducer, multi-beam array).

Booth N°16

Electronics & Innovation
www.eandiltd.com

Electronics & Innovation Ltd, E&I, is a world leader in providing rugged and reliable RF power amplifiers. E&I designs and manufacturers RF broadband power amplifiers, phased array systems, impedance matching and variable transformers, and CUSTOM RF solutions.

In addition to our standard product lines, we are now offering custom modules and pallets – designed specifically to fulfill your OEM requirements. Operating globally and continuing to expand our technology, E&I is committed to providing RF power solutions of the highest quality, durability and ruggedness.

Booth N°18

Acertara Acoustic Labs
www.acertaralabs.com

Acertara Acoustic Labs is an independent ISO9001:2008 and ISO13485:2003 certified company providing diagnostic ultrasound test equipment and advanced probe repair to clinics, hospitals, and ISOs. Our ISO17025:2005 accredited acoustic measurement laboratory delivers engineering services, acoustic testing and calibration services to ultrasound OEMs and regulatory bodies around the world.

Booth N°19

Fraunhofer IBMT
www.ibmt.fraunhofer.de

The Fraunhofer Institute for Biomedical Engineering IBMT acts as device and technology developer when it comes to the solution of individual research and development projects and tasks from the areas of biomedical/medical engineering, molecular and cellular biotechnology, biohybrid technology, cryo(bio)technology and nano(bio)technology, ultrasound technology, neuroprosthetics/implants, (mobile) laboratory technology, sensor and measurement technology, health telematics, environmental control systems, material testing, home systems, air quality control and security systems as well as laboratory automation including in-line/on-line process control. For more than 10 years Fraunhofer IBMT works in the field of stem cell research and hosts extensive cell line stocks in industrial and clinically structured biobanks for low temperature storage of valuable samples (fluids, cells, tissue fragments).

Division Ultrasound:
With more than 40 members of staff in two departments and eight working groups, it is the largest ultrasound research unit in Europe. The competences of the working groups are based on more than 20 years of experience, and allow the development of all system components from materials with specially adapted properties, to application-specific ultrasound transducers, electronic system components and software development procedures, right up to sensor production and process development. Services range from consulting and feasibility studies to laboratory prototypes and prototype development, right up to certified product development, licensing and evaluation, and are used by industry with a turnover share of approx. 70%.

Medical Ultrasound:
Ultrasound, as a cost-effective, non-invasive and real-time capable method, can be used scalable on frequency ranges. The Department of Medical Ultrasound of the Fraunhofer IBMT, technologically implemented this scalability in a new unique modular ultrasound beamformer, which can be easily adapted to a variety of applications. In addition to the ultrasonic hardware, the department applies innovative software solutions that enable us to use ultrasound in medicine, biotechnology, the NDT and sonar. Specialities are systems and methods using optical laser combined with ultrasound (optoacoustics) that work with very high frequencies, are adapted to specific environmental conditions (hybrid imaging on MRI/ pressure neutrality for use in AUVs and ROVs) or are extremely compact for use with mobile devices.

Technical Ultrasound:
The Technical Ultrasound department integrates both the electrical and mechanical component know-how for an ultrasound system for non medical applications. With an appropriate combination of hardware and software it is possible to measure physical quantities like distance, level, speed, flow, volume and obstacle with high-precision. The developed ultrasound systems are specially adapted in terms of performance and price so that the systems can be well placed in the target market.The ultrasound sensors are very important for the overall system performance. Working frequency, beam pattern and sensor sensitivity have to be adjusted for the needs of an application. Before a new idea can be placed on the market, the development of appropriate sensors or the modification of existing sensors is necessary. The department assists customers on the complete way of product development or adaptation from the idea to the production and all relevant services.

Booth N°20

Supersonic Imagine
www.supersonicimagine.com

Founded in 2005 and based in Aix-en-Provence, France, SuperSonic Imagine is an innovative, multinational medical imaging company dedicated to developing a revolutionary ultrasound system: the Aixplorer®. Aixplorer relies on a patented software platform that acquires information at up to 20,000 images per second (200 times faster than conventional ultrasound). This system leverages a unique MultiWave™ technoloy that enables the user to detect, characterize and, in the future, treat palpable and non-palpable masses.

MultiWave technology is based on combining two types of waves: an ultrasound wave that provides exceptional imaging in B-mode, and a shear wave, ShearWave™ Elastography, which measures and displays the stiffness of tissue in kilopascals. ShearWave Elastography is user-skill independent with reproducible results.

Angio PL.U.S. – PlaneWave UltraSensitive™ ultrasound imaging – provides a new level of microvascular imaging through significantly improved color sensitivity and spatial resolution while maintaining exceptional 2D imaging. Angio PL.U.S. leverages the combination of ultrafast imaging and 3D wall filtering to create a leap in ultrasound doppler imaging performance. Thanks to its ability to detect microvascularization in different types of lesions this new mode could open the door to added clinical information and diagnostic perspectives, in both benign and malignant lesions in areas such as the breast, liver, lymph nodes and thyroid as well as musculoskeletal pathologies.

SuperSonic Imagine has both a direct sales and distribution network in more than 50 countries worldwide, including Konica Minolta in Japan. SuperSonic Imagine holds the exclusive right, title and interest to 30 international patents and submissions in diagnostic imaging and therapy applications. Company investors include Edmond de Rothschild Investment Partners (EdRIP), Auriga Partners, Crédit Agricole Private Equity (CAPE), NBGI Ventures, Bioam, Mérieux Développement, Wellington Partners, Innobio, Canon (NYSE:CAJ), and IXO Private Equity.

Booth N°21

Precision Acoustics

www.acoustics.co.uk

Precision Acoustics over 25 years' experience in the design and manufacture of equipment for measuring ultrasound. Located in Dorchester in the South West of England, the company which was formed in 1997 specialises in the research and development of ultrasound test equipment used extensively in the QA of medical devices, to provide industry with ultrasonic NDT and within academia and national measurement institutes throughout the world.

Products: 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. These products include: Pressure/Intensity Measurements, Power Measurements, Acoustic Absorbers & Syntactic Foams, Piezo-electric Materials, Ultrasonic Transducers, 3D Scanning Tanks. In addition the company offers consultancy for transducer development and acoustic measurement services.

Expanding Business in 2016: Following an agreeable change in ownership and structure of the company in 2015 there are plans to expand the business from its current 300 sqm location to a 600+ sqm base in order to cope with the increasing demand for its products and services.

Wealth of expertise at Precision Acoustics: The management team includes an enormous wealth of experience in the areas of acoustic measurement, piezo polymer and piezo ceramic materials, fibre optic hydrophones and acoustic calibration and measurement.

The company works closely with the research and metrology establishments around the world to further ultrasound research and assist in the development of international standards within ultrasonics.

Booth N°22

Cephasonics

www.cephasonics.com

Cephasonics is a medical- and industrial-device technology leader utilizing ultrasound and the power of the cloud to bring about the ubiquitous adoption of ultrasound-based measurement products that improve the quality of life. Launched with a management buyout in March 2012 and headquartered in Santa Clara, Calif., Cephasonics' ultrasound technology, including its AutoFocus™ beamforming technology, has won multiple industry awards for innovation.

Your Idea to Product Realization

Our open architecture and flexible cQuest™ embedded-ultrasound platform, scalable to 4096 channels, empowers our customers to achieve their goals whether they're developing innovative products or performing advanced research. Clinical-quality imaging capability is a hallmark of all of our cQuest Ultrasound™ products and this is requisite when moving from experimental devices in the lab to diagnostic products used in clinics. Many customers tell us that customer support is the best part of the Cephasonics experience. Our friendly, responsive staff is experienced in all aspects of ultrasound systems design.

Specialties

Embedded-Ultrasound Platforms, High-Channel-Count (HCC) Ultrasound Systems, Ultra-fast Imaging Capability, Clinical-Quality Imaging Capability, Parallel Beamforming, Channel Capture (Full Matrix Capture), Medical Imaging and Measurement, Ultrasound Research, Ultrasonic Non-Destructive Testing, Transducer Development.

Booth N°23

Kolo Medical
www.kolomedical.com

Kolo Medical, Inc. is the world leader in optimizing CMUT technology to develop a commercial line of SiliconWaveTM probes. Our goals are to improve imaging, resolution, and performance for academic, research, and clinical applications. At last year's IEEE, we introduced the first commercially available CMUT transducers, which over the past months proved themselves in the areas of research. Our high frequency, high resolution technology continues to established a new standard for diagnostic imaging. With our introduction of several new transducers with breakthrough designs at this year's IEEE, Kolo Medical continues to develop SiliconWaveTM probes to address better clinical imaging and diagnosis, exceeding the performance of traditional PZT technology, open new frontiers of ultrasound imaging, and establish new standards for diagnostic excellence.

We invite you to visit our booth at this year's IEEE, and see what you've never seen before. Speak with our engineers and let us tell you what Kolo Medical is doing to change the game in transducer technology.

List of Key elements/features to display at IEEE:

1) High and ultra-high frequency ultrasound array transducers for high-quality clinical imaging
2) Novel matrix array transducer for imaging difficult patients
3) Live imaging demonstration

Booth N°24

Sonic Concepts
http://sonicconcepts.com

Sonic Concepts, Inc. manufactures high-power, wide-bandwidth ultrasound transducers and related equipment. SCI supplies single- or multi-element transducers, as well as annular, linear, and 2D arrays, transmit electronics, passive cavitation detectors, high-intensity hydrophones, radiation force balances, water degassing equipment, and more. SCI supports customer orders from initial prototyping into full-scale production.

Booth N°25

Meyer Burger AG
http://microsystems.meyerburger.com

Drawing upon broad experience and expertise, MicroSystems as an independent business unit of Meyer Burger (Germany) AG located in Hohenstein-Ernstthal (Saxony) is a leading, worldwide operating supplier of plasma and ion beam processing systems for semiconductor, MEMS, TFH (HDD), sensor production, high precision optics manufacturing and photovoltaic industries.

The systems are applied in thin film deposition and etching, contactless localized surface error corrections and various other fields. Processes supported include Ion Beam Etching (IBE), Ion Beam Sputter Deposition (IBSD), Plasma Enhanced Chemical Vapor Deposition (PECVD), Physical Vapor Deposition (PVD) and Reactive Ion Etching (RIE).

The product portfolio reaches from small wafer-based systems for samples up to 200 mm dia. to large area systems for substrates up to 500mm x 500mm or even bigger. Configurations include stand-alone systems, cluster systems and inline systems for a variety of processes either in a standard layout or for customized solutions.

In-house developed plasma and ion beam sources in various configurations form the basis of all process systems that are developed by MicroSystems.

Booth N°26

Meggitt
www.meggittsensingsystems.com

50 years of experience in manufacturing high quality piezoelectric ceramics. Meggitt A/S aim at providing materials and components with the highest possible reproducibility of properties and parameters, and to obtain the lowest aging rates in the industry. This strategy enables customers to optimize design and improve performance and production flow.

Booth N°27

Philips Ultrasound
www.usa.philips.com/healthcare/solutions/ultrasound

PHILIPS

Since 1997, Philips Ultrasound Shanghai (Philips US SHA) have been dedicated in providing OEM Ultrasound Transducers. We are an innovative and technological company that owns a number of patents from sensor design, transducer technology to manufacturing processes. Over 400,000 pieces of High Quality Transducers have been shipped from our headquarter in Shanghai to the customers around the globe.

Our portfolio leverages the global Ultrasound trends and offers versatility across an extended range of clinical applications with outstanding performance, customer service and global warranty. Product Quality and Safety are always on the top of our agenda, supported by a full compliance and certification from FDA, ISO, CE.

At Philips US SHA, we start with the needs of care providers and patients because understanding their experiences ensures that we create solutions best suit their needs.

We are dedicated to understanding the challenges you face – and working together with you to overcome them. We are committed to providing value greater than parts, and to sharing your commitments with your customers and maximize your return of investment.

Philips US SHA has designed sophisticated yet ergonomic friendly transducers that offer exceptional image quality and superior overall performance.

FUTURE CONFERENCE

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The annual 2017 IEEE International Ultrasonics Symposium will be held at the **Omni Shoreham Hotel, Washington, D.C., USA, from September, 6-9, 2017**. 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 Acoustic 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 & Apps.

Group 5: Tranducers & 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
TPF Applications of Piezoelectrics & Ferroelectrics

Sponsored by the IEEE Ultrasonics, Ferroelectrics & Frequency Control Society

Submission System Online: March 1, 2017
Submission Deadline: April 1, 2017
Acceptance Notification: June 1, 2017

http://ewh.ieee.org/conf/ius_2017

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STEVEN FREEAR
University of Leeds, UK

SHORT COURSES

September 18th, 2016 (Sunday)

Morning 8am-12pm

1A Ultrafast Ultrasound Imaging: Basic Principles and Applications
Mickael TANTER
mickael.tanter@espci.fr
ROOM AMBOISE

2A Ultrasonic Therapy
Kullervo HYNYNEN
khynynen@sri.utoronto.ca
ROOM LANGEAIS

3A Medical Ultrasound Transducers
Scott SMITH and Douglas WILDES
smithls@ge.com
wildes@ge.com
ROOM 1

4A Time-Frequency Analysis and System-on-Chip Designs for Ultrasonic Signal Processing and Imaging Applications
Jafar SANIIE and Erdal ORUKLU
sansonic@ece.iit.edu
oruklu@iit.edu
ROOM 2

5A Wireless SAW Sensors for Harsh Environment Applications: Design Principles, Materials and Reading Systems
Natalya NAUMENKO and Tao HAN
nnaumenko@ieee.org
than@sjtu.edu.cn
ROOM 3

6A Nonlinear Effects in Acoustic Wave Piezoelectric Devices
Yook-Kong YONG
yyong@rci.rutgers.edu
ROOM 4

Afternoon 1pm-5pm

1B Acoustic Radiation Force Elasticity Imaging: Physics, Implementation and Clinical Applications
Mark PALMERI
mark.palmeri@duke.edu
ROOM AMBOISE

2B Ultrasound Vector Velocity Imaging
Jorgen JENSEN
jaj@elektro.dtu.dk
ROOM LANGEAIS

3B Biomedical Photoacoustics: Illuminating the principles of acoustic radiation created by optical excitation
Michael KOLIOS
mkolios@ryerson.ca
ROOM 1

4B Microultrasound Transducers – Materials, Instrumentation and Performance
Sandy COCHRAN, Qifa ZHOU and David COWELL
sandy.cochran@glasgow.ac.uk
qifazhou@usc.edu
D.M.J.Cowell@leeds.ac.uk
ROOM 2

5B CMUT: Theory, Fabrication and Applications
Pierre KHURI-YAKUB, Omer ORALKAN and Mario KUPNIK
khuri-yakub@stanford.edu
ooralka@ncsu.edu
kupnik@emk.tu-darmstadt.de
ROOM 3

6B Acoustical Imaging: from Acoustic Field Equations to Imaging and Inversion
Koen W.A. VAN DONGEN
K.W.A.vanDongen@TUDdelft.nl
ROOM 4

Short Courses Chairs: **n.dejong@erasmusmc.nl** and lori.bridal@upmc.fr
Local contact: serge.dossantos@univ-tours.fr

TECHNICAL PROGRAM COMMITTEE

Group 1: Medical Ultrasonics

TPC Vice Chair

LORI BRIDAL
Univ. Pierre and Marie Curie, Paris, France

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- Kendall Waters, Silicon Valley Medical Instruments, USA
- Keith Wear, Food and Drug Administration, USA
- Wilko G. Wilkening, Siemens Medical Solutions , USA
- Chih-Kuang Yeh, National Tsing Hua University, Taiwan
- Alfred Yu, University of Waterloo, Canada
- Hairong Zheng, Shenzhen Institutes of Advanced Technology, China

Group 2: Sensors, NDE, and Industrial Application

TPC Vice Chair

ERDAL ORUKLUL
Univ. Illinois Institute of Technology, USA

TPC Co-Chair

MARIO KUPNIK
Technische Universität Darmstadt, Germany

Members

- Robert C. Addison, Rockwell Science Center, USA
- Walter Arnold, Fraunhofer Institute for NDT, Germany
- James Blackshire, Air Force Research Laboratory, USA
- Ramazan Demirli, Villanova University, USA
- James Friend,UCSD, USA
- Eric S. Furgason, Purdue University, USA
- David Greve, Carnegie Mellon University, USA
- Edward Haeggstrom, University of Helsinki, Finland
- Joel Harley, University of Utah, USA
- Jacqueline Hines, Applied Sensor R&D Corporation, USA
- Patrick Johnston, NASA Langley Research Center
- Lawrence W. Kessler, Sonoscan Inc.
- Pierre T. Khuri-Yakub, Stanford University
- Mario Kupnik, Technische Universität Darmstadt
- Roman Maev, University of Windsor
- Donald McCann, Seadrill, USA
- Kentaro Nakamura, Tokyo Institute of Technology, Japan

- Erdal Oruklu, Illinois Institute of Technology, USA
- Nishal Ramadas, Elster Instromet, Belgium – UK
- Jafar Saniie, Illinois Institute of Technology, USA
- Bernhard Tittman, Pennsylvania State University, USA
- Jiromaru Tsujino, Kanazawa 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
- Jennifer Michaels,Georgia Tech, USA

Group 3: Physical Acoustics

TPC Vice Chair

KOEN W.A. VAN DONGEN
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- Arthur Ballato, Clemson University, USA
- Anne Bernassau, Heriot Watt University, UK
- Jan Brown, JB Consulting, USA
- Charles Courtney, University of Bath, UK
- Emmanuel Defay, CRP G. Lippmann, Luxemburg
- Jiun Der Yu, Epson Research & Development Inc., USA
- Jianke Du, Shanghai Jiaotong University, China
- Dave Feld, Avago Technologies, USA
- Takefumi Kanda, Okayama University, Japan
- Kimmo Kokkonen, Aalto University, USA
- Minoru Kuribayashi 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
- Farid Mitri, Chevron, USA
- Roy H. Olsson, 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
- Eun Sok Kim, University of Southern California, USA
- Masaya Takasaki, Saitama University, Japan
- Robert Thalhammer, Avago Technologies, Germany
- Koen W.A. Van Dongen, Delft University of Technology, Netherlands
- Jorg Wallaschek, Leibniz Universitat Hannover, Germany
- Ji Wang, Ningbo University, China
- Takahiko Yanagitani, Waseda University, Japan
- Yook-Kong Yong, Rutgers University, USA

Group 4: Microacoustics – SAW, FBAR, MEMS

TPC Vice Chair

KARL WAGNER
TDK Corporation,
Munich, Germany

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- Ben Abbott, Qorvo Inc. , USA
- Robert Aigner, Qorvo Inc. , USA
- Sylvain Ballandras, freq 'n' sys SAS, France
- Kushal Bhattacharjee, Qorvo Inc. , USA
- Sunil Bhave, 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, Qorvo Inc., USA
- Gerhard Fischerauer, University of Bayreuth, Germany
- Ken-ya Hashimoto, Chiba University, Japan
- Shitang He, IACAS, China
- Michio Kadota, Tohoku University, Japan
- Jyrki Kaitila, Avago Technologies, Germany

- Kimmo Kokkonen, Aalto University, Finland
- Jan Kuypers, Qorvo Inc. , USA
- Don Malocha, University of Central Florida, USA
- Hiroyuki Nakamura, Skyworks-Panasonic Corp., Japan/USA
- Natalya Naumenko, Nat. University of Science & Techology MISIS, Russia
- 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
- Marc Solal, Qorvo, Inc , USA
- Shuji Tanaka, Tohoku University, Japan
- 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

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SANDY COCHRAN
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TPC Co-Chair

OMER ORALKAN
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- Sandy Cochran, University of Glasgow, 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 Démoré, University of Glasgow, UK
- Charles Emery, Ulthera Inc., USA
- Arif Sanli Ergun, TOBB University, Turkey
- Lynn Ewart-Paine, NUWC, USA
- Nicolas Felix, Vermon SA, France
- Tomas Gomez, CSIC, Madrid, Spain
- Anne-Christine Hladky, Institut Supérieur d'Electronique et du Numérique, France
- Xiaoning Jiang, North Carolina State University, USA
- Ho-yong Lee, Ceracomp Co., Ltd, Korea
- Reinhard Lerch, Friedrich-Alexander-Universität 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, Siemens Healthcare, USA
- Yongrae Roh, Kyungpook National University, Korea
- 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 Trolier-McKinstry, Pennsylvania State University, USA
- Jian Yuan, ALS Shanghai, China
- Shujun Zhang, University of Wollongong, Australia
- Qifa Zhou, University of Southern California, USA

PLENARY LECTURE

Archaeology of the Sound through the Acoustic Pot Devices in Medieval and Renaissance Buildings: an Exploration of the Instigator's Aim

The plenary session of the 2016 IEEE International Ultrasonics Symposium will be dedicated to a very interesting field of Acoustics. The presentation entitled "Archaeology of the Sound through the Acoustic Pot Devices in Medieval and Renaissance Buildings: an Exploration of the Instigator's Aim" will be presented by Bénédicte Palazzo-Bertholon and Jean-Christophe Valière from the ArcheoAcoustic laboratory of Poitiers University. The session will open the scientific sessions of IUS 2016 on Monday 19th of Septembre at the Auditorium François Ier in the Vinci conference center.

Bénédicte Palazzo-Bertholon (PhD) is archaeologist and archaeometrist, specialized in physical and chemical characterization of materials of the medieval architecture. Associate researcher of the Centre d'Etudes Supérieures de la Renaissance of Tours (CESR) and of the Centre d'Etudes Supérieures de Civilisation Médiévale (CESCM) of Poitiers, she co-directs since 2005, an interdisciplinary research group on the archaeo-acoustic, with Jean-Christophe Valière (Institut Pprime, Poitiers). She co-edited a first collective work on this topic entitled Archéologie du son. Les dispositifs de pots acoustiques dans les édifices anciens (in English : Sound's archaeology. Devices of acoustic pots in ancient buildings), published in 2012. Within the frame of this research program, she studies archaeological remains of acoustic pot devices in churches of Middle Ages and Renaissance, to understand the purpose of their implementation, both acoustic, liturgical and symbolic.

Jean-Christophe Valière received the Ph.D. degree in acoustics from the University of Le Mans, France, in 1991. He is currently a Professor at the University of Poitiers, France, since 1999. His research concerns the signal processing for acoustics and fluid mechanics such as old recordings restoration or high speed source localization by means of time-frequency, or time-scale transformations. This last two decades, his interest has been focused on the development of signal processing techniques to acoustic particle velocity measurement using Laser Doppler Velocimetry or Particle Image Velocimetry and their applications for non-linear acoustics and aeroacoustics. Recently, he is involved in archeoacoustic studies concerning acoustic potteries in medieval churches. A large part of these recent studies has been recently published in French in a special issue of of the "Bulletin Monumental". He is currently IEEE, SFA, EEA member.

ABSTRACT:

In the construction of religious buildings, the architectural acoustics is at the heart of the concerns of both builders and users. Some churches of the Middle Ages and Renaissance conserve in their walls, potteries identified as empirical devices of acoustic correction. This technique, which has archeological evidences in many European countries and the all around the Mediterranean sea, is still a mystery for scientists, because no discipline succeeded, alone by itself, in grasping the subject. This is why an interdisciplinary team was formed there about ten years ago, gathering archaeologists, acousticians, musicologists and historians to understand the acoustic aim and the specifications of these devices. This research crosses archaeological evidences, textual and graphical sources, the acoustic measurements, the knowledge of singing and the perception of sound in the Middle Ages and the Renaissance. The acoustic methodologies mainly aim at catching resonance frequencies of the pots and then interpret the results in light of the singing practice. In most examples, it follows that the frequencies of the pots are always close to the singing voice pitch and the first harmonics. In addition, in many buildings, pots are often tuned on the fourth and occasionally on the fifth, which are characteristics intervals of antique and medieval music.

After a brief presentation of these technical devices used for over eight centuries to improve the perception of sound, we will present a specific case study located in the cathedral Notre-Dame of Noyon, in Picardy, France. Under the liturgical choir of the church, there remains a vault called "phonocamptique" in the literature of the nineteenth century. This is an underground room of 15 m² which contains 64 pots imbedded in the north, south and west walls. These 64 pots can be separated into two groups of 32 tuned in the fourth (statistically) and distributed with an interesting scheduling but we have not yet penetrated the meaning. The lack of textual evidence about its use has led us to make a fine acoustic analysis of the vault at first. This was performed by means of a microphones antenna showing that the pots act not only on the decay rate of the modes but also on the distribution of sound in space. Then a sung performance with an early music ensemble allowed us to experience the effect of pots in real conditions.

The results confirm the acoustic vocation of the vault and show that these initiators may had wanted to "improve resonating voice" in the words of the ancient texts.

INVITED SPEAKERS

Clinical talks

1E-1 Photoacoustic imaging: principles, application to breast cancer and rheumatoid arthritis, and quantification challenges.
Wiendelt Steenbergen[1], Srirang Manohar[1]. [1]Institute MIRA, University of Twente, Enschede, Netherlands.
Tuesday 20th, 10:30 am-11:00 am, Auditorium de Ronsard.

1E-2 Clinical Applications of Ultrafast Ultrasound.
Valerie Vilgrain[1,2]. [1]Radiology Department, Beaujon University Hospital, Beaujon, France, [2]Laboratory of Biomedical Imaging, University Paris 7, Clichy, France.
Tuesday 20th, 11:00 am-11:30 am, Auditorium de Ronsard.

1E-3 Dynamic Contrast-Enhanced US for Monitoring of Anti-Angiogenic Treatments.
Nathalie Lassau[1,2]. [1]Institute Gustave Roussy Cancer Campus Grand Paris, Villejuif, France, [2]IR4M UMR8081 Université Paris-Sud 11, France.
Tuesday 20th, 11:30 am-12:00 am, Auditorium de Ronsard.

Group 1: Medical Ultrasonics

1A-1 Super-resolution imaging.
Olivier Couture[1]. [1]Institut Langevin (CNRS, ESPCI, INSERM), Paris, France.
Monday 19th, 10:30 am-11:00 am, Auditorium de Ronsard

1B-1 Ultrasonic Neuromodulation: Evidence From Neuron To Animal Model.
Hairong Zheng1. [1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China.
Monday 19th, 01:30 pm-02:00 pm, Auditorium de Ronsard

1C-5 Sonogenetics- a non invasive approach to manipulating neurons in vivo.
Stuart Ibsen[1], Uri Magaram[1,2], Sreekanth Chalasani1.[1]Molecular Neurobiology Laboratory, The Salk Institute for Biological Studies, La Jolla, California, USA, [2]Neuroscience Graduate Program, University of California, San Diego, La Jolla, California, USA.
Monday 19th, 05:00 pm-05:30 pm, Auditorium de Ronsard

G-5 Ultrasound triggered mRNA delivery to dendritic cells - towards an in vivo cancer vaccination strategy.
Heleen Dewitte[1], Emmelie Stock[2], Katrien Vanderperren[3], Stefaan De Smedt[1], Karine Breckpot[4], Ine Lentacker[1]. [1]Department of Pharmaceutics, Ghent University, Ghent, Belgium, [2]Department of Veterinary sciences, Ghent university, Merelbeke, Belgium, [3]Department of Veterinary sciences, Ghent university, Merelbeke, Belgium, [4]Department of medicine, Free University Brussels, Jette, Belgium.
Tuesday 20th, 05:00 pm-05:30 pm, Auditorium de Ronsard.

1H-1 Acoustic Angiography – Superharmonic Contrast Imaging to Assess Angiogenesis as a Biomarker of Cancer.
Paul Dayton[1], Sarah Shelton[1], Brooks Lindsey[1], Ryan Gessner[1,2], Yueh Lee[3], Stephen Aylward[4], Mike Lee[5], Emmanuel Cherin[5], Jay Son[5], Chris Chaggares[6], F. Stuart Foster[5]. [1]Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill and North Carolina State University at Raleigh, Chapel Hill, NC, USA, [2]SonoVol, Inc., Durham, NC, USA, [3]Radiology, The University of North Carolina at Chapel Hill, Chapel Hill, NC, NC, USA, [4]Kitware, Inc, USA, [5]Medical Biophysics, Sunnybrook Health Sciences Centre, Canada, [6]Visualsonics, Inc, Canada.
Wednesday 21th, 08:00 am-08:30 am, Auditorium de Ronsard.

7I-1 High-intensity focused ultrasound treatment combined with high-frame-rate imaging.
Shin-ichiro Umemura[1], Shin Yoshizawa[2], Ryo Takagi[2]. [1]Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan, [2]Engineering, Tohoku University, Japan.
Wednesday 21th, 10:30 am-11:00 am, Room Langeais.

1J-3 Development of an implantable ultrasonic device for enhancing the delivery of chemotherapy to the brain.
Cyril Lafon[1,2], Michael Canney[3], Kevin Beccaria[4], Catherine Horodyckid[4], Alexandre Vignot[3], Jean-Yves Chapelon[1,2], Ahmed Idbaih[4], Alexandre Carpentier[4]. [1]LabTAU, INSERM, Lyon, France, [2]Université de Lyon, Lyon, France, [3]Carthera SAS, Lyon, France, [4]Pitie Salpetriere Hospital, Paris, France.
Wednesday 21th, 02:00 pm-03:00 pm, Auditorium de Ronsard.

Group 2 :Sensors, NDE & Industrial Applications

5C-1 SHM/NDE Challenges and Opportunities: A USAF Perspective.
Eric Lindgren[1]. [1]US Air Force Research Laboratory, USA.
Monday 19th, 04:00 pm-04:30 pm, Room Villandry.

5J-1 Concepts and Architecture for a Thumb Size Ultrasonic IoT Measurement System.
Jerker Delsing[1], Jan van Deventer[1], Jens Eliasson[1], Jonny Johansson[1], Torbjörn Löfqvist[1], Fredrik. Sandin[1]. [1]EISLAB, Lulea University of Technology, Sweden.
Wednesday 21th, 01:30 pm-02:00 pm, Room Villandry.

5E-1 Time-Frequency Analysis for Ultrasonic Echo Detection and Parameter Estimation,
Jafar Saniie[1]. [1]Electrical and Computer Engineering Department, Illinois Institute of Technology, Chicago, Illinois, USA.
Tuesday 20th, 10:30 am-11:00 am, Room Villandry.

Group 3 : Physical Acoustics

6C-3 Nonlinear Ultrasonics for Material State Awareness.
Laurence Jacobs[1], [1]College of Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA.
Monday 19th, 04:30 pm-05:00 pm, Room Amboise.

6F-1 Numerical Modeling of Nonlinear Ultrasound.
Martin Verweij[1,2], [1]Acoustical Wavefield Imaging, Imaging Physics, Delft University of Technology, Delft, Netherlands, [2]Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands.
Tuesday 20th, 01:30 pm-02:00 pm, Room Amboise.

Group 4 : Microacoustics – SAW, FBAR, MEMS

6A-3 5G Mobile Radio Architectures – From RF Frontend to Baseband Processing and Applications.
Josef Hausner[1], [1]Intel, Neubiberg, Germany.
Monday 19th, 11:00 am-11:30 am, Room Amboise.

6D-1 Interaction of surface acoustic waves with microparticles.
Alexei Maznev[1], [1]Department of Chemistry, MIT, Cambridge, Massachusetts, USA.
Tuesday 20th, 08:00 am-08:30 pm, Room Amboise.

6J-5 Recent research results on wireless passive acoustic sensors for smart grids application.
Tao Han[1], [1]Department of Instrument Science and Engineering, Shanghai Jiao Tong University, Shanghai, China, People's Republic of
Wednesday 21th, 02:30 pm-03:00 pm, Room Amboise.

Group 5 : Transducers & Transducer Materials

7A-5 Ultrasonic fingerprint sensor based on a PMUT array bonded to CMOS circuitry.
David Horsley[1], **Hao-Yen Tang**[2], **Yipeng Lu**[1], **Xiaoyue Jiang**[2], **Eldwin Ng**[3], **Michael Daneman**[3], **Martin Lim**[3], **Fari Assaderaghi**[3], **Julius Tsai**[3], **Bernhard Boser**[2].
[1]Mechanical and Aerospace Engineering, UC Davis, USA, [2]UC Berkeley, USA, [3]InvenSense Inc., USA
Monday 19th, 11:30 am-12:00 am, Room Langeais.

7F-5 Additive Manufacturing and Automated Processes for Ultrasound Transducers.
Flavien Daloz[1], [1]Ultrasound Probes, GE Healthcare Parallel Design, Valbonne, France.
Tuesday 20th, 02:30 pm-03:00 pm, Room Langeais.

7G-1 30 Years of Acoustic Wave Technology.
Clemens Ruppel[1], [1]EPCOS AG (retired), Munich, Germany.
Tuesday 20th, 04:00 pm-04:30 pm, Room Langeais.

STUDENT PAPER COMPETITION

Student Paper Competition Chair: Ton van der Steen

PA-1 The effect of ultrafast imaging on shear wave observations
Annette Caenen[1], Mathieu Pernot[2], Darya Shcherbakova[1], Ingvild Kinn Ekroll[3], Patrick Segers[1], Abigail Swillens[1]
[1]IBiTech - bioMMeda, Department of Electronics and Information systems, Ghent University, Ghent, Belgium, [2]Institut Langevin, Ecole Supérieure de Physique et de Chimie Industrielles, CNRS UMR 7587, INSERM U979, Paris, France, [3]Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway

PA-2 Quantitative MR-guided transient shear wave imaging for tissue elasticity assessment
Yu Liu[1], Jingfei Liu[1], Brett Fite[1], Jasquin Foiret[1], Kent Leach[1], Katherine Ferrara[1]
[1]Biomedical Engineering, UC Davis, Davis, California, USA

PA-3 Multiplane wave imaging for ultrafast ultrasound imaging at higher signal-to-noise ratio
Elodie Tiran[1], Thomas Deffieux[1], Mafalda Correia[1], David Maresca[1], Bruno-Felix Osmanski[1], Lim-Anna Sieu[2], Antoine Bergel[2], Ivan Cohen[2], Mathieu Pernot[1], Mickael Tanter[1]
1Institut Langevin, ESPCI-ParisTech, PSL University, CNRS UMR7587, INSERM U979, Paris, France, [2]Neuroscience Paris Seine, University Pierre et Marie Curie, UMCR 18, INSERM U1130, CNRS UMR8246, France

PA-4 Intracardiac myocardial elastography for lesion quantification in cardiac radiofrequency ablation
Ethan Bunting[1], Clement Papadaccil, Elaine Wan[2], Julien Grondin[1], Elisa Konofagou[1,3]
1Department of Biomedical Engineering, Columbia University, New York, New York, USA, [2]Division of Cardiology, Columbia University, New York, New York, USA, [3]Department of Radiology, Columbia University, New York, New York, USA

PA-5 Single red blood cell oxygen saturation imaging using multispectral photoacoustic microscopy
Michael Moore[1,2], Patrick Schygulla[3], Eric Strohm[1,2], Michael Kolios[1,2]
[1]Ryerson University, Toronto, Canada, [2]Keenan Research Centre for Biomedical Science, St. Michael's Hospital, Toronto, Canada, [3]Heidelberg University, Germany

PA-6 A Smartphone-based Portable Ultrasound System for Point-of-Care Diagnosis
Woojin Jung[1], Pilsu Kim[1], Minsuk Park[1], Sua Bae[1], Youngbae Lee[1], Sangbum Kye[2], Tai-kyong Song[1]
[1]Electronic Engineering, Sogang University, Korea, Republic of, [2]HANSONO Co.,Ltd., Korea, Republic of

PA-7 Focused ultrasound hyperthermia mediated drug delivery using thermosensitive liposomes and visualized with in vivo two-photon microscopy
Marc Santos[1,2], Kullervo Hynynen[1,2], David Goertz[1,2]
[1]Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada

PA-8 Controlled ultrasound-mediated blood-brain barrier opening using passive acoustic mapping of subharmonic microbubble activity
Ryan Jones[1,2], Meaghan O'Reilly[1,2], Lulu Deng[1], Kogee Leung[1], Kullervo Hynynen[1,3]
[1]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada, [3]Medical Biophysics and Institute for Biomaterials and Biomedical Engineering, University of Toronto, Toronto, Ontario, Canada

PA-9 High Temperature Static Strain Microwave Acoustic Sensor
Anin Maskay[1,2], Mauricio Pereira da Cunha[1,2]
[1]Electrical and Computer Engineering, University of Maine, Orono, ME, USA, [2]Laboratory for Surface Science and Technology, University of Maine, Orono, ME, USA

PA-10 Speeding up SAFT 3D processing by greedy sparse deconvolution
Jan Kirchhof[1], Fabian Krieg[1,2], Florian Römer[1], Alexander Ihlow[1], Ahmad Osman[2], Giovanni del Galdo[1]
[1]Institute for Information Technology, Technische Universität Ilmenau, Ilmenau, Germany, [2]Department of Component Inspections, Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany

PA-11 Ultrasonic imaging in highly attenuating materials with Walsh-Hadamard codes and the decomposition of the time reversal operator
Eduardo Lopez Villaverde[1], Sebastien Robert[1], Claire Prada[2]
[1]CEA, LIST, Gif-sur-Yvette, France, [2]Institut Langevin, Paris, France

PA-12 Differential optical interferometer for measuring transient SAW generated with ultra-wideband IDT
Anurupa Shaw[1], Damien Teyssieux[1], Vincent Laude[1]
[1]Institut FEMTO-ST, UMR CNRS 6174, Université Bourgogne Franche-Comté, Besançon, France

PA-13 Evidence of a large band gap in a phononic strip
Etienne Coffy[1], Sébastien Euphrasie[1], Pascal Vairac[1], Abdelkrim Khelif[1]
[1]MN2S, FEMTO-ST, Besançon, France

PA-14 Acoustic nonlinearity as a mechanism for liquid drop explosions in drop-chain fountains generated by a focused ultrasound beam
Elena Annenkova[1], Wayne Kreider[2], Julianna Simon[2], Oleg Sapozhnikov[1,2]
[1]Department of Acoustics, Physics Faculty, Moscow State University, Moscow, Russian Federation, [2]Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

PA-15 Direct shadowgraphic observation of needle hydrophone-field interaction at 10 million frames per second
Kristoffer Johansen[1], Jae Hee Song[2], Paul Prentice[1]
[1]CavLab, Cluster of Ultrasound Science, Technology and Engineering Research, University of Glasgow, Glasgow, United Kingdom, [2]Division of Imaging and Technology, Ninewells Hospital, University of Dundee, United Kingdom

PA-16 Modeling Nonlinear Behavior of RF Bulk Acoustic Wave Resonators
Vikrant Chauhan[1], Markus Mayer[2], Christian Huck[2], Herbert Zidek[2], Robert Weigel[1], Amelie Hagelauer[1], Maximilian Pitschi[2]
[1]Institute of electronics engineering, Erlangen Nuremberg University, Erlangen, Germany, [2]Advanced Development, TDK Corporation, Munich, Germany

PA-17 Rayleigh SAW assisted SH-SAW immunosensor on X-cut 148-Y LiTaO3
Takashi Kogai[1,2], Hiromi Yatsuda[1], Jun Kondoh[2]
[1]Japan Radio Co., Ltd., Japan, [2]Shizuoka University, Japan

PA-18 Nonlinear BAW Filter Effects on the Performance of an LTE Receiver
Victor Silva Cortes[1], Vikrant Chauhan[1], Robert Weigel[1], Georg Fischer[1], Amelie Hagelauer[1]
[1]Institute of Electronics Engineering, University Erlangen-Nuremberg, Germany

PA-19 High-temperature SAW electrodes based on Ir-Rh thin films
Amine Taguett[1], Thierry AUBERT[1,2], Marc Lomello[1], Omar Elmazria[3], Jaafar Ghanbaja[3], Abdelkrim Talbi[4]
[1]Laboratoire SYMME, Université de Savoie, Annecy-le-Vieux, France, [2]Laboratoire LMOPS, CentraleSupélec - Université de Lorraine, Metz, France, [3]Institut Jean Lamour [IJL], UMR 7198 CNRS-Université de Lorraine, Vandoeuvre-lès-Nancy, France, [4]LIA LEMAC/LICS – IEMN, EC Lille-CNRS, Lille, France

PA-20 A MEMS T/R switch embedded in CMUT structure for ultrasound imaging frontends
Xiao Zhang[1], Arooba Zeshan[2], Oluwafemi Adelegan[1], F. Yalcin Yamaner[2], Omer Oralkan[1]
[1]Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA, [2]School of Engineering and Natural Sciences, Istanbul Medipol University, Beykoz, Istanbul, Turkey

PA-21 Real-Time Imaging, Targeting, and Ablation of Ex-Vivo Tissue Using a Handheld Histotripsy Transducer and Coregistered 64-Element High-Frequency Endoscopic Phased Array

Jeffrey Woodacre[1], Thomas Landry[1], Jeremy Brown[1]
[1]Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada

PA-22 Laser-Generated-Focused Ultrasound Transducers for Microbubble-Mediated, Dual-Excitation Sonothrombolysis

Jinwook Kim[1], Brooks D. Lindsey[2], Wei-Yi Chang[1], Xuming Dai[3], Joseph M. Stavas[4], Paul A. Dayton[2], Xiaoning Jiang[1]
[1]Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA, [2]Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, Chapel Hill, North Carolina, USA, [3]Division of Cardiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, [4]Division of Vascular and Interventional Radiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

PA-23 High Frequency Integrated Transceiver System-on-a-Chip for CMUT based IVUS on a Guidewire

Jaemyung Lim[1], Coskun Tekes[2], F. Levent Degertekin[3], Maysam Ghovanloo[4]
[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, [2]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technlolgy, USA, [3]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA, [4]School of Electrical and Computer Engineering, Georgia Institute of Technology, USA

POSTER PRESENTATION GUIDE

Posters will be on display in the Poster Area located in the **Chinon hall, level -2**. This year we will have three full day poster sessions. Each poster session is divided into two time slots, as follows:

Morning: 09:30 am to 10:30 am (Posters with odd numbers will be presented)
Afternoon: 3.00 pm to 4.00 pm (Posters with even numbers will be presented)

Posters must be posted in the morning between 7:30 am to 8:00 am. They must be removed between 5:30 pm to 6:00 pm at the end of the day. Therefore, each poster will be displayed for a full day (8:00 am – 5:30 pm).

Student Paper Competition (SPC) posters will be displayed in a separate space located in level -1. To recognize an outstanding work of the students and their accomplishment, SPC posters will be on display for all three (3) 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 Monday only.

We are also inviting student authors selected for SPC and whose abstracts were accepted as a poster to have their posters duplicated, so that they can be displayed in the poster session (Chinon hall) and in the space allocated to SPC.

Poster Size and Instructions

- One poster board is allocated to each presentation. The maximum and recommanded poster size is 46 inches high by 32 inches wide (119 cm x 82 cm, portrait format).
- Posters must be mounted using supplies provided by the organizing committee.
- 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.
- 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 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.

- Provide an introduction (outline) and a summary or conclusion for your poster.
- Prepare your poster 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 your proceedings paper available for those who may want to study specifics of your work in more detail.
- Have your business cards or contact information available for those who may wish to contact you at a later date.
- Bring along a notepad to use for a discussion of technical details relating to your poster.

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 25-27 minutes leaving 3-5 minutes 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 many parallel sessions this is critical to the overall success of the conference.

Organisation 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 2013 (Office 2013)** and **Adobe Acrobat Reader**. The PowerPoint 2013 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 (speaker ready room in level -1).
- 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 Direct CD to save your presentations, please make sure they are readable in a computer without Direct CD 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.
- Voltage Converters: France uses 220V/50Hz as its power standard. If your laptop computers do not work with 220V/50Hz, 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 220V 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 sufficiently big – suggested minimum font size 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

SPEAKER READYING ROOM – PREVIEW ROOM

This room is located on level -1 (see map). The schedule is as follows:

- September 18th: 2:00 pm – 6:00 pm
- September 19th: 7:30 am – 6:00 pm
- September 20th: 7:30 am – 6:00 pm
- September 21st: 7:30 am – 4:00 pm

Please follow closely the instructions on the "Oral Presentation Guide" to prepare your presentation and avoid any technical difficulties.
For the first session of each day, please, come and drop-off your presentation the day before.

WIFI INFORMATION

Wifi connection is available during the conference:
Name of the wireless terminal: IUS Password: ius_2016

CONDENSED PROGRAM

Short Courses

2016 IEEE IUS CONDENSED PROGRAM

SUNDAY, SEPTEMBER 18, 2016

Time	Room Amboise (Level +2)	Room Langeais (Level +2)	Room 1 (Level +2)	Room 2 (Level +2)	Room 3 (Level +2)	Room 4 (Level +2)
08:00 am ↓ 12:00 pm	*Short Course 1A.*	*Short Course 2A.*	*Short Course 3A.*	*Short Course 4A.*	*Short Course 5A.*	*Short Course 6A.*
	Ultrafast Ultrasound Imaging: Basic Principles and Applications	Ultrasonic Therapy	Medical Ultrasound Transducers	Time-Frequency Analysis and System-on-Chip Designs for Ultrasonic Signal Processing and Imaging Applications	Wireless SAW Sensors for Harsh Environment Applications: Design Principles, Materials and Reading Systems	Nonlinear Effects in Acoustic Wave Piezoelectric Devices
	Mickael TANTER	*Kullervo HYNYNEN*	*Scott SMITH and Douglas WILDES*	*Jafar SANIIE and Erdal ORUKLU*	*Natalya NAUMENKO and Tao HAN*	*Yook-Kong YONG*
12:00 pm 01:00 pm	LUNCH BREAK					
01:00 pm ↓ 05:00 pm	*Short Course 1B.*	*Short Course 2B.*	*Short Course 3B.*	*Short Course 4B.*	*Short Course 5B.*	*Short Course 6B.*
	Acoustic Radiation Force Elasticity Imaging: Physics, Implementation and Clinical Applications	Ultrasound Vector Velocity Imaging	Biomedical Photoacoustics: Illuminating the principles of acoustic radiation created by optical excitation	Microultrasound Transducers – Materials, Instrumentation and Performance	CMUT: Theory, Fabrication and Applications	Acoustical Imaging: from Acoustic Field Equations to Imaging and Inversion
	Mark PALMERI	*Jorgen JENSEN*	*Michael KOLIOS*	*Sandy COCHRAN, Qifa ZHOU and David COWELL*	*Pierre KHURI-YAKUB, Omer ORALKAN and Mario KUPNIK*	*Koen W.A. VAN DONGEN*
06:00 pm ↓ 08:00 pm	*Student-Industry Networking (Room Langeais, Level +2)*					

2016 IEEE IUS CONDENSED PROGRAM

MONDAY, SEPTEMBER 19, 2016

Time	Auditorium de Ronsard (Level +1)	Auditorium Descartes (Level +1)	Room Chambord (Level +2)	Room Cheverny (Level +2)	Room Villandry (Level +2)	Room Amboise (Level +2)	Room Langeais (Level +2)
08:00 am 09:30 am	Plenary Session (Auditorium François 1er, Level -1)						
09:30 am 10:30 am	Coffee Break & Poster Session (Level -2)						
10:30 am ↓ 12:00 pm	*Session 1A.*	*Session 2A.*	*Session 3A.*	*Session 4A.*	*Session 5A.*	*Session 6A.*	*Session 7A.*
	MCA: Super-resolution imaging	MIM: Neuro imaging	MEL: Vascular elasticity imaging	MSD: Medical systems and devices I	Acoustic Imaging and Microscopy	Microacoustics & Communication systems	PMUTs
12:00 pm 01:30 pm	LUNCH BREAK						
01:30 pm ↓ 03:00 pm	*Session 1B.*	*Session 2B.*	*Session 3B.*	*Session 4B.*	*Session 5B.*	*Session 6B.*	*Session 7B.*
	MTH: Ultrasound stimulation and neuromodulation	MCA: Phase change and nanoparticle contrast agents	MBF: High frame rate flow imaging	MIM: Alternative imaging modalities	Sensors and Microfluidics	PA Acoustic Tweezers and Particle Manipulation	Materials and Processes
03:00 pm 04:00 pm	Coffee Break & Poster Session (Level -2)						
04:00 pm ↓ 05:30 pm	*Session 1C.*	*Session 2C.*	*Session 3C.*	*Session 4C.*	*Session 5C.*	*Session 6C.*	*Session 7C.*
	MBE: Bioeffects and dosimetry	MIM: Image/signal processing	MIM: Perfusion imaging	MTC: High frequency tissue characterization	Structural Health Monitoring	PA Nonlinear Acoustics I	Transducers for Medical Applications
07:30 pm 09:00 pm	Welcome Reception (City Hall)						

2016 IEEE IUS CONDENSED PROGRAM

TUESDAY, SEPTEMBER 20, 2016

Time	Auditorium de Ronsard (Level +1)	Auditorium Descartes (Level +1)	Room Chambord (Level +2)	Room Cheverny (Level +2)	Room Villandry (Level +2)	Room Amboise (Level +2)	Room Langeais (Level +2)
08:00 am ↓ 09:30 am	*Session 1D.* MCA: New contrast agents and contrast agent physics	*Session 2D.* MEL: (Pre-) clinical applications of elasticity imaging	*Session 3D.* MTH: Blood brain barrier	*Session 4D.* MBB: High frame rate imaging	*Session 5D.* Material and Defect Charac-terization	*Session 6D.* PA Phononics	*Session 7D.* Applied CMUTs
09:30 am 10:30 am	Coffee Break & Poster Session (Level -2)						
10:30 am ↓ 12:00 pm	*Session 1E.* Clinical: Clinical applications of emerging ultrasound techniques	*Session 2E.* MIM: Car-diovascular imaging	*Session 3E.* MPA: Functional photoacoustic imaging of cells and tissues	*Session 4E.* MBB: Adaptive imaging and coherence-based beamforming	*Session 5E.* Signal Processing	*Session 6E.* Acoustic Nonlinearity	*Session 7E.* Front-end and Integrated Electronics
12:00 pm 01:30 pm	LUNCH BREAK						
01:30 pm ↓ 03:00 pm	*Session 1F.* MEL: Cardiac strain and elasticity imaging	*Session 2F.* MCA: Molecular imaging and imaging of therapeutic response	*Session 3F.* MTH: Cavitation and microbubbles	*Session 4F.* MTC: Tissue characteriza-tion	*Session 5F.* Ultrasonics in Air and Water	*Session 6F.* PA Nonlinear Acoustics 2	*Session 7F.* Medical Imaging I
03:00 pm 04:00 pm	Coffee Break & Poster Session (Level -2)						
04:00 pm ↓ 05:30 pm	*Session 1G.* MTH: Ultrasound mediated agent delivery	*Session 2G.* MEL: Carotid elasticity imaging	*Session 3G.* MIM: Fast imaging strategies	*Session 4G.* MPA: Technical advances in photoacous-tics	*Session 5G.* Transducers and Arrays	*Session 6G.* PA General Physical Acoustics	*Session 7G.* Memorial Session Franz Seifert
07:00 pm 11:00 pm	Gala dinner (La Grange de Meslay)						

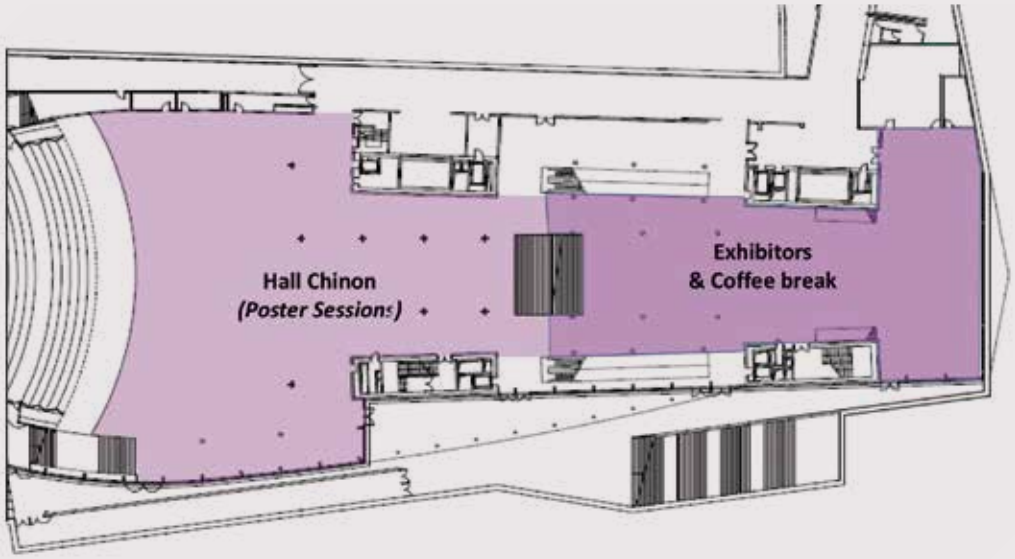
2016 IEEE IUS CONDENSED PROGRAM

WEDNESDAY, SEPTEMBER 21, 2016

Time	Auditorium de Ronsard (Level +1)	Auditorium Descartes (Level +1)	Room Chambord (Level +2)	Room Cheverny (Level +2)	Room Villandry (Level +2)	Room Amboise (Level +2)	Room Langeais (Level +2)
08:00 am ↓ 09:30 am	*Session 1H.* MBF: Angiography and functional imaging	*Session 2H.* MEL: Novel shear wave imaging methods	*Session 3H.* MTH: Histotripsy, sonothrom-bolysis, and transcranial applications	*Session 4H.* MSP: Medical signal processing	*Session 5H.* NDE	*Session 6H.* PA Thin Films and Actuators	*Session 7H.* Microacoustic Materials and Propagation
09:30 am 10:30 am	Coffee Break & Poster Session (Level -2)						
10:30 am ↓ 12:00 pm	*Session 1I.* MTH: Ultrasound therapy	*Session 2I.* MEL: Liver elasticity imaging	*Session 3I.* MBF: Innovations in algorithms and methods	*Session 4I.* MCA: Microvascular and perfusion imaging	*Session 5I.* Wave Propagation	*Session 6I.* Microacoustic Modeling	*Session 7I.* Therapeutics
12:00 pm 01:30 pm	LUNCH BREAK				PICMUS CHALLENGE (Room Jeanne d'Arc, Level+1)		
01:30 pm ↓ 03:00 pm	*Session 1J.* MTH: Therapy systems, devices, and treatment control	*Session 2J.* MEL: Elasticity imaging of the kidney and breast	*Session 3J.* MSD: Medical systems and devices II	*Session 4J.* MCA: Microbubble signal processing and dynamics	*Session 5J.* Ultrasonic Systems and Industrial Applications	*Session 6J.* Microacoustic Wireless Sensors and Bio-Sensing	*Session 7J.* CMUT Design
03:00 pm 04:00 pm	Coffee Break & Poster Session (Level -2)						
04:00 pm ↓ 05:30 pm	*Session 1K.* MBF: Flow imaging: From 2D to 4D	*Session 2K.* MEL: Methods in elasticity imaging	*Session 3K.* MBB: Novel imaging methods	*Session 4K.* MTC: Bone	*Session 5K.* Energy harvesting and Flow Measurement	*Session 6K.* PA Opto-Acoustics	*Session 7K.* Medical Imaging II

VINCI FLOOR PLANS

LEVEL -2



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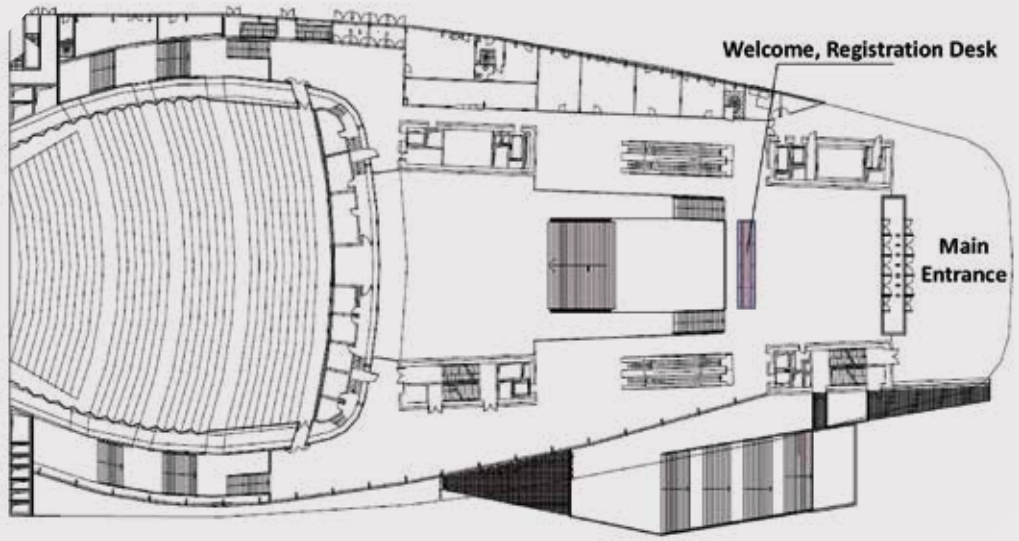
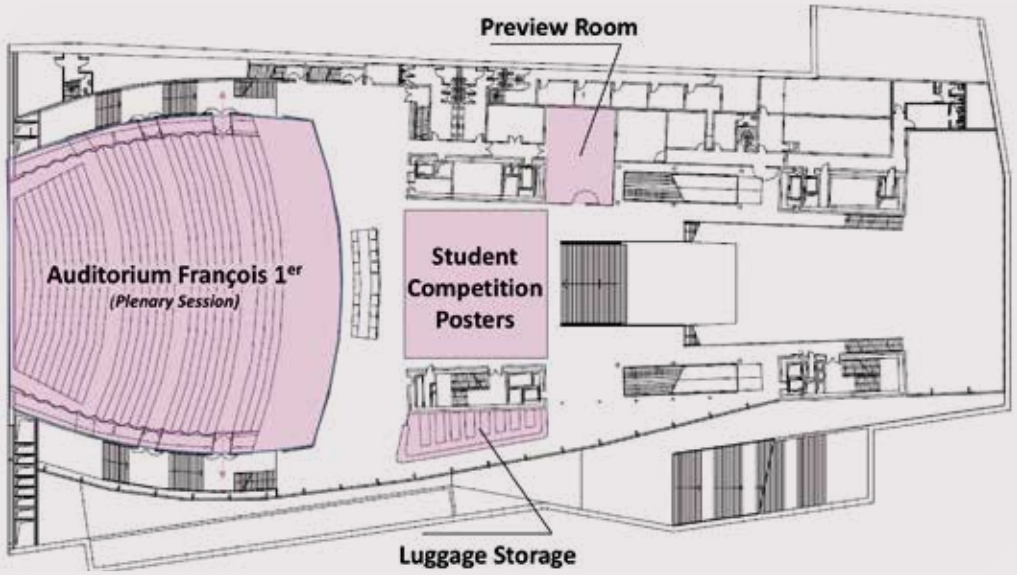


LEVEL -1



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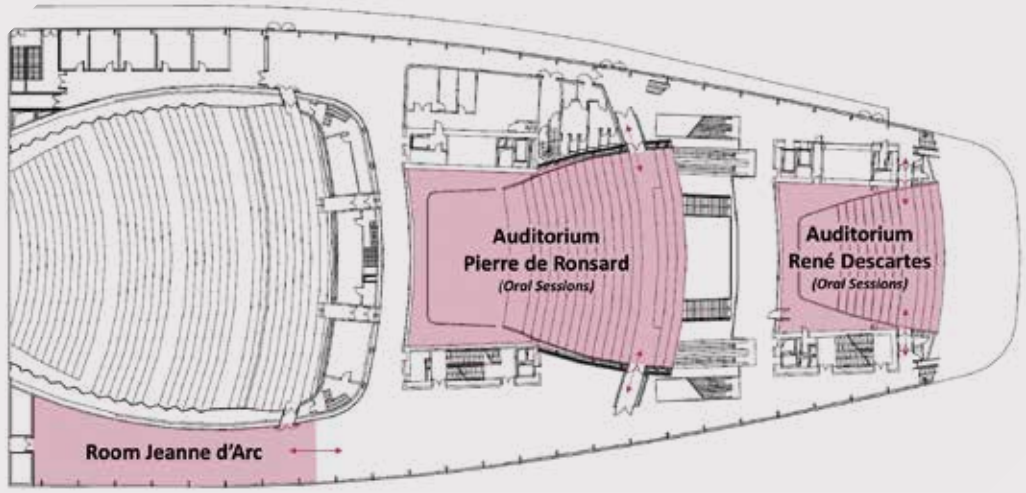

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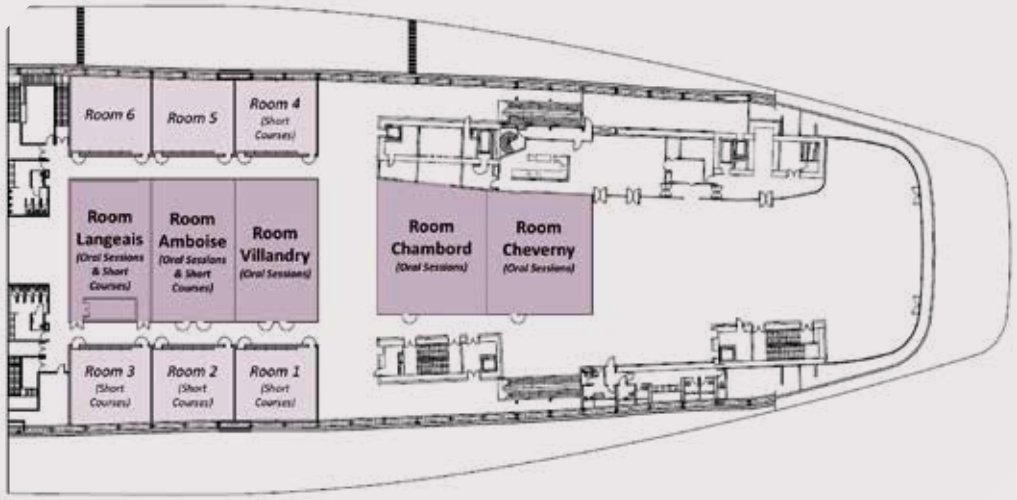

STUDENT PAPER COMPETITION

Student Paper Competition • MONDAY, SEPTEMBER 19, 2016 • 09:30 am-04:00 pm

Session PA. **STUDENT PAPER COMPETITION FINALISTS** • Chair: Tan Van Der Steen

LEVEL -1

9:30 AM **PA-1** **The effect of ultrafast imaging on shear wave observations**

Annette Caenen[1], Mathieu Pernot[2], Darya Shcherbakova[1], Ingvild Kinn Ekroll[3], Patrick Segers[1], Abigail Swillens[1]

[1]IBiTech - bioMMeda, Department of Electronics and Information systems, Ghent University, Ghent, Belgium, [2]Institut Langevin, Ecole Supérieure de Physique et de Chimie Industrielles, CNRS UMR 7587, INSERM U979, Paris, France, [3]Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway

9:31 AM **PA-2** **Quantitative MR-guided transient shear wave imaging for tissue elasticity assessment**

Yu Liu[1], Jingfei Liu[1], Brett Fite[1], Jasquin Foiret[1], Kent Leach[1], Katherine Ferrara[1]

[1]Biomedical Engineering, UC Davis, Davis, California, USA

9:32 AM **PA-3** **Multiplane wave imaging for ultrafast ultrasound imaging at higher signal-to-noise ratio**

Elodie Tiran[1], Thomas Deffieux[1], Mafalda Correia[1], David Maresca[1], Bruno-Felix Osmanski[1], Lim-Anna Sieu[2], Antoine Bergel[2], Ivan Cohen[2], Mathieu Pernot[1], Mickael Tanter[1]

[1]Institut Langevin, ESPCI-ParisTech, PSL University, CNRS UMR7587, INSERM U979, Paris, France, [2]Neuroscience Paris Seine, University Pierre et Marie Curie, UMCR 18, INSERM U1130, CNRS UMR8246, France

9:33 AM **PA-4** **Intracardiac myocardial elastrography for lesion quantification in cardiac radiofrequency ablation**

Ethan Bunting[1], Clement Papadacci[1], Elaine Wan[2], Julien Grondin[1], Elisa Konofagou[1,3]

[1]Department of Biomedical Engineering, Columbia University, New York, New York, USA, [2]Division of Cardiology, Columbia University, New York, New YOrk, USA, [3]Department of Radiology, Columbia University, New York, New York, USA

9:34 AM **PA-5** **Single red blood cell oxygen saturation imaging using multispectral photoacoustic microscopy**

Michael Moore[1,2], Patrick Schygulla[3], Eric Strohm[1,2], Michael Kolios[1,2]

[1]Ryerson University, Toronto, Canada, [2]Keenan Research Centre for Biomedical Science, St. Michael's Hospital, Toronto, Canada,[3]Heidelberg University, Germany

9:35 AM **PA-6** **A Smartphone-based Portable Ultrasound System for Point-of-Care Diagnosis**

Woojin Jung[1], Pilsu Kim[1], Minsuk Park[1], Sua Bae[1], Youngbae Lee[1], Sangbum Kye[2], Tai-kyong Song[1]

[1]Electronic Engineering, Sogang University, Korea, Republic of,[2]HANSONO Co.,Ltd., Korea, Republic of

9:36 AM **PA-7** **Focused ultrasound hyperthermia mediated drug delivery using thermosensitive liposomes and visualized with <I>in vivo</I> two-photon microscopy**

Marc Santos[1,2], Kullervo Hynynen[1,2], David Goertz[1,2]

[1]Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada

9:37 AM **PA-8** **Controlled ultrasound-mediated blood-brain barrier opening using passive acoustic mapping of subharmonic microbubble activity**

Ryan Jones[1,2], Meaghan O'Reilly[1,2], Lulu Deng[1], Kogee Leung[1], Kullervo Hynynen[1,3]

[1]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada, [3]Medical Biophysics and Institute for Biomaterials and Biomedical Engineering, University of Toronto, Toronto, Ontario, Canada

Student Paper Competition • MONDAY, SEPTEMBER 19, 2016 • 09:30 am-04:00 pm

Session PA. **STUDENT PAPER COMPETITION FINALISTS** • Chair: Tan Van Der Steen

LEVEL -1

9:38 AM **PA-9** High Temperature Static Strain Microwave Acoustic Sensor

Anin Maskay[1,2], Mauricio Pereira da Cunha[1,2]

[1]Electrical and Computer Engineering, University of Maine, Orono, ME, USA, [2]Laboratory for Surface Science and Technology, University of Maine, Orono, ME, USA

9:39 AM **PA-10** Speeding up SAFT 3D processing by greedy sparse deconvolution

Jan Kirchhof[1], Fabian Krieg[1,2], Florian Römer[1], Alexander Ihlow[1], Ahmad Osman[2], Giovanni del Galdo[1]

[1]Institute for Information Technology, Technische Universität Ilmenau, Ilmenau, Germany, [2]Department of Component Inspections, Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany

9:40 AM **PA-11** Ultrasonic imaging in highly attenuating materials with Walsh-Hadamard codes and the decomposition of the time reversal operator

Eduardo Lopez Villaverde[1], Sebastien Robert[1], Claire Prada[2]

[1]CEA, LIST, Gif-sur-Yvette, France, [2]Institut Langevin, Paris, France

9:41 AM **PA-12** Differential optical interferometer for measuring transient SAW generated with ultra-wideband IDT

ANURUPA SHAW[1], Damien Teyssieux[1], Vincent Laude[1]

[1]Institut FEMTO-ST, UMR CNRS 6174, Université Bourgogne Franche-Comté, Besançon, France

9:42 AM **PA-13** Evidence of a large band gap in a phononic strip

Etienne Coffy[1], Sébastien Euphrasie[1], Pascal Vairac[1], Abdelkrim Khelif[1]

[1]MN2S, FEMTO-ST, Besançon, France

9:43 AM **PA-14** Acoustic nonlinearity as a mechanism for liquid drop explosions in drop-chain fountains generated by a focused ultrasound beam

Elena Annenkova[1], Wayne Kreider[2], Julianna Simon[2], Oleg Sapozhnikov[1,2]

[1]Department of Acoustics, Physics Faculty, Moscow State University, Moscow, Russian Federation, [2]Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

9:44 AM **PA-15** Direct shadowgraphic observation of needle hydrophone-field interaction at 10 million frames per second

Kristoffer Johansen[1], Jae Hee Song[2], Paul Prentice[1]

[1]CavLab, Cluster of Ultrasound Science, Technology and Engineering Research, University of Glasgow, Glasgow, United Kingdom, [2]Division of Imaging and Technology, Ninewells Hospital, University of Dundee, United Kingdom

9:45 AM **PA-16** Modeling Nonlinear Behavior of RF Bulk Acoustic Wave Resonators

Vikrant Chauhan[1], Markus Mayer[2], Christian Huck[2], Herbert Zidek[2], Robert Weigel[1], Amelie Hagelauer[1], Maximilian Pitschi[2]

[1]Institute of electronics engineering, Erlangen Nuremberg University, Erlangen, Germany, [2]Advanced Development, TDK Corporation, Munich, Germany

Student Paper Competition • MONDAY, SEPTEMBER 19, 2016 • 09:30 am-04:00 pm

Session PA. **STUDENT PAPER COMPETITION FINALISTS** • Chair: Tan Van Der Steen

LEVEL -1

9:46 AM **PA-17** Rayleigh SAW assisted SH-SAW immunosensor on X-cut 148-Y LiTaO₃

Takashi Kogai[1,2], Hiromi Yatsuda[1], Jun Kondoh[2]

[1]Japan Radio Co., Ltd., Japan, [2]Shizuoka University, Japan

9:47 AM **PA-18** Nonlinear BAW Filter Effects on the Performance of an LTE Receiver

Victor Silva Cortes[1], Vikrant Chauhan[1], Robert Weigel[1], Georg Fischer[1], Amelie Hagelauer[1]

[1]Institute of Electronics Engineering, University Erlangen-Nuremberg, Germany

9:48 AM **PA-19** High-temperature SAW electrodes based on Ir-Rh thin films

Amine TAGUETT[1], Thierry AUBERT[1,2], Marc Lomello[1], Omar Elmazria[3], Jaafar Ghanbaja[3], Abdelkrim Talbi[4]

[1]Laboratoire SYMME, Université de Savoie, Annecy-le-Vieux, France, [2]Laboratoire LMOPS, CentraleSupélec - Université de Lorraine, Metz, France, [3]Institut Jean Lamour (IJL), UMR 7198 CNRS-Université de Lorraine, Vandoeuvre-lès-Nancy, France, [4]LIA LEMAC/LICS – IEMN, EC Lille-CNRS, Lille, France

9:49 AM **PA-20** A MEMS T/R switch embedded in CMUT structure for ultrasound imaging frontends

Xiao Zhang[1], Arooba Zeshan[2], Oluwafemi Adelegan[1], F. Yalcin Yamaner[2], Omer Oralkan[1]

[1]Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA, [2]School of Engineering and Natural Sciences, Istanbul Medipol University, Beykoz, Istanbul, Turkey

9:50 AM **PA-21** Real-Time Imaging, Targeting, and Ablation of Ex-Vivo Tissue Using a Handheld Histotripsy Transducer and Coregistered 64-Element High-Frequency Endoscopic Phased Array

Jeffrey Woodacre[1], Thomas Landry[1], Jeremy Brown[1]

[1]Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada

9:51 AM **PA-22** Laser-Generated-Focused Ultrasound Transducers for Microbubble-Mediated, Dual-Excitation Sonothrombolysis

Jinwook Kim[1], Brooks D. Lindsey[2], Wei-Yi Chang[1], Xuming Dai[3], Joseph M. Stavas[4], Paul A. Dayton[2], Xiaoning Jiang[1]

[1]Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA, [2]Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, Chapel Hill, North Carolina, USA, [3]Division of Cardiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, [4]Division of Vascular and Interventional Radiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

9:52 AM **PA-23** High Frequency Integrated Transceiver System-on-a-Chip for CMUT based IVUS on a Guidewire

Jaemyung Lim[1], Coskun Tekes[2], F. Levent Degertekin[3], Maysam Ghovanloo[4]

[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, [2]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technlolgy, USA,[3]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA, [4]School of Electrical and Computer Engineering, Georgia Institute of Technology, USA

ORAL PROGRAM MONDAY

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	Session 1A. MCA: Super-resolution imaging Chair: Stuart Foster Auditorium de Ronsard	Session 2A. MIM: Neuro imaging Chair: Mickael Tanter, *Inserm* Auditorium Descartes	Session 3A. MEL: Vascular elasticity imaging Chair: Abigail Swillens Room Chambord	Session 4A. MSD: Medical systems and devices I Chair: Piero Tortoli Room Cheverny	Session 5A. Acoustic Imaging and Microscopy Chair: Jafar Saniie, *Illinois Institute of Technology* Room Villandry	Session 6A. Microacoustics & Communication systems Chair: Ken-ya Hashimoto, *Chiba University* Room Amboise	Session 7A. PMUTs Chair: Qifa Zhou, *University of Southern California* Room Langeais
10:30 AM	**1A-1 Super-resolution imaging** **Olivier Couture**[1] [1]Institut Langevin (CNRS, ESPCI, INSERM), Paris, France	**2A-1 Functional Ultrasound Imaging of the Human Brain Activity: An Intraoperative Pilot Study for Cortical Functional Mapping** **Marion IMBAULT**[1], Darian Chauvet[2,3], Laurent Capelle[2], Hicham Serroune[1], Jean Luc Gennisson[1], Mickaël Tanter[1] [1]*Wave Physics for Medicine and Biology, Institut Langevin, ESPCI Paris, PSL Research University, CNRS UMR 7587, INSERM U979, Paris, France,* [2]*Service de neurochirurgie, Bâtiment Babinski, Groupe Hospitalier Pitié-Salpêtrière, Paris, France,* [3]*Service de neurochirurgie, Fondation Rothschild, Paris, France*	**3A-1 Noninvasive measurement of regional pulse wave velocity in human ascending aorta** **Chengwu Huang**[1], Dong Guo[2,3], Feng Lan[3], Hongjia Zhang[2,3], Jianwen Luo[1] [1]*Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of,* [2]*Department of Cardiac Surgery, Beijing Anzhen Hospital, Capital Medical University, Beijing, China, People's Republic of,* [3]*Beijing Institute of Heart, Lung and Blood Vessel Diseases, Beijing, China, People's Republic of*	**4A-1 Capsule Ultrasound Device: Further Development** **Farah Memon**[1], Gerard Toumo[1], Junyi Wang[1], Spiros Baltsavias[1], Azadeh Moini[1], Chienliu Chang[1], Morten Fischer Rasmussen[1], Amin Nikoozadeh[1], Jung Woo Choe[1], Eric Olcott[2,3], R. Brooke Jeffery[2], Amin Arbabian[1], Butrus (Pierre) T. Khuri-Yakub[1] [1]*Stanford University, Stanford, CA, USA,* [2]*Stanford University School of Medicine, Stanford, CA, USA,* [3]*Veterans Affairs Palo Alto Health Care System, Palo Alto, CA, USA*	**5A-1 Stolt migration based iterative trace reconstruction** **Paul van Neer**[1], Hendrik Vos[2], Arno Volker[1] [1]*Acoustics and Sonar, TNO, Den Haag, Zuid-Holland, Netherlands,* [2]*Biomedical Engineering, ErasmusMC, Rotterdam, Zuid-Holland, Netherlands*	**6A-1 SAW Transformer-Filter.** **Victor Plessky**[1], Michael Methfessel[2] [1]*GVR Trade SA, Switzerland,* [2]*IHP GmbH, Germany*	**7A-1 High Sensitivity 3D MEMS Piezoelectric Ultrasound Transducers: Integration and Characterization** **Corina Nistorica**[1], Dimitre Latev[1], Deane Gardner[1], Darren Imai[1], Jaime Mendoza[1] [1]*FUJIFILM Dimatix, Inc., Santa Clara, CA, USA*
10:45 AM		**2A-2 Multiscale neuroimaging of optical and photoacoustic contrast agents delivered by focused ultrasound blood brain barrier disruption** **Robin Hartman**[1,2], R. Andrew Fowler[1], Flor Medina[1], Kristina Hallam[3], Shams Kazmi[1], Andrew Dunn[1], Stanislav Emelianov[2,3] [1]Department of Biomedical Engineering, University of Texas at Austin, Austin, TX, USA, [2]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, [3]Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University School of Medicine, Atlanta, Georgia, USA	**3A-2 Feasibility and validation of 4D pulse wave imaging (PWI) in vitro: 3D automated estimation of the regional pulse wave velocity vector** **Iason Zacharias Apostolakis**[1], Clement Papadacci[1], Pierre Nouleau[1], Matthew McGarry[1], Elisa Konofagou[1,2] [1]Biomedical Engineering, Columbia University, New York, New York, USA, [2]Radiology, Columbia University, USA	**4A-2 A Scanning Device for Ultrasound Capsule Endoscopy** **Xingying Wang**[1], Vipin Seetohul[2], Ruimin Chen[3], Ming Qian[1], Zhehao Shi[1], Ge Yang[1], Peitian Mu[1], Congzhi Wang[1], Zhihong Huang[4], Qifa Zhou[3], Hairong Zheng[1], Sandy Cochran[2], Weibao Qiu[1] [1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, People's Republic of, [2]School of Engineering, University of Glasgow, Glasgow, United Kingdom, [3]University of Southern California, Los Angeles, USA, [4]Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom	**5A-2 Development and evaluation of f-k migration methods for fast ultrasonic imaging in solids** **Lucas Merabet**[1], Sébastien Robert[1], Claire Prada[2] [1]CEA List, Gif-sur-Yvette, France, [2]Institut Langevin, Paris, France	**6A-2 Incredible high performance SAW resonator on novel multi layered substrate** **Tsutomu Takai**[1], Hideki Iwamoto[1], Yuichi Takamine[1], Hisashi Yamazaki[1], Toshiyuki Fuyutsume[1], Masahiro Hiramoto[1], Masayuki Koshino[1], Norio Nakajima[1] [1]Thin Film Engineering Dept, Murata Manufacturing Co., Ltd., Kyoto, Japan	**7A-2 Fabrication and Characterization of PMN-PZT Single Crystal Based Micromachined Ultrasonic Transducer (PSMUT) Annular Array** **Woojin Kang**[1], Joontaek Jung[1,2], Wonjun Lee[1,2], Hongsoo Choi[1,2] [1]DGIST-ETH Microrobotics Research Center, DGIST, Korea, Republic of, [2]Robotics Eng., DGIST, Korea, Republic of
11:00 AM	**1A-2 Fast and Background Free Super-Resolution Ultrasound Angiography** **Avinoam Bar-Zion**[1], Charles Tremblay-Darveau[2], Oren Solomon[3], Dan Adam[1], Yonina C. Eldar[3] [1]*Department of Biomedical Engineering, Technion - Israel Institute of Technology, Haifa, Israel,* [2]*Sunnybrook research institute, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada,* [3]*Department of Electrical Engineering, Technion - Israel Institute of Technology, Haifa, Israel*	**2A-3 Ultrasensitive Doppler based neuronavigation system for preclinical brain imaging applications** **Emmanuel Cohen**[1,2], Thomas Deffieux[1], Elodie Tiran[1], Charlie Demené[1], Laurent Cohen[2], Mickael Tanter[1] [1]*Institut Langevin, ESPCI ParisTech, PSL Research University, CNRS, UMR 7587, INSERM U979, Paris, France,* [2]*University Paris Dauphine, PSL Research University, CNRS, UMR 7534, CEREMADE, Paris, France*	**3A-3 Modelling the acoustoelastic effect in anisotropic, hyperelastic tissue to support our understanding of shear wave elastography in arterial tissue** **Darya Shcherbakova**[1], Nic Debusschere[1,2], Annette Coenen[1], Francesco Iannacone[1,2], Patrick Segers[1], Abigail Swillens[1] [1]*IBiTech - bioMMeda, Department of Electronics and Information Systems, Ghent University, Ghent, Belgium,* [2]*FEops nv, Ghent, Belgium*	**4A-3 Integrated High Frequency Linear Transducer Array for Needle Breast Biopsy Probe** **Robert Wodnicki**[1], Thomas Cummins[1], Hayong Jung[1], Kirk Shung[1] [1]*University of Southern California, Los Angeles, California, USA*	**5A-3 A Sol-gel based PZT/PZT Transducer for Coaxial Photoacoustic Imaging** **Masayuki Tanabe**[1], Tai-Chieh Wu[2], Koki Hirata[1], Makiko Kobayashi[1], Masahiko Nishimoto[1], Che-Hua Yang[2] [1]*Graduate School of Science and Technology, Kumamoto University, Kumamoto, Japan,* [2]*Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan*	**6A-3 5G Mobile Radio Architectures – From RF Frontend to Baseband Processing and Applications** **Josef Hausner**[1] [1]*Intel, Neubiberg, Germany*	**7A-3 Electrical and Acoustic Characterization of Scandium Aluminum Nitride Piezoelectric Micromachined Ultrasonic Transducers (PMUTs)** **Panu Koppinen**[1], Sergey Gorelick[1], Feng Gao[1] [1]*VTT Technical Research Centre of Finland Ltd, Espoo, Finland*
11:15 AM	**1A-3 Evaluation of Bubble Tracking Algorithms for Super-Resolution Imaging of Microvessels** **Stefanie Dencks**[1], Dimitri Ackermann[1], Georg Schmitz[1] [1]*Institute for Medical Engineering, Ruhr-University Bochum, Bochum, Germany*	**2A-4 Coupling of Ultrafast transcranial ultrasound and Neuronavigation MRI for brain pulsatility assessment** **TERNIFI Redouane**[1,2], CHASSAGNON Guillaume[3,4], DESMIDT Thomas[1,5], CAMUS Vincent[1,5], COTTIER Jean-Philippe[2,3], DESTRIEUX Christophe[1,2], PATAT Frédéric[3,4], REMENIERAS Jean-Pierre[1,2] [1]*Université François Rabelais de TOURS, TOURS, France,* [2]*UMR INSERM U930 Imagerie et Cerveau, TOURS, France,* [3]*Radiologie, Hôpital Bretonneau, CHRU de TOURS, TOURS, France,* [4]*INSERM CIC 1415, TOURS, France,* [5]*Psychiatrie, Hôpital Bretonneau, CHRU de TOURS, TOURS, France*	**3A-4 Influence of surrounding tissues on 3D abdominal aortic elastography.** **Niels Petterson**[1], Emiel van Disseldorp[1,2], Frans van de Vosse[1], Marc van Sambeek[2], Richard Lopata[1] [1]*Biomedical Engineering, Eindhoven University of technology, Eindhoven, Netherlands,* [2]*Vascular Surgery, Catharina Hospital Eindhoven, Eindhoven, Netherlands*	**4A-4 A real-time beamformer for high frame rate ultrasound imaging** **Enrico Boni**[1], Luca Bassi[1], Alessandro Dallai[1], Valentino Meacci[1], Alessandro Ramalli[1], Monica Scaringella[1], Francesco Guidi[1], Stefano Ricci[1], Piero Tortoli[1] [1]*Department of Information Engineering, University of Florence, Italy*	**5A-4 Elastic stiffness and damping measurements in metals using atomic force acoustic microscopy** M. Kalyan Phani[1], Anish Kumar[1], **Walter Arnold**[2,3], Konrad Samwer[3] [1]*Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, India,* [2]*Department of Materials, Saarland University, Saarbruecken, Germany,* [3]*I. Phys. Institut, Georg-August University, Goettingen, Germany*		**7A-4 Fabrication of Piezoelectric Micromachined Ultrasonic Transducer using Granule Spray in Vacuum Method** **Joontaek Jung**[1,2], Jungho Ryu[3], Venkateswarlu Annapureddy[3], Hwee-Jong Kim[3,4], Wonjun Lee[1,2], Woojin Kang[1], Hongsoo Choi[1,2] [1]*Department of Robotics engineering, DGIST, Daegu, Korea, Republic of,* [2]*DGIST-ETH Microrobotics Research Center, DGIST, Korea, Republic of,* [3]*Functional ceramics, Korea Institute of Materials Science, Korea, Republic of,* [4]*Department of Materials Science and Engineering, Inha University, Korea, Republic of*

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11:45 AM	**1A-5 Super-localization of contrast agents in moving organs, first experiments in a mouse kidney** **Josquin Foiret**[1], Hua Zhang[1], Lisa Mahakian[1], Sarah Tam[1], Katherine Ferrara[1] [1]*Department of Biomedical Engineering, University of California, Davis, CA, USA*	**2A-6 4D Acoustoelectric Imaging of Dipole Sources in a Human Head Phantom** **Yexian Qin**[1], Pier Ingram[1], Russell S. Witte[1,2] [1]*Department of Medical Imaging, University of Arizona, Tucson, Arizona, USA,* [2]*Department of Biomedical Engineering, University of Arizona, Tucson, Arizona, USA*	**3A-6 Investigating strategies for improving plane wave vascular elastography** Prashant Verma[1], **Marvin Doyley**[2] [1]*Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA,* [2]*Department of Electrical and Computer Engineering, University of Rochester, Rochester, NY, USA*	**4A-6 Flexible hardware architecture for the generation of ultrasound pulses in medical imaging** **Maurizio Diaz Mendez**[1], Maurizio Valle[1], Daniele Caviglia[1], Marco Terenzi[2], Davide Ugo Ghisu[3], Fabio Quaglia[4] [1]*DITEN, Università di Genova, Genova, Italy,* [2]*Analog & Mems Group, STMicroelectronics, Cornaredo, Milan (MI), Italy,* [3]*STMicroelectronics, Cornaredo, Milan (MI), Italy,* [4]*TR&D Smart Power, STMicroelectronics, Cornaredo, Milan (MI), Italy*	**5A-6 Acoustic Interference Microscope** **Antti Meriläinen**[1], Edward Hæggström[1] [1]*Department of Physics, University of Helsinki, Helsinki, Finland*	**6A-5 Enhanced duplexer with improved isolation and better linearity** **Qing Shang**[1], Jacques-Antoine Damy[1], Juha Ella[2], Leon Van den Dever[3], Gvidas Sidlauskas[3], Edgar Schmidhammer[4] [1]*TDK, Sophia Antipolis, France,* [2]*TDK Nordic, Helsinki, Finland,* [3]*Radio Semiconductor RSC, Netherlands,* [4]*EPCOS AG, Munich, Germany*	

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	Session 1B. MTH: Ultrasound stimulation and neuromodulation Chair: **Kullervo Hynynen** *University of Toronto*	Session 2B. MCA: Phase change and nanoparticle contrast agents Chair: **Paul A. Dayton** *The University of North Carolina at Chapel Hill*	Session 3B. MBF: High frame rate flow imaging Chair: **Jørgen Arendt Jensen** *Technical University of Denmark*	Session 4B. MIM: Alternative imaging modalities Chair: **Roberto Lavarello**	Session 5B. Sensors and Microfluidics Chair: **Pierre Khuri-Yakub** *Stanford University*	Session 6B. PA Acoustic Tweezers and Particle Manipulation Chair: **Anne Bernassau** *Heriot Watt University*	Session 7B. Materials and Processes Chair: **Lynn Ewart** *Naval Undersea Warfare Center*
	Auditorium de Ronsard	**Auditorium Descartes**	**Room Chambord**	**Room Cheverny**	**Room Villandry**	**Room Amboise**	**Room Langeais**
01:30 PM	**1B-1 Ultrasonic Neuromodulation: Evidence From Neuron To Animal Model** **Hairong Zheng**[1] [1]*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of*	**2B-1 Phase-shift perfluorocarbon droplets generated from commercial microbubbles: A shortcut to the clinic?** **Paul S. Sheeran**[1,2], Kimoon Yoo[1], Ross Williams[1], Melissa Yin[1], F. Stuart Foster[1,2], Peter N. Burns[1,2] [1]*Physical Sciences Platform, Sunnybrook Research Institute, Canada,* [2]*Medical Biophysics, University of Toronto, Canada*	**3B-1 In vivo imaging of ocular blood flow using ultrafast ultrasound** Raksha Urs[1], **Jeffrey A. Ketterling**[2], Ronald H. Silverman[1,2] [1]*Department of Ophthalmology, Columbia University Medical Center, New York, NY, USA,* [2]*Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA*	**4B-1 Sonographic Detection of Magnetic Nanoparticles Using Coded Magnetic Fields** **Michael Fink**[1], Helmut Ermert[1], Stefan Lyer[2], Christoph Alexiou[2] [1]*Chair of Sensor Technology, Friedrich-Alexander-University Erlangen-Nuremberg, Germany,* [2]*Section of Experimental Oncology and Nanomedicine, University Hospital Erlangen, Germany*	**5B-1 Development of a Cryptophane-A coated Love based methane gas sensor** **Wen Wang**[1], Zhenhua Dong[1], Haoliang Hu[1], Shitang He[1], Yang Pan[2], Caihong Zhang[3], Chuan Dong[3] [1]*Chinese Academy of Sciences, Institute of Acoustics, Beijing, China, People's Republic of,* [2]*State Key Laboratory of NBC Protection for Civilian, Beijing, China, People's Republic of,* [3]*Shanxi University, School of Chemistry and Chemical Engineering, Taiyuan, China, People's Republic of*	**6B-1 Collection and Manipulation of Flowing Microbubbles Using Acoustic Vortex Tweezers** **Wei-Chen Lo**[1], Shih-Tsung Kang[1], Chih-Kuang Yeh[1] [1]*Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan*	**7B-1 Relaxor-PT Ferroelectric Single Crystals: Ultrahigh Piezoelectric Activity from Polar Nanoregion** Fei Li[1,2], **Shujun Zhang**[3], Tiannan Yang[1], Zhu Xu[2], Jianjun Wang[1], Jun Luo[4], Zuoguang Ye[5], Long Qing Chen[1], Thomas Shrout[1] [1]*Penn State University, USA,* [2]*Xi'an Jiaotong University, China, People's Republic of,* [3]*University of Wollongong, Wollongong, Australia,* [4]*TRS Technologies Inc., USA,* [5]*Simon Fraser University, Canada*
01:45 PM		**2B-2 Thermodynamics of Superheated Phase-Change Agents** **Paul Mountford**[1], Mark Borden[1] [1]*Mechanical Engineering, University of Colorado Boulder, Boulder, Colorado, USA*	**3B-2 In Vivo Color Encoded Speckle Imaging of Arterial and Venous Flow Dynamics** **Billy Y. S. Yiu**[1], Mateusz Walczak[2], Marcin Lewandowski[2], Alfred C. H. Yu[1,3] [1]*Department of Electrical and Electronic Engineering, University of Hong Kong, Pokfulam, Hong Kong,* [2]*Department of Ultrasound, Institute of Fundamental Technological Research PAS, Warsaw, Poland,* [3]*Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario, Canada*	**4B-2 Multimodal PET and Magnetomotive Ultrasound Imaging using ⁶⁸Ga labelled SPIONs** **Maria Evertsson**[1], Pontus Kjellman[2], Roger Andersson[3], Christian Ingvar[4], Sven-Erik Strand[2,5], Magnus Cinthio[1], Tomas Jansson[3,6] [1]*Biomedical Engineering, Faculty of Engineering LTH at Lund University, Sweden,* [2]*Medical Radiation Physics, Clinical Sciences Lund, Lund University, Sweden,* [3]*Medical Services, Skåne University Hospital, Lund, Sweden,* [4]*Department of Surgery, Skåne University Hospital, Lund, Sweden,* [5]*Lund University Bioimaging Center, Lund University, Sweden,* [6]*Clinical Sciences Lund, Biomedical Engineering, Lund University, Sweden*	**5B-2 Disposable cylindrical phononic crystal liquid sensor** **Ralf Lucklum**[1], Mikhail Zubtsov[2], Yan Pennec[3], Simon Villa Arango[4,5] [1]*IMOS, Otto-von-Guericke University, Magdeburg, Germany,* [2]*IMOS, Otto-von-Guericke University, Germany,* [3]*University Lille I, France,* [4]*Escuela de Ingeniería de Antioquia EIA, Universidad CES, Colombia,* [5]*City London University, United Kingdom*	**6B-2 Multi-Stage Surface Acoustic Wave for Sorting of Cancer Cells in a Microfluidic Device** **Kaiyue Wang**[1], Wei Zhou[1], Lili Niu[1], Feiyan Cai[1], Fei Li[1], Long Meng[1], Hairong Zheng[1] [1]*Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institute of Advance Technology Chinese Academy of Sciences, China, People's Republic of*	**7B-2 Towards Fabrication of High Frequency Ultrasonic Transducers Using Soft Mold Process** **Sylvia Gebhardt**[1], Paul Günther[1], Selina Fröhlich[2], Susan Wolter[1], Thomas Herzog[1], Henning Heuer[1], Holger Neubert[1] [1]*Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany,* [2]*PI Ceramic GmbH, Lederhose, Germany*

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02:00 PM	**1B-2 Ex vivo and in vivo non-invasive ultrasound-based cardiac pacing in pigs** **Fabrice Marquet[1,2]**, Pierre Bour[1,2], Fanny Vaillant[1,2], Sana Amraoui[1,3], Rémi Dubois[1,2], Philippe Ritter[1,3], Michel Haïssaguerre[1,3], Mélèze Hocini[1,3], Olivier Bernus[1,2], Bruno Quesson[1,2] *[1]IHU LIRYC, Pessac, France, [2]CRCTB INSERM U1045, Bordeaux, France, [3]CHU de Bordeaux, Bordeaux, France*	**2B-3 Acoustic and Optical Droplet Vaporization for Enhanced Sonoporation** **Wei-Wen Liu[1]**, Chih-Ting Wu[2], Churng-Ren Wang[3], Pai-Chi Li[3] *[1]National Taiwan University, Taiwan, [2]National Chung Cheng University, Taiwan, [3]National Taiwan University, Taipei, Taiwan*	**3B-3 In Vivo High Frame Rate Vector Flow Imaging Using Plane Waves and Directional Beamforming** **Jonas Jensen[1]**, Carlos Armando Villagómez Hoyos[1], Matthias Bo Stuart[1], Jørgen Arendt Jensen[1] *[1]Electrical Engineering, Technical University of Denmark, Lyngby, Denmark*	**4B-3 Lung ultrasound surface wave elastography** **Xiaoming Zhang[1]**, Duane meixner[2], Randall Kinnick[1], Thomas Osborn[3], Brian Bartholmai[2], James Greenleaf[1], Sanjay Kalra[4] *[1]Physiology and Biomedical Engineering, Mayo Clinic, Rochester, MN, USA, [2]Radiology, Mayo Clinic, Rochester, MN, USA, [3]Rheumatology, Mayo Clinic, USA, [4]Pulmonary and Critical Care medicine, Mayo Clinic, USA*	**5B-3 915 MHz SAW Wireless Passive Sensor System Performance** **Donald Malocha[1]** *[1]University of Central Florida, USA*	**6B-3 Acoustic manipulation of microparticles in sub-wavelength slot between two plates** **Chen Wang[1,2]**, Feiyan Cai[2], Fei Li[2], Long Meng[2], Yan Kang[1], Hairong Zheng[2] *[1]Sino-Dutch Biomedical and Information Engineering, Northeastern University, China, People's Republic of, [2]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of*	**7B-3 Ultrasonic and Piezoelectric Investigation of 2D Layered Multifunctional Materials of CuInP₂P₆ Family** **Vytautas Samulionis[1]**, Juras Banys[1], Yulian Vysochanskii[2] *[1]Physics Faculty of Vilnius University, Vilnius, Lithuania, [2]Institute of Solid State Physics and Chemistry, Uzhgorod University, Uzhgorod, Ukraine*
02:15 PM	**1B-3 Noninvasive Neurostimulation on Mice by 5MHz Ultrasound** **Guofeng Li[1,2]**, Huixia Zhao[1], Jingyao Wang[1], Fei Yan[1], Yanming Wang[1], Congzhi Wang[1], Weibao Qiu[1], Hairong Zheng[1] *[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, [2]Guangdong Medical University, China, People's Republic of*	**2B-4 Superhydrophobic Mesoporous Silica Nanoparticles as Ultrasound Contrast Agents** **Qiaofeng Jin[1]**, Chih-Yu Lin[2], Shih-Tsung Kang[2], Chia-Min Yang[2], Chih-Kuang Yeh[2] *[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan, [2]Department of Chemistry, National Tsing Hua University, Taiwan*	**3B-4 Detailed flow visualization in fetal and neonatal hearts using phased array probes and 2-D speckle tracking** **Solveig Fadnes[1]**, Siri Ann Nyrnes[1,2], Marten Wigen[1], Eva Tegnander[3,4], Lasse Lovstakken[1] *[1]Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway, [2]Department of Pediatrics, St. Olav's University Hospital, Trondheim, Norway, [3]National Center for Fetal Medicine, St. Olav's University Hospital, Trondheim, Norway, [4]Department of Laboratory Medicine, Children's and Women's Health, NTNU, Trondheim, Norway*	**4B-4 Ultrasound imaging of cortical bone** **guillaume RENAUD[1]**, pieter KRUIZINGA[2], pascal LAUGIER[1] *[1]Laboratoire d'imagerie biomédicale, UPMC - CNRS - INSERM, France, [2]Erasmus MC, Netherlands*	**5B-4 Measurement of longitudinal wave velocity of liqud using surface acoustic wave** **Jun Kondoh[1]**, Michiyuki Yamada[2] *[1]Graduate School of Science and Technology, Shizuoka University, Hamamatsu-shi, Japan, [2]Fac. of Engineering, Shizuoka University, Hamamatsu-shi, Japan*	**6B-4 Control of liquid crystal molecular orientation by acoustic radiation force** **Yuki Shimizu[1]**, Daisuke Koyama[1], Satoki Taniguchi[1], Akira Emoto[1], Kentaro Nakamura[2], Mami Matsukawa[1] *[1]Doshisha univ., Kyoto, Japan, [2]Tokyo Tech, Tokyo, Japan*	**7B-4 Au-Sn Solid-Liquid Interdiffusion (SLID) bonding for Piezoelectric Ultrasonic Transducers** Hoang-Vu Nguyen[1], **Tung Manh[1]**, Le-Anh Duy[1], Knut Aasmundtveit[1], Lars Hoff[1], Tonni Franke Johansen[2], Trym Eggen[3], Frederic Lanteri[4], Jean-Francois Gelly[4] *[1]Department of micro and nano systems technology, University College of Southeast Norway, Borre, Vestfold, Norway, [2]SINTEF ICT, Norway, [3]GE Vingmed Ultrasound AS, Norway, [4]GE Parallel Design SAS, France*
02:30 PM	**1B-4 Ultrasound stimulation in the frontal eye field modulates visual search and associated EEG in monkeys** **Charles Caskey[1,2]**, Wolfgang Zinke[3], Josh Cosman[3], Jillian Shuman[1], Jeffrey Schall[3] *[1]Institute of Imaging Science, Vanderbilt University Medical Center, Nashville, TN, USA, [2]Radiology & Radiological Sciences, Vanderbilt University Medical Center, Nashville, TN, USA, [3]Psychology, Vanderbilt University, Nashville, Tennessee, USA*	**2B-5 Real-time, <I>in vivo</I> localization of the murine sentinel lymph node with laser-activated perfluorocarbon nanodroplets** **Heechul Yoon[1]**, Steven Yarmosko[2], Alexander Hannah[2], Changhan Yoon[1], Kristina Hallam[2], Stanislav Emelianov[1,2] *[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA, [2]Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University School of Medicine, Atlanta, GA, USA*	**3B-5 In vivo three-dimensional intra-cardiac vector flow imaging using a 2D matrix array transducer** **Marten Wigen[1]**, Lasse Lovstakken[1] *[1]Norwegian University of Science and Technology, Norway*	**4B-5 An Integrated System for High-Frequency, Real-Time Ultrafast Acoustoelectric Imaging** **Beatrice Berthon[1]**, Mathieu Pernot[1], Mickaël Tanter[1], Jean Provost[1] *[1]Institut Langevin, ESPCI Paris, PSL Research University, CNRS UMR 7587, INSERM U979, France, Metropolitan*	**5B-5 An experimental and theoretical study on the MHz acoustic manipulation of a micron thick film of liquid, confined under a bubble in a microfluidic chamber** **Amihai Horesh[1]** *[1]Chemical Engineering, Technion - Israel Institute of Technology, Haifa, Israel*	**6B-5 Electronically-controlled 2-D Crossed-electrode Transducer Arrays for Ultrasonic Particle Manipulation** **Han Wang[1]**, Yongqiang Qiu[2], Christine Demore[2], Sylvia Gebhardt[3], Sandy Cochran[2] *[1]Technische Universität Darmstadt, Darmstadt, Germany, [2]School of Engineering, University of Glasgow, Glasgow, United Kingdom, [3]Fraunhofer Institute for Ceramic Technologies and Systems, Dresden, Germany*	**7B-5 CaBi₄Ti₄O₁₅ / Pb(Zr,Ti)O₃ Sol-Gel Composite Materials for Continuous Monitoring over 600[deg]C** **TAIGA KIBE[1]**, KEISUKE KIMOTO[2], MAKIKO KOBAYASHI[2], Hajime Nagata[3], Tadashi Takenaka[3] *[1]Kumamoto University, Kumamoto, Kumamoto, Japan, [2]Kumamoto University, Kumamoto, Japan, [3]Tokyo University of Science, Noda, Chiba, Japan*
02:45 PM	**1B-5 A Special Retinal Ganglion Cell Responses to Low-frequency Focused Ultrasound Stimulation** **Huixia Zhao[1]**, Guofeng Li[1,2], Min Su[1], Jingyao Wang[1], Mengdi Gao[1], Hairong Zheng[1], Weibao Qiu[1] *[1]Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, [2]School of Information Engineering, Guangdong Medical University, China, People's Republic of*	**2B-6 Nanoscale Acoustomagnetic Contrast Agents for Background Free Imaging In Vivo** George J. Lu[1], Arash Farhadi[1], Jerzy O. Szablowski[1], Samuel Barnes[2], Anupama Lakshmanan[1], Raymond W. Bourdeau[1], **Mikhail G. Shapiro[1]** *[1]Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, USA, [2]Loma Linda University, Loma Linda, California, USA*	**3B-6 Coupled myocardium/vortex dynamics with high-frame-rate Doppler echocardiography** **Julia Faurie[1]**, Mathilde Baudet[2], François Tournoux[2], Damien Garcia[1,3] *[1]CRCHUM, University of Montreal, Canada, [2]CHUM, Dept of echocardiography, University of Montreal, Canada, [3]Dept of radiology, University of Montreal, Canada*	**4B-6 Fan Chirp Transform Filtered All-Optical Ultrasound Imaging** **Erwin J Alles[1]**, Adrien E Desjardins[1] *[1]Department of Medical Physics & Biomedical Engineering, University College London, London, United Kingdom*	**5B-6 FEM Modelling and Development of a SAW Microfluidic Sensor based on the Photoacoustic Effect** **rahul kishor[1,2]**, Zheng Yuanjin[3], Zhenfeng Wang[4], Teik-Thye Lim[5] *[1]Interdisciplinary graduate school, Nanyang Technological University, Singapore, [2]ECMG, Nanyang Environment & Water Research Institute (NEWRI), Singapore, [3]School of Electrical & Electronic Engineering, Nanyang Technological University, Singapore, [4]Singapore Institute Of Manufacturing Technology, Singapore, [5]School of Civil & Environmental Engineering, Nanyang Technological University, Singapore*	**6B-6 Single-transducer acoustic levitator with equidistant vertical positioning capability** **Freya Schiewer[1]**, Han Wang[1], Alexander Unger[1], Nataliya Stefanova[1], Mario Kupnik[1] *[1]Technische Universität Darmstadt, Darmstadt, Germany*	**7B-6 Ultrasonic Transducers for Harsh Environments** **Bernhard Tittmann[1]**, Brian Reinhardt[1], Joshua Daw[2] *[1]Engineering Science and Mechanics, Penn State University, University Park, Pennsylvania, USA, [2]Idaho National Laboratory, Idaho Falls, Idaho, USA*

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	Session 1C. MBE: Bioeffects and dosimetry Chair: Jeff Ketterling	Session 2C. MIM: Image/signal processing Chair: Hans Bosch *Erasmus MC*	Session 3C. MIM: Perfusion imaging Chair: Damien Garcia *University of Montreal*	Session 4C. MTC: High frequency tissue characterization Chair: Michael Oelze *The Univversity of Illinois at Urbana-Champaign*	Session 5C. Structural Health Monitoring Chair: William Wright *University College Cork*	Session 6C. PA Nonlinear Acoustics I Chair: Dave Feld *Broadcom*	Session 7C. Transducers for Medical Applications Chair: Jian Yuan *ALS Shanghai*
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
04:00 PM	**1C-1 Acoustic Regimes for Safe Use of Low-Boiling Point Phase-Change Contrast Agents as Assessed In Rat Kidneys** **A. Gloria Nyankima**[1], Juan D. Rojas[1], Rachel Ciancio[2], Kennita A. Johnson[1], Paul A. Dayton[1] *[1]Department of Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, [2]Department of Veterinary Biosciences, The Ohio State University, Columbus, Ohio, USA*	**2C-1 Automatic Segmentation and Registration of Abdominal Aortic Aneurysms using 3D Ultrasound** **Emiel van Disseldorp**[1,2], Julia van Dronkelaar[1], Josien Pluim[3], Frans van de Vosse[1], Marc van Sambeek[2], Richard Lopata[1] *[1]Biomedical Engineering, Eindhoven University of Technology, Netherlands, [2]Vascular Surgery, Catharina Hospital Eindhoven, Netherlands*	**3C-1 Effects of perfusion and vascular architecture on contrast dispersion: validation in <I>ex-vivo</I> porcine liver under machine perfusion** **Simona Turco**[1], Christina Kerovnou[2], Ruud van Sloun[1], Hessel Wijkstra[1,3], Mike Averkiou[2], Massimo Mischi[1] *[1]Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands, [2]Bioengineering, University of Washington, Seattle, USA, [3]Urology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands*	**4C-1 Segmentation of blood layers with particle image velocimetry (PIV) for reproducible in vivo characterization of erythrocyte aggregation** **Julian Garcia-Duitama**[1,2], Boris Chayer[1], Yves Goussard[2,3], Guy Cloutier[1,4] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center, Montréal, Québec, Canada, [2]Institute of Biomedical Engineering, École Polytechnique of Montreal and University of Montreal, Montréal, Québec, Canada, [3]Electrical Engineering Department, École Polytechnique of Montreal, Montréal, Québec, Canada, [4]Department of Radiology, Radio-Oncology and Nuclear Medicine, University of Montreal, Montréal, Québec, Canada*	**5C-1 SHM/NDE Challenges and Opportunities: A USAF Perspective** **Eric Lindgren**[1] *[1]US Air Force Research Laboratory, USA*	**6C-1 Imaging of nonlinear scatterers for closed-crack detection and characterization** **Sylvain Haupert**[1], Guillaume Renaud[1], Andreas Schumm[2] *[1]Laboratoire d'Imagerie Biomédical, Sorbonne Universités, UPMC Univ Paris 06, CNRS UMR 7371, INSERM UMR_S 1146, PARIS, France, [2]EDF R&D, Moret sur Loing, France*	**7C-1 Design of a 30 um Aperture Membrane Hydrophone for the Measurement and Characterization of Ultra High Frequency Ultrasound** **N. Christopher Chaggares**[1], Guofeng Pang[1], Oleg Ivanytskyy[1] *[1]Engineering, Fujifilm VisualSonics Inc., Toronto, ON, Canada*
04:15 PM	**1C-2 Study on effects of pressure and duration of ultrasound pulse on pulsation of cultured cardiomyocytes** **Aya Miwa**[1], Nobuki Kudo[1] *[1]Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Hokkaido, Japan*	**2C-2 Anatomical view stabilization of multiple 3D transesophageal echocardiograms** **Adriyana Danudibrata**[1,2], Alexander Van De Bruaene[3], Olivier Gerard[2], Jan D'hooge[1], Eigil Samset[2] *[1]Dept. of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, [2]GE Vingmed Ultrasound, Oslo, Norway, [3]Dept. of Congenital and Structural Cardiology, University Hospitals Leuven, Leuven, Belgium*	**3C-2 <I>In vivo</I> super-resolution imaging of muscle vasculature using microbubble localization technique** **Jaesok Yu**[1,2], François T. H. Yu[2], John J. Pacella[2], Flordeliza S. Villanueva[2], Kang Kim[1,2] *[1]Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA, [2]Department of Medicine & Heart and Vascular Institute, Center for Ultrasound Molecular Imaging and Therapeutics, Pittsburgh, PA, USA*	**4C-2 Polydisperse Structure Factor Model for understanding the ultrasonic scattering from apoptotic cells** **Emilie Franceschini**[1], Philippe Pognonec[2], Benjamin Guillet[3], Thierry Pourcher[2] *[1]Laboratoire de Mécanique et d'Acoustique LMA CNRS UPR 7051, Aix Marseille Université, Marseille, France, [2]Laboratoire TIRO, UMRE 4320, iBEB, DSV, CEA, University of Nice Sophia Antipolis, Nice, France, [3]Vascular Research Center INSERM UMR_S1076, Aix-Marseille University, Marseille, France*		**6C-2 Numerical Analysis on Acoustic Nonlinear Phenomena between Rough Contact Interfaces** **Xianmei Wu**[1], Hui Li[2,3], Wenhan Lv[1], Shigang Zhang[1], Di Zhang[1] *[1]State Key Laboratory of Acoustics,Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of, [2]National Astronomical Observatories, Chinese Academy of Sciences, China, People's Republic of, [3]Key laboratory of Radio Astronomy, Chinese Academy of Sciences, China, People's Republic of*	**7C-2 Acoustic-transfection to modulate cell function** **Sangpil Yoon**[1], Min Gon Kim[1], Yingxiao Wang[2], K. Kirk Shung[1] *[1]Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA, [2]Department of Bioengineering, University of California, San Diego, San Diego, California, USA*
04:30 PM	**1C-3 Correction for Nonlinear Pressure Pulse Distortion by Needle and Fiber Optic Hydrophones due to Diminished Low-Frequency Response** **Keith Wear**[1], Yunbo Liu[1], Gerald Harris[1] *[1]Center for Devices and Radiological Health, US Food and Drug Administration, USA*	**2C-3 Automatic Measurement of the Fetal Abdominal Section on a Portable Ultrasound Machine for use in Low and Middle Income countries** **Naiad Hassain Khan**[1], Eva Tegnander[2,3], Johan Morten Dreier[2], Sturla Eik-Nes[2,3], Hans Torp[1], Gabriel Kiss[1] *[1]ISB, MI Lab and Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway, [2]National Center for Fetal Medicine, St. Olavs Hospital, Trondheim, Norway, [3]Department of Laboratory Medicine, Children's and Women's Health, NTNU, Trondheim, Norway*	**3C-3 Low Power, High Resolution, Thermoacoustic Imaging of Microcapillaries and Simple Tissue Vasculature** **Miaad Alirateh**[1], Hao Nan[1], Amin Arbabian[1] *[1]Electrical Engineering, Stanford University, Stanford, California, USA*	**4C-3 Comparison between sparse and concentrated scattering models for characterization of cell-pellet biophantoms and excised mouse tumors** Pauline Muleki-Seya[1], Romain de Monchy[1], Régine Guillermin[1], Julien Guglielmi[2], Thierry Pourcher[2], Jonathan Mamou[3], **Emilie Franceschini**[1] *[1]Laboratoire de Mécanique et d'Acoustique LMA CNRS UPR 7051, Aix Marseille Université, Marseille, France, [2]Laboratoire TIRO, UMRE 4320, iBEB, DSV, CEA, University of Nice Sophia Antipolis, Nice, France, [3]F. L. Lizzi Center for Biomedical Engineering, Riverside Research, New York, USA*	**5C-2 Ultrasonic edge waves for damage detection in composite plate stiffeners** **Jun Yu Harry Chu**[1], Charles Courtney[1] *[1]Department of Mechanical Engineering, University of Bath, Bath, United Kingdom*	**6C-3 Nonlinear Ultrasonics for Material State Awareness** **Laurence Jacobs**[1] *[1]College of Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA*	**7C-3 An <I>In Vitro</I> Sonication System for Applications in Ultrasound-mediated Targeted Drug Delivery** **Fraser Stewart**[1], Guan Wang[2], Ian P Newton[3], Benjamin F Cox[4], Maya Thanou[4], Zhihong Huang[2], Inke Nathke[3], Sandy Cochran[5] *[1]School of Medicine, University of Dundee, Dundee, United Kingdom, [2]School of Science and Engineering, University of Dundee, Dundee, United Kingdom, [3]School of Life Sciences, University of Dundee, Dundee, United Kingdom, [4]Institute of Pharmaceutical Science, King's College London, London, United Kingdom, [5]School of Engineering, University of Glasgow, United Kingdom*
04:45 PM	**1C-4 Reconstruction of Focused Ultrasound Pressure Field using Combination of Optical Phase Contrast Measurement and Acoustic Holography** **Shin Yoshizawa**[1], Seiji Oyama[1], Hiroki Hanayama[1], Takuya Nakamura[1], Kai Suzuki[1], Ryo Takagi[1], Shin-ichiro Umemura[1] *[1]Tohoku University, Japan*	**2C-4 Automatic Classification of Cardiac Tracking Quality** **Hanan Khamis**[1], Amir Yahav[1], Zvi Friedman[2], Jan D'hooge[3], Dan Adam[1] *[1]Lab for Ultrasound Signals and Image Processing and Modeling, Department of Biomedical Engineering, Technion, Haifa, Israel, [2]GE Ultrasound, Tirat Hacarmel, Israel, [3]Lab on Cardiovascular Imaging & Dynamics, Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium*	**3C-4 The application of acoustic angiography to assess the progression of angiogenesis in a spontaneous mouse model of breast cancer** **Sarah E Shelton**[1], Stephen R Aylward[2], F Stuart Foster[3], Paul A Dayton[1] *[1]UNC-NCSU Joint Department of Biomedical Engineering, Chapel Hill, NC, USA, [2]Kitware, Inc., Carrboro, NC, USA, [3]Sunnybrook Health Sciences Ctr., Toronto, Ontario, Canada*	**4C-4 Effective Medium Theory combined with a polydisperse Structure Factor Model for characterizing red blood cell aggregation** **Romain de Monchy**[1], Boris Chayer[2], Guy Cloutier[2,3], Emilie Franceschini[1] *[1]Laboratoire de Mécanique et d'Acoustique, LMA - CNRS UPR 7051, Marseille, France, [2]Laboratory of Biorheology and Medical Ultrasonography, University of Montreal Hospital Research Center (CRCHUM), Montreal, Quebec, Canada, [3]Department of Radiology, Radio-Oncology and Nuclear Medecine, Institute of Biomedical Engineering, University of Montreal, Montreal, Quebec, Canada*	**5C-3 Guided Wave Structural Health Monitoring with Large Data Sets** Spencer Shiveley[1], Alexander Douglass[2], Ben Posch[1], **Joel Harley**[1,2] *[1]Department of Electrical and Computer Engineering, University of Utah, Salt Lake City, UT, USA, [2]Department of Mechanical Engineering, University of Utah, Salt Lake City, UT, USA*		**7C-4 Design and Preliminary Experimental results for a High-Frequency Crossed Electrode Phased Array, based on a reconfigurable Fresnel Lens** **Katherine Latham**[1], Chris Samson[1], Andre Bezanson[1], Jeremy Brown[2] *[1]Dalhousie University, Halifax, Nova Scotia, Canada, [2]Dalhousie University, Halifax, NS, Canada*

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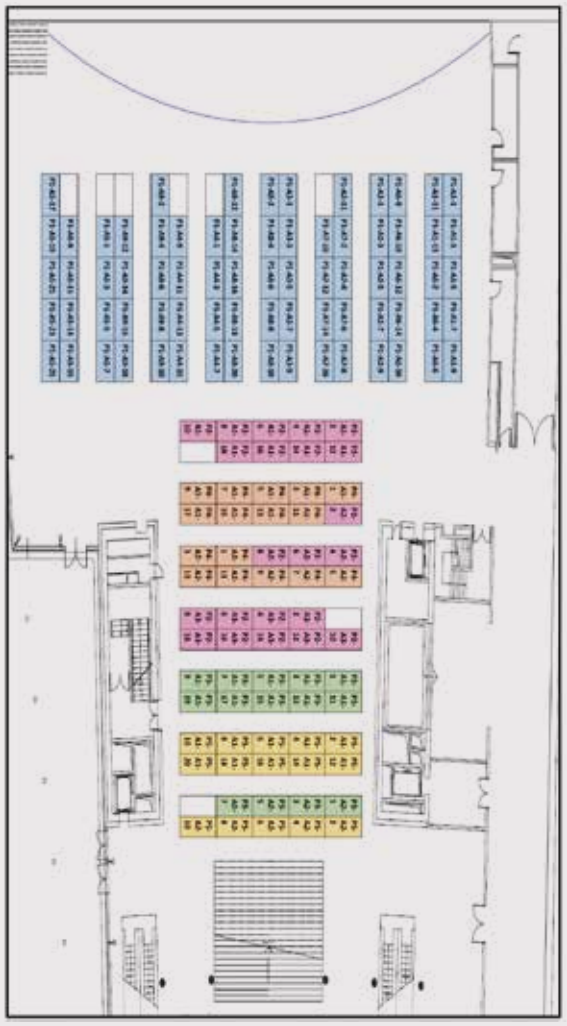
05:00 PM	**1C-5 Sonogenetics- a non invasive approach to manipulating neurons <I>in vivo</I>** Stuart Ibsen[1], Uri Magaram[1,2], **Sreekanth Chalasani[1]** *[1]Molecular Neurobiology Laboratory, The Salk Institute for Biological Studies, La Jolla, California, USA, [2]Neuroscience Graduate Program, University of California, San Diego, La Jolla, California, USA*	**2C-5 A dual tissue-Doppler optical-flow method for velocity vector imaging in high-frame-rate echocardiography** **Jonathan Porée[1]**, Damien Garcia[1,2], Guy Cloutier[1,2] *[1]CRCHUM, University of Montreal, QC, Canada, [2]Dept. of radiology, University of Montreal, QC, Canada*	**3C-5 Laser-activated perfluorocarbon (PFC) nanodroplets: contrast agent for ultrasound harmonic and photoacoustic imaging** **Changhan Yoon[1]**, Heechul Yoon[1], Kristina Hallam[2], Donald VanderLaan[1], Stanislav Emelianov[1,2] *[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, GA, USA, [2]Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University School of Medicine, GA, USA*	**4C-5 High frequency ultrasound imaging and spectral analysis from sea urchin oocytes** **Eric Strohm[12]**, Lauren Wirtzfeld[12], Gregory Czarnota[3,4], Michael Kolios[12] *[1]Physics, Ryerson University, Toronto, Canada, [2]Keenan Research Centre for Biomedical Science, St. Michael's Hospital, Toronto, Canada, [3]Radiation Oncology and Physical Sciences, Sunnybrook Health Sciences Centre, Toronto, Canada, [4]Radiation Oncology and Medical Biophysics, University of Toronto, Toronto, Canada*	**5C-4 Wavelet-based Lamb waves direction of arrival estimation in passive monitoring techniques** Angelo Gorofalo[1], Nicola Testoni[1], Alessandro Marzani[1], **Luca De Marchi[1]** *[1]University of Bologna, Italy*	**6C-4 Periodic onset of bubble shape instabilities and their influence on the spherical mode** **Matthieu Guédra[1]**, Claude Inserra[1], Cyril Mauger[2], Bruno Gilles[1] *[1]LabTau, Université Lyon1, INSERM U1032, Lyon, France, [2]LMFA, Université Lyon1, INSA de Lyon, École Centrale de Lyon, CNRS UMR5509, Villeurbanne, France*	**7C-5 Dual Hybrid Ultrasound Transducers – Designs and Simulations** **Tung Manh[1]**, Lars Hoff[1], Tonni Franke Johansen[2], Trym Eggen[3], Frederic Lanteri[4], Jean-Francois Gelly[4] *[1]Department of Micro and Nano Systems Technology, University College of Southeast Norway, Borre, Vestfold, Norway, [2]Department of Acoustics, SINTEF ICT, Norway, [3]GE Vingmed Ultrasound AS, Norway, [4]GE Parallel Design SAS, France*
05:15 PM		**2C-6 Spatial Coherence as an Image Quality Metric: Comparison with Contrast and CNR** **Katelyn Flint[1]**, Vaibhav Kakkad[1], David Bradway[1], Gregg Trahey[1,2] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA, [2]Radiology, Duke University, Durham, North Carolina, USA*	**3C-6 Characterizing Kidney Perfusion in Streptozotocin Induced Diabetic Rat Model Utilizing 4D Contrast-Enhanced Ultrasound** Kennita A. Johnson[1], **A. Gloria Nyankima[1]**, Rachel Cianciolo[2], Paul A. Dayton[1], Emily Chang[3] *[1]Department of Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, [2]Department of Veterinary Biosciences, The Ohio State University, Columbus, Ohio, USA, [3]UNC Kidney Center and Division of Nephrology & Hypertension, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA*	**4C-6 Microstructural assessment of the guinea pig sclera using quantitative acoustic microscopy** **Daniel Rohrbach[1]**, Adin S. Reisner[2], Quan Wen[3], Sally A. McFadden[4], Ronald H. Silverman[3], Quan V. Hoang[3], Jonathan Mamou[1] *[1]Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA, [2]Columbia University Medical Center, Institute of Human Nutrition, New York, NY, USA, [3]Department of Ophthalmology, Columbia University Medical Center, New York, NY, USA, [4]Vision Sciences Group, School of Psychology, Faculty of Science and IT, University of Newcastle, NSW, Australia*	**5C-5 Application of Lamb waves directional polarization filter for damage detection in isotropic plates** **Lukasz Ambrozinski[1]**, Konrad Lacki[1], Pawel Packo[1], Tadeusz Stepinski[1] *[1]Robotics and Mechatronics, AGH University of Science and Technology, Krakow, Poland*	**6C-5 Localized nonlinear modes in microbubbles under the action of ultrasound** **Serge Dos Santos[1]**, Noé Jimenez[2], Victor Sanchez-Morcillo[3] *[1]INSA Centre Val de Loire - Inserm U930 «Imaging and Brain», France, [2]LUNAM Université, Université du Maine, CNRS, LAUM UMR 6613, Le Mans, France, [3]IIGIZC, Universitat Politècnica de Valencia, Gandia, Spain*	**7C-6 A Dual-frequency Co-Linear Array for Prostate Acoustic Angiography** **Sibo Li[1]**, Jinwook Kim[1], Zhuochen Wang[1], Sandeep Kasolj[2], Brooks Lindsey[2], Paul Dayton[2], Xiaoning Jiang[1] *[1]Mechanical and Aerospace Engineering, North Carolina State University, RALEIGH, NC, USA, [2]Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, North Carolina, USA*

Monday, September 19, 2016
Poster Session
Hall Chinon

Morning Sessions (odd numbers)	
P1-A1	MBB: High frame rate imaging
P1-A2	MBE: Bioeffects and dosimetry
P1-A3	MBF: Carotid Imaging: Algorithms and experiments
P1-A4	MCA: Contrast Imaging
P1-A5	MEL: Methods in elasticity imaging
P4-A1	Microacoustic Simulation
P4-A2	Microacoustic Sensors
P3-A1	PA Acoustic Tweezers
P3-A2	PA Opto-Acoustics

Afternoon Sessions (even numbers)	
P1-A6	MIM: Image Processing
P1-A7	MSP: Medical signal processing
P1-A8	MTC: Bone
P1-A9	MTH: Cavitation and microbubbles
P2-A1	Signal Processing
P2-A2	Guided Waves
P2-A3	Material & Defect Characterization
P5-A1	Materials for Transducers
P5-A2	Medical imaging



09:30 AM - 04:00 PM POSTER --- MONDAY, SEPTEMBER 19, 2016 CHINON

Session P1-A1.
MBB: High frame rate imaging
Chair: Hervé Liebgott

P1-A1-1 The ghosting artifact in Coherent Plane Wave Compounding
Alfonso Rodriguez-Molares[1], Jorgen Avdal[2], Hans Torp[2], Lasse Lovstakken[2]
[1]Department of Circulation and Medica Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Norwegian University of Science and Technology, Norway

P1-A1-3 A novel method of coherent plane-wave compounding imaging based on compressive sensing
Song Zhang[1,2], Congzhi Wang[2], Hairong Zheng[2]
[1]Biomedical engineering, Northeastern University, China, People's Republic of, [2]Shenzhen Institutes of Advanced Technology,the Chinese Academy of Science, China, People's Republic of

P1-A1-5 A Low-Rate Parallel Fourier Domain Beamforming Method for Ultrafast Pulse-Echo Imaging
Martin F. Schiffner[1], Georg Schmitz[1]
[1]Medical Engineering, Ruhr-Universität Bochum, Bochum, Germany

P1-A1-7 High-Volume-Rate 3D Ultrasound Imaging Using a Fermat8[prime]s Spiral Scanning
Sua Bae[1], Tai-kyong Song[1]
[1]Department of Electronic Engineering, Sogang University, Korea, Republic of

P1-A1-9 3-D Imaging Using Row Column Addressed 2-D Arrays with a Diverging Lens: Feasibility Study
Hamed Bouzari[1], Mathias Engholm[2], Matthias Bo Stuart[1], Erik Vilain Thomsen[2], Joergen Arendt Jensen[1]
[1]Department of Electrical Engineering, Technichal University of Denmark, Lyngby, Denmark, [2]Department of Micro- and Nanotechnology, Technichal University of Denmark, Lyngby, Denmark

P1-A1-11 2D and 3D imaging of axial and lateral cardiac strain with coherent compounding of diverging waves in silico
Julien Grondin[1], Elisa E. Konofagou[1,2]
[1]Department of Biomedical Engineering, Columbia University, USA, [2]Department of Radiology, Columbia University, USA

P1-A1-13 Optimization of two-dimensional cardiac strain estimation with parallel beamforming and coherent compounding in silico and in vivo
Vincent Sayseng[1], Julien Grondin[1], Clement Papadacci[1], Elisa Konofagou[1]
[1]Biomedical Engineering, Columbia University, New York, New York, USA

Session P1-A2.
MBE: Bioeffects and dosimetry
Chair: Jonathan Mamou
Riverside Research

P1-A2-1 The Correlation Between Microbubble Size and Heterogeneous Sonoporation at the Single-cell Level
Peng Qin[1], Lifang Jin[2], Fan Li[2], Tao Han[1], Lianfang Du[2], Alfred.C.H Yu[3]
[1]Department of Instrument Science and Engineering, Shanghai Jiao Tong University, China, People's Republic of, [2]Department of Ultrasound, Shanghai First Peoplej`s Hospital, Shanghai Jiao Tong University, China, People's Republic of, [3]Department of Electrical and Computer Engineering, University of Waterloo, Canada

P1-A2-3 Selectively Detaching Highly Proliferative Cells using Temperature Modulation and Resonance Vibration of Cultivation Substrate
Yuta Kurashina[1], Chikahiro Imashiro[1], Kenjiro Takemura[2], Jun Komotori[2]
[1]Graduate School of Science and Technology, Keio University, Yokohama, Kanagawa, Japan, [2]Faculty of Science and Technology, Keio University, Yokohama, Kanagawa, Japan

P1-A2-5 Low-Frequency, Low-Intensity Ultrasound Inhibits the Migration Ability of Glioma Cell U87
Xiaowei Huang[1], Lili Niu[1], Long Meng[1], Ming Qian[1], Wei Zhou[1], Hairong Zheng[1]
[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of

P1-A2-7 Manipulation of cells for massive drug delivery using artificial acoustic field
Fei Li[1,2], Chen Wang[1], Long Meng[1], Mian Chen[1], Fei Yan[1], Chengxiang Zhang[1], Feiyan Cai[1], Hairong Zheng[1]
[1]1. Paul C. Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, [2]2. Shenzhen Key Laboratory of Nanobiomechanics, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of

P1-A2-9 Calibration of Reflectance-based Fiber Optic Hydrophones
Samuel Howard[1]
[1]Onda Corporation, Sunnyvale, CA, California, USA

P1-A2-11 Noise reduction of ultrasound pressure field images taken by focused shadowgraphy using an incoherent light source
Nobuki Kudo[1], Daiki Sekine[1], Yukina IIJIMA[1]
[1]Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan

Session P1-A3.
MBF: Carotid imaging: Algorithms and experiments
Chair: Matthew Bruce
University of Washington

P1-A3-1 2-D tracking Doppler with automatic angle correction using vector Doppler
Jørgen Avdal[1], Ingvild Ekroll[1], Lasse Løvstakken[1], Hans Torp[1]
[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway

P1-A3-3 Validation of a Vector Doppler Method for Peak Blood Velocity Detection in a CFD-Simulated Carotid Model
Riccardo Matera[1], Alessandro Ramalli[1], **Stefano Ricci**[1]
[1]Information Engineering Dept., University of Florence, Firenze, Italy

P1-A3-5 Two-dimensional Blood Flow Vector and Wall Shear Stress of Carotid Artery Obtained with Dual-angle Doppler Method
Osamu Akagawa[1], Kosuke Fukazu[1], Ryo Nagaoka[1], **Yoshifumi Saijo**[1]
[1]Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan

P1-A3-7 Performance evaluation of compounding techniques for carotid blood velocity estimation using angled plane wave transmissions
Anne E.C.M. Saris[1], Hendrik H.G. Hansen[1], Stein Fekkes[1], Maartje M. Nillesen[1], Marcel C.M. Rutten[2], Chris L. de Korte[1]
[1]Medical UltraSound Imaging Center (MUSIC), department of Radiology and Nuclear Medicine, Radboudumc, Nijmegen, Netherlands, [2]Cardiovascular Biomechanics, department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

P1-A3-9 Hemodynamic parameters depict differences in arterial stenosis based on High-frequency ultrasound imaging system
Shuai Li[1,2], Lili Niu[1], Ming Qian[1], Lisheng Xu[2], Hairong Zheng[1]
[1]Shenzhen Institutes of Advanced Technology,Chinese Academy of Sciences, China, People's Republic of, [2]SINO-DUTCH Biomedical and information engineering school of Northeastern University, China, People's Republic of

Session P1-A4.
MCA: Contrast imaging
Chair: Olivier Couture
Institut Langevin (CNRS, ESPCI, INSERM)

P1-A4-1 Quantification in molecular ultrasound imaging using compartmental modeling
Kenneth Hoyt[1,2], Shashank Sirsi[1], Robert Mattrey[2]
[1]Bioengineering, University of Texas at Dallas, Richardson, TX, USA, [2]Radiology, University of Texas Southwestern Medical Center, Dallas, TX, USA

P1-A4-3 Molecular Imaging of VEGFR-2 Provides Functional Indication of Response To Therapy Earlier than Tumor Size in Mouse Renal Tumors Treated with VEGF or Notch Inhibitors
Juan D. Rojas[1], Fanglue Lin[1], E. Jordan Dix[1], Yun-Chen Chiang[2], W. Kim Rathmell[3], Paul A. Dayton[1,2]
[1]Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, USA, [2]UNC Lineberger Comprehensive Cancer Center, USA, [3]School of Medicine, Vanderbilt University, USA

P1-A4-5 Does contrast ultrasound dispersion imaging reveal changes in vascular tortuosity? A comparison with acoustic angiography.
Anastasiia Panfilova[1], Sarah E. Shelton[2], Ruud J.G. van Sloun[1], Libertario Demi[1], Hessel Wijkstra[1,3], Paul A. Dayton[2], Massimo Mischi[1]
[1]Technical University of Eindhoven, Noord Brabant, Netherlands, [2]University of North Carolina at Chapel Hill, USA, [3]Academic Medical Centre University of Amsterdam, Amsterdam, Netherlands

P1-A4-7 4D Subharmonic Aided Pressure Estimation for Monitoring Neoadjuvant Chemotherapy Response of Breast Cancer
Kibo Nam[1], Maria Stanczak[1], Anush Sridharan[1,2], Adam Berger[3], Tiffany Avery[4], John Eisenbrey[1], Flemming Forsberg[1]
[1]Radiology, Thomas Jefferson University, Philadelphia, PA, USA, [2]Electrical and Computer Engineering, Drexel University, PA, USA, [3]Surgery, Thomas Jefferson University, Philadelphia, PA, USA, [4]Medical Oncology, Thomas Jefferson University, Philadelphia, PA, USA

P1-A4-9 Feasibility and Limitation of Parametric Perfusion Imaging based on Dynamic Contrast-enhanced Plane Wave Imaging
Diya Wang[1], Yujin Zong[1], Mengnan Xiao[1], Shanshan Xu[1], Mingxi Wan[1]
[1]Department of Biomedical Engineering, School of Life Science and Technology, Xi'an Jiaotong University, Xi'an, China, People's Republic of

P1-A4-11 Comparison of Arterial Input Function Models for Small-Animal Ultrasound Perfusion Imaging
Martin Mezl[1], Radovan Jirik[2], Lenka Dvorakova[2], Eva Drazanova[2], Radim Kolar[1]
[1]Department of Biomedical Engineering, Brno University of Technology, Brno, Czech Republic, [2]Institute of Scientific Instruments of the ASCR, v.v.i., Brno, Czech Republic

P1-A4-13 Molecular Engineering of the Acoustic, Surface and Targeting Properties of Genetically Encodable Ultrasound Reporters
Anupama Lakshmanan[1], Arash Farhadi[1], Suchita Nety[1], Audrey-Lee Gosselin[1], Raymond W.Bourdeau[1], David Maresca[1], Mikhail G. Shapiro[2]
[1]California Institute of Technology, Pasadena, CA, USA, [2]Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, USA

P1-A4-15 High sensitivity dual-frequency activation and detection of phase change contrast agents enabled with a high bandwidth CMUT
Anthony Novell[1], Christopher B. Arena[1], Omer Oralkan[1,2], Paul A. Dayton[1]
[1]Joint Department of Biomedical Engineering, The University of North Carolina and North Carolina State University, Chapel Hill, NC, USA, [2]Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC, USA

Session P1-A5.
MEL: Methods in elasticity imaging
Chair: **Hendrik Hansen**
Radboud university medical center

P1-A5-1 Electromagnetic Tracking-Based Freehand 3D Elastography with 1D Linear Array
Fu-Feng Lee[1], Qiong He[1], Jianwen Luo[1]
[1]Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of

P1-A5-3 Spatial Compounding of ARFI Images in an Automated Breast Imaging System
Nuria Gonzalez-Salido[1], Jorge Camacho[1], Luis Medina[1], Jorge Cruzo[1]
[1]DSSU, CSIC, Madrid, Madrid, Spain

P1-A5-5 Phase aberration in ultrasound shear wave elastography – impacts on push and tracking
SHENG-WEN HUANG[1], Hua Xie[1], Jean-Luc Robert[1], Man Nguyen[1], Vijay Shamdasani[2]
[1]Philips Research North America, Cambridge, MA, USA, [2]Philips Healthcare, Bothell, WA, USA

P1-A5-7 Multiple-mode shear wave propagation in transversely isotropic media – experimental phantom study using a dual probe setup
David Larsson[1], Tim Nordenfur[1], Gioia Bassan[1], Sara Aristizabal[2], Matthew W Urban[2,3], Matilda Larsson[1]
[1]Medical Engineering, KTH Royal Institute of Technology, Huddinge, Sweden, [2]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA, [3]Department of Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA

P1-A5-9 Improved shear wave-front reconstruction method by aligning imaging beam angles with shear-wave polarization
Safeer Hyder[1], Sevan Harput[1], Zainab Alomari[1], Steven Freear[1], David M. J. Cowell[1], James McLaughlan[1]
[1]Ultrasound Group, School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom

P1-A5-11 Finite element simulations to support the measurement and analysis of shear wave dispersion
Annette Caenen[1], Patrick Segers[1], Abigail Swillens[1]
[1]IBiTech - bioMMeda, Department of Electronics and Information systems, Ghent University, Ghent, Belgium

P1-A5-13 Performance Comparison of High Frame Rate and Standard [1:1] Acoustic Radiation Force Impulse Imaging
Xuan Ding[1,2], Mark Palmeri[3], Kang Kim[1,4]
[1]Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA, [2]Medical Scientist Training Program, University of Pittsburgh, Pittsburgh, PA, USA, [3]Biomedical Engineering, Duke University, Durham, NC, USA, [4]Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

P1-A5-15 Forward and inverse elastic wave scattering by irregular inclusions for shear wave elastography
Simon Bernard[1], Guy Cloutier[1,2]
[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montréal Hospital Research Center (CRCHUM), Montréal, QC, Canada, [2]Department of Radiology, Radio-Oncology and Nuclear Medicine and Institute of Biomedical Engineering, University of Montréal, Montréal, QC, Canada

P1-A5-17 Measured Wave Propagation Dispersion in Tubes Excited with Acoustic Radiation Force Matches Theoretical Guided Wave Dispersion
Matthew Urban[1], Ali Vaziri Astaneh[2], Wilkins Aquino[3], James Greenleaf[4], Murthy Guddati[2]
[1]Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [2]Department of Civil Engineering, North Carolina State University, Raleigh, North Carolina, USA, [3]Department of Civil and Environmental Engineering, Duke University, Durham, North Carolina, USA, [4]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA

P1-A5-19 Time-reversal of diffuse shear waves for elastography using low frame rate spectral-domain optical coherence tomography
Thu-Mai Nguyen[1], Ali Zorgani[2], Stefan Catheline[2], Claude Boccara[1]
[1]Institut Langevin Ondes et Images, ESPCI, CNRS UMR 7587, Inserm U979, France, [2]Laboratory of Therapeutic Applications of Ultrasound, Inserm U1032, France

P1-A5-21 Comparative evaluation of aberration effects in crawling wave sonoelastography and comb-push ultrasound shear elastography
Gabriela Torres[1], Carolina Amador[2], Matthew Urban[3], Benjamin Castañeda[1], **Roberto Lavarello[1]**
[1]Departamento de Ingeniería, Pontificia Universidad Catolica del Peru, Lima, Lima, Peru, [2]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [3]Department of Radiology, Mayo Clinic College of Medicine, Rochester, Rochester, Minnesota, USA

P1-A5-23 Improved shear wave group velocity estimation method based on spatiotemporal peak and thresholding motion search
Carolina Amador[1], Shigao Chen[1,2], Armando Manduca[1], James Greenleaf[1], Matthew Urban[1,2]
[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA, [2]Department of Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA

P1-A5-25 Acoustic Radiation Force-based Model-free Viscoelastic Characterization: Comparison Study
Carolina Amador[1], Daniel Escobar[1], Ivan Nenadic[1], Matthew Urban[1,2]
[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA, [2]Department of Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA

Session P1-A6.
MIM: Image processing
Chair: **Olivier Bernard**
CREATIS

P1-A6-2 Automated Registration of 3D Ultrasound and CT/MR images for Liver
Hasnine Haque[1], Yasuo Omi[1], László Ruskó[2], Pavan Annangi[3], Ohmura Kazuyuki[1]
[1]Connect Engineering, GE Healtcare Japan, Hino, Tokyo, Japan, [2]Healthcare Technology and Medical Innovation, GE Healtcare, Sezged, Hungary, [3]GE Global Research Center, India

P1-A6-4 Segmentation of the lateral ventricles in 3D ultrasound images of the brain in neonates
Sciolla Bruno[1], Philippe Quetin[2], Thibaut Dambry[3], Benoit Guibert[3], Philippe Delachartre[1]
[1]CREATIS, INSA Lyon, France, [2]Néonatologie, Centre Hospitalier d'Avignon, France, [3]Atys Medical, Saucieu-en-Jarrest, France

P1-A6-6 Novel Hybrid Segmentation of Vessels in Ultrasound Scans using a Combination of B-mode and color Flow data
Ramin Moshavegh[1], Bo Martins[2], Martin Christian Hemmsen[1], Caroline Ewertsen[3], Michael Bachmann Nielsen[3], Jørgen Arendt Jensen[1]
[1]Electrical Engineering, Technical University of Denamrk, Copenhagen, hovedstaden, Denmark, [2]BK Ultrasound ApS, Denmark, [3]Radiology, Copenhagen University Hospital, Copenhagen, Denmark

P1-A6-8 Automated Segmentation of Blood Vessel in Contrast Enhanced Plane Wave Ultrasound Images
Wing Fai Lee[1], Virginie Papadopoulou[1,2], Richard W Corbett[2], Chee Hau Leow[1], Neill Duncan[2], David Cosgrove[3], Alfred C.H. Yu[4], Meng-Xing Tang[1]
[1]Department of Bioengineering, Imperial College London, London, United Kingdom, [2]Imperial College Renal and Transplant Centre, Hammersmith Hospital, London, United Kingdom, [3]Department of Imaging Sciences, MRC Clinical Sciences Centre, Faculty of Medicine, Imperial College London, London, United Kingdom, [4]Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Canada

P1-A6-10 Myocardial Segmentation in Contrast Echocardiography using Random Forests and Shape Model
Yuanwei Li[1], Navtej Chahal[2], Roxy Senior[2], **Meng-Xing Tang[1]**
[1]Bioengineering, Imperial College London, London, United Kingdom, [2]Royal Brompton Hospital, London, United Kingdom

P1-A6-12 Automated In-plane Visualization of Steep Needles from 3D Ultrasound Data Volumes
Arash Pourtaherian[1], Nenad Mihajlovic[2], Svitlana Zinger[1], Jinfeng Huang[2], Hendrikus H. M. Korsten[1,3], Peter H. N. de With[1], Gary C. Ng[4]
[1]Eindhoven University of Technology, Eindhoven, Netherlands, [2]Philips Research Eindhoven, Eindhoven, Netherlands, [3]Catharina Hospital Eindhoven, Eindhoven, Netherlands, [4]Philips Ultrasound, Bothel, Washington, USA

P1-A6-14 Automatic B-line detection in paediatric lung ultrasound
Nantheera Anantrasirichai[1], Marco Allinovi[2], Wesley Hayes[3], Alin Achim[1]
[1]University of Bristol, Bristol, United Kingdom, [2]Meyer Children's Hospital, Florence, Italy, [3]Great Ormond Street Hospital, London, United Kingdom

P1-A6-16 Machine Learning Algorithms: Second Reader Of Sonograms To Enhance Breast Cancer Diagnosis
Laith Sultan[1], Santosh Venkatesh[1], Ghizlane Bouzghar[1], **Chandra Sehgal[1]**
[1]University of Pennsylvania, USA

Session P1-A7.
MSP: Medical signal processing
Chair: **Jens Munk Hansen**
BK Ultrasound

P1-A7-2 Experimental ultrasonic communications through tissues at Mbps data rates
Andrew C. Singer[1], Anthony Podkowa[2], **Michael L. Oelze[2]**
[1]Coordinated Science Laboratory, Department of Electrical and Computer Engineering, The University of Illinois at Urbana-Champaign, USA, [2]Bioacoustics Research Laboratory, Department of Electrical and Computer Engineering, The University of Illinois at Urbana-Champaign, USA

P1-A7-4 Ultrasound Tissue Harmonic Imaging Using Nonlinear Chirp Coded Excitation: <I>In Vitro</I> Study and Analysis
Pilsu Kim[1], Sua Bae[1], Tai-kyong Song[1]
[1]Department of Electronic Engineering, Sogang University, Korea, Republic of

P1-A7-6 Barker-sequence-modulated Golay Coded Excitation Technique for Ultrasound Imaging
Pilsu Kim[1], Eunji Jeong[1], Sua Bae[1], Tai-kyong Song[1]
[1]Department of Electronic Engineering, Sogang University, Korea, Republic of

P1-A7-8 Flow detection for vessel extraction in 2D+t and 3D high frequency Ultrasound Imaging.
Johan Chaniot[1], **Bruno Sciolla[1]**, Benoit Guilbert[2], Thibaut Dambry[2], Philippe Delachartre[1]
[1]Creatis, Insa Lyon, Villeurbanne, France, [2]Atys Medical, Saucieu-en-Jarrest, France

P1-A7-10 Optimization of resolution enhancement compression technique with plane wave imaging
Sebastien Salles[1], François Varray[2], Olivier Basset[2]
[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Univ Lyon, INSA-Lyon, Université Lyon I, CNRS, Inserm, CREATIS UMR 5220, U1206, F-69621, Lyon, France

P1-A7-12 A wavelet optimization approach for microemboli classification using RF signals

Nabil Benoudjit[1], Fouzi Douak[2,3], Damien Fouan[4], Karim Ferroudji[2], Abdelghani Tafsast[2], **Ayache Bouakaz[4]**

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P1-A7-14 Harmonic Magnification by Time Reversed based on a Hammerstein decomposition

Sebastien Menigot[1], Jean-Marc Girault[1]

[1]*Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France*

P1-A7-16 Base-band Pulse Compression for Golay Coded Excitation

Pilsu Kim[1], Sua Bae[1], Eunji Jeong[1], Tai-kyong Song[1]

[1]*Department of Electronic Engineering, Sogang University, Korea, Republic of*

Session P1-A8.
MTC: Bone
Chair: **Keith Wear**
USA Food and Drug Administration

P1-A8-2 Ultrasound biomicroscopy reveals chondrocyte layer spacing in human articular cartilage

Daniel Rohrbach[1], Satu Inkinen[2], Jana Hradilova[3,4], Anke Kadow-Romacker[3], Antti Joukainen[5], Markus Malo[2], Jonathan Mamou[1], Juha Toyräs[2], Kay Raum[3]

[1]*Lizzi Center for Biomedical Engineering, Riverside Research, New York City, USA,* [2]*Department of Applied Physics, University of Eastern Finland, Kuopio, Finland,* [3]*Berlin-Brandenburg School for Regenerative Therapies, Charité-Universitätsmedizin Berlin, Berlin, Germany,* [4]*Faculty of Nuclear Science and Physical Engineering, Czech Technical University in Prague, Prague, Czech Republic,* [5]*Department of Orthopaedics, Traumatology and Hand Surgery, Kuopio University Hospital, Kuopio, Finland*

P1-A8-4 Fast decomposition method based on a wave transfer function with a phase rotation parameter for the analysis of two wave phenomenon in cancellous bone

Hirofumi Taki[1], Yoshiki Nagatani[2], Mami Matsukawa[3], Hiroshi Kanai[4]

[1]*Graduate School of Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan,* [2]*Department of Electronics, Kobe City College of Technology, Japan,* [3]*Faculty of Science and Engineering, Doshisha University, Japan,* [4]*Graduate School of Engineering, Tohoku University, Japan*

P1-A8-6 Multichannel Wideband Mode-Selective Excitation of Ultrasonic Guided Waves in Long Cortical Bone

Liang Bai[1], **Kailiang Xu[1,2]**, Nicolas Bochud[2], Dean Ta[1], Pascal Laugier[2], Bo Hu[1], Jean-Gabriel Minonzio[2]

[1]*Department of Electronic Engineering, Fudan University, Shanghai, China, People's Republic of,* [2]*Sorbonne Universite, UPMC Univ Paris 06, INSERM UMR-S 1146, CNRS UMR 7371, Laboratoire, d'Imagerie Biomedicale, Paris, France*

P1-A8-8 Ultrasonic backscatter characterization of the densities and microstructure of cancellous bone

Chengcheng Liu[1], Ying Li[1], Feng Xu[1], Dean Ta[1], Bo Hu[1], Weiqi Wang[1]

[1]*Department of Electronic Engineering, Fudan University, Shanghai, China, People's Republic of*

P1-A8-10 In Vivo Bone Assessment Using Ultrasound-guided Acoustic Radiation Excitation

Max Denis[1], Mostafa Fatemi[2], Azra Alizad[1,2]

[1]*Department of Radiology, Mayo Clinic College of Medicine, USA,* [2]*Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, USA*

P1-A8-12 Evaluation of Bone Health using Photoacoustic Technique

Xueding Wang[1,2], Ting Feng[3], Meng Cao[2], Joseph Perosky[4], Ken Kozloff[4], Qian Cheng[1], Jie Yuan[3]

[1]*Physics, Tongji University, China, People's Republic of,* [2]*Biomedical Engineering, University of Michigan, USA,* [3]*Nanjing University, China, People's Republic of,* [4]*Orthopaedic Surgery, University of Michigan, USA*

P1-A8-14 Influence of porosity and direction of measurement on ultrasound velocities in a homogenous material with aligned pores measured via bidirectional axial transmission

Melanie Daugschies[1], Claus-Christian Glüer[1], Reinhard Barkmann[1]

[1]*Section Biomedical Imaging, University Hospital Kiel, Germany*

P1-A8-16 Insight on the model complexity to infer reliable cortical bone properties from guided waves measurements

Nicolas Bochud[1], Quentin Vallet[1], Jean-Gabriel Minonzio[1], Pascal Laugier[1]

[1]*Sorbonne Universités, UPMC Univ Paris 06, CNRS UMR 7371, INSERM UMR S1146, Laboratoire d'Imagerie Biomédicale, Paris, France*

P1-A8-18 Linear Radon Transform Permits Automated Separation of the Fundamental Flexural Guided Wave on Axial Transmission Measurements in Human Radius

Kailiang Xu[1,2], Dean Ta[1], Jean-Gabriel Minonzio[2], Ari Salmi[3], Pascal Laugier[2], Edward Hæggström[3], **Petra Moilanen[3,4]**

[1]*Department of Electronic Engineering, Fudan University, Shanghai, China, People's Republic of,* [2]*Laboratoire d'Imagerie Biomédicale, Sorbonne Université, UPMC Univ Paris 06, INSERM UMR-S 1146, CNRS UMR 7371, Paris, France,* [3]*Department of Physics, University of Helsinki, Helsinki, Finland,* [4]*Department of Physics, University of Jyväskylä, Jyväskylä, Finland*

P1-A8-20 Defatting and synchrotron X-ray imaging of the vascular network do not alter bone elasticity measured by resonant ultrasound spectroscopy

Xiran CAI[1], Laura Peralta[1], Françoise Peyrin[2], Lukas Helfen[3,4], Pascal Laugier[1], Quentin Grimal[1]

[1]*Sorbonne Université, UPMC Univ Paris 06, INSERM UMR-S 1146, CNRS UMR 7371, Laboratoire d'Imagerie Biomédicale, Paris, France,* [2]*CREATIS, Université de Lyon, INSERM UI206, CNRS UMR5220, INSA-Lyon, UCBL, Villeurbanne, France,* [3]*ESRF, Grenoble Cedex, France,* [4]*Karlsruhe Institute of Technology, Laboratory for the Application of Synchrotron Radiation, Karlsruhe, Germany*

Session P1-A9.
MTH: Cavitation and microbubbles
Chair: **Steven Freear**

P1-A9-2 Ultrasound mediated EGF-coating microbubble cavitaion in wound dressing applications

Ai-Ho Liao[1], Chi-Ray Hung[1], Chih-Hung Wang[2], Ho-Chiao Chuang[3]

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P1-A9-4 Cavitation-enhanced delivery and real-time monitoring of in-vivo drug delivery of nano-scale agents using B-mode image guidance and passive acoustic mapping

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P1-A9-6 Fluorescent microbubbles for targeted drug delivery to the brain induced by focused ultrasound

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P1-A9-8 Ultrasonic Concentration Imaging of Cavitation Bubbles using Nakagami Statistical Model

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P1-A9-10 Specialized Cavitation Seed for Sonophoresis

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P1-A9-12 Spatial-temporal Dynamics of Cavitation Bubbles Induced by Pulsed HIFU Thrombolysis within a Vessel and Parameters Optimization for Cavitation Enhancement

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P1-A9-14 Therapeutic effect of paclitaxel liposomes delivered by ultrasound with microbubbles on nude mice bearing intracranial glioblastoma xenografts monitored by bioluminescence imaging

Zhaoke Pi[1,2], Xin Chen[1,2], Fangfang Li[1], Yue Li[1], Yiling Chen[1], Weijian Huang[1], Fei Yan[3], Hairong Zheng[3], Yaxin Hu[1], **Yuanyuan Shen[1,2]**

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P1-A9-16 Time-resolved Measurement of Bubble Cavitation by Combination of Ultrasound Power Doppler Image and Delayed US Irradiation

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P1-A9-18 Influence of microbubble size on sonoporation efficiency

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Session P4-A1.
Microacoustic Simulation
Chair: **Maximilian Pitschi**
TDK Corporation

P4-A1-1 Automated COM parameter extraction for SiO₂ / LiNbO₃ and SiO₂ / LiTaO₃ substrates

Svetlana Malocha[1], Kevin Gamble[1], Hao Dong[1], Arun Dharmalingam[1]

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P4-A1-3 Modeling Nonlinear Behavior of RF Bulk Acoustic Wave Resonators

Vikrant Chauhan[1], Markus Mayer[2], Christian Huck[2], Herbert Zidek[2], Robert Weigel[1], Amelie Hagelauer[1], Maximilian Pitschi[2]

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P4-A1-5 Calculating Transverse Mode Profiles of TCSAW Piston Mode Resonators

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P4-A1-7 Frequency Domain FEM Analysis of Reflector Scattering Characteristics for SAW Tags

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P4-A1-9 Noise optimization of surface acoustic wave devices in electronic systems

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P4-A1-11 Comsol modeling of LSAW Resonators
Ventsislav Yantchev[1], Patrick Turner[2], Victor Plessky[3]
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P4-A1-13 Modified Hanma-Hunsinger Cell Geometry for Improved Manufacturability of SAW Filters
Pierre Dufilie[1], Pascal Ventura[2], Frederic Hecht[3]
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P4-A1-15 Lagrangian model of temperature coefficient of frequency of SAW resonators
Yook-Kong Yong[1], Xiangnan Pang[1]
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P4-A1-17 Application of optimally-shaped phononic crystals to reduce anchor loss of MEMS resonators
Raffaele Ardito[1], Massimiliano Cremonesi[1], **Luca D'Alessandro**[1], Attilio Frangi[1]
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Session P4-A2. Microacoustic Sensors
Chair: **Sergei Zhgoon**
MPEI

P4-A2-1 Polymer based disposable acoustic wave device
Arvind Kumar[1], Soumya Dutta[1]
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P4-A2-3 A DoE-enhanced method to determine the temperature coefficients of LGS
PASCAL NICOLAY[1]
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P4-A2-5 Vibration characteristics measurements of damaged cantilever using impedance-loaded SAW sensor
Jun Kondoh[1], Hiroaki Sato[2], Masaki Oishi[3]
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P4-A2-7 Experimental Investigations of the Acousto Electric Effect in High Temperature SAW Gas Sensing
Gudrun Bruckner[1], Jochen Bardong[1], Markus Postl[2], Andreas Klug[2]
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P4-A2-9 Thermal and conductivity dependence of GaAs based acoustic biosensors
Vivien Lacour[1], Thérèse Leblois[1]
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P4-A2-11 Measurement of trace moisture adsorption/desorption of stainless steel tubing using ball surface acoustic wave sensor
Toshihiro Tsuji[1], Toru Oizumi[2], Nobuo Takeda[2], Shingo Akao[2], Yusuke Tsukahara[2], Kazushi Yamanaka[2]
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P4-A2-13 Towards an Optimal Architecture of High Temperature LGS-Based SAW Sensors
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Session P2-A1. Signal Processing
Chair: **Jafar Saniie**
Illinois Institute of Technology

P2-A1-2 Adaptive iterative deconvolution of ultrasonic spread spectrum signals
Linas Svilainis[1], Alberto Rodriguez[2], Kristina Lukoseviciute[3], Arturas Aleksandrovas[1]
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P2-A1-4 Ultrasonic Reflectivity Function Estimation using Cepstrum Sparse Deconvolution
Juan Lu[1], Ramazan Demirli[2], Jafar Saniie[1]
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P2-A1-6 Reconfigurable Accelerator Design Platform for Ultrasonic Signal Processing and Imaging Applications
Paul Gal[1], Jafar Saniie[1]
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P2-A1-8 Improving Ultrasonic Multi-level Measurements with Wavelets – Results from Separators and Smelters
Khim Chhantyal[1], Håkon Viumdal[1], Saba Mylvaganam[1]
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P2-A1-10 Blind Pulse Compression Through Skewness Maximization on Overlapping Echoes from Thin Layers
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P2-A1-12 Monitoring of coagulation process using decorrelation of acoustic waves in random media
Nicolás Pérez[1], Florencia Blasina[1], Eliana Budelli[1], Patricia Lema[1], Ros Kiri Ing[2], Carlos Negreira[3]
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P2-A1-14 A Method to Separate Flexural and Extensional Signals from Mixed-Mode Ultrasonic Signals
Jean-Luc Le Calvez[1], Thilo M. Brill[1]
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P2-A1-16 A Fast Tracking Algorithm for Estimating Ultrasonic Signal Time of Flight inDrilled Shafts Using Active Shape Model
Zhun Chen[1,2], **Wenbo Zhao**[1,2], Yuanwei Jin[3], Ming Li[4,5], Jimmy Zhu[6]
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P2-A1-18 Embedded System Implementation of an Ultrasonic Flow Detection Algorithm based on Support Vector Machine Classification
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Session P2-A2. Guided Waves
Chair: **Walter Arnold**
Saarland University

P2-A2-2 Numerical analysis of the effect of longitudinal tensile stress on the time-reversal focusing of Lamb waves in plates
Alan Kubrusly[1], Nicolás Pérez[2], Arthur Braga[3], Jean Pierre von der Weid[1]
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P2-A2-4 Non-contact characterization of crack damage in concrete using ultrasonic backscatter from surface waves
Suyun Ham[1], John S. Popovics[1], Michael L. Oelze[2]
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P2-A2-6 Evaluation of Accumulated Damage in a Circular Tube Using Effect of Second-Harmonic Generation of Circumferential Guided Wave Propagation
Mingxi Deng[1], Guangjian Gao[1], Yanxun Xiang[2], Mingliang Li[1]
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P2-A2-8 A Study for Propagating Ultrasound through Transmission Line Based on Cascade-Connection Resonator Model
Keita Tachibana[1], **Naria Tagawa**[1], Takasuke Irie[1,2], Masasumi Yoshizawa[3], Tadashi Moriya[1]
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Session P2-A3. Material & Defect Characterization
Chair: **Bernhard Tittmann**
Penn State University

P2-A3-2 A calibration-free inversion algorithm for cement quality evaluation behind highly contrasting steel pipe
Mikhail Lemarenko[1], Christoph Klieber[1]
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P2-A3-4 Investigation of surface acoustic wave attenuation in coated polycrystalline metal sheets
Martin Ryzy[1], Tomáš Grabec[2], István A. Veres[1]
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P2-A3-6 To what extent can we determine porosity in CFRP structures based on ultrasonic measurements without a proper back wall echo?
Ines Veile[1], Jochen Kurz[2], Ute Rabe[1]
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P2-A3-8 Ultrasonic Characterization of Mesoporous Thin Films
julien Bustillo[1], laurianne Blanc[2], christophe Brosseau[2], cédric Boissière[3]
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P2-A3-10 Estimating the size of a scatterer by transmitted signal delay
Ville Kananen[1], Joona Eskelinen[1], Edward Hæggström[1]
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P2-A3-12 Quantitative phase measurement for the damage detection in piezoelectric crystal using angularly placed multiple inter digital transducers

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P2-A3-14 Ultrasonic Assessment of Olive Oil Mixtures Properties

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P2-A3-16 Contribution of reflector interfaces to the measurement sensitivity improvement of nonlinear B/A parameter for echo mode

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P2-A3-18 Nonlinear ultrasonic imaging in complex media : ageing of material and preservation of cultural heritage

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Session P5-A1. Materials for Transducers

Chair: **Shujun Zhang**
University of Wollongong

P5-A1-2 Overpoling study of PMN-PT and PIN-PMN-PT crystal grown by Vertical Gradient Freeze method

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P5-A1-4 Sc doped AlN film based Acoustic Tweezers for Cell Manipulation

Benpeng Zhu[1], Chunlong Fei[2], Wei Wei[3], Chen Wang[4], Xiaofei Yang[1], Hairong Zheng[4], Qifa Zhou[2], K.Kirk Shung[2]

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P5-A1-6 Sputter technique for deposition of AlN and ScAlN thin films in mass production

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P5-A1-8 Temperature influence on high frequency copolymer transducers

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P5-A1-10 Temperature Effects on Ultrasonic Phase Velocity and Attenuation in Eccosorb and PMMA

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P5-A1-12 Assessment of the ultrasonic properties of additive manufactured materials for passive components of piezoelectric transducers

M.D. Fariñas[1], G. Cummins[2], V. Seetohul[3], M.P.Y. Desmulliez[2], S. Cochran[3], T.E.G. Álvarez-Arenas[1]

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P5-A1-14 Ferroelectret Transducers for Water Immersion and Medical Imaging.

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P5-A1-16 Characterization and modelling of linear arrays based on PZT thick film technology

Tomasz Zawada[1], Louise M. Bierregaard[1], Erling Ringgaard[1], Ruichao Xu[1], Michele Guizzetti[1], Franck Levassort[2], Dominique Certon[2]

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P5-A1-18 Fabrication of ultrasound transducers based on lead-free BNT tape-casting thick films

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P5-A1-20 Development of CNT-PDMS Optoacoustic Transmitters by Using a Localized Photothermal Curing Process

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Session P5-A2. Medical Imaging

Chair: **Christine Demore**
University of Glasgow

P5-A2-2 Development of 20-MHz PMN-PT Single Crystal Phased-Array Ultrasound Transducer for Biomedical Imaging Applications

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P5-A2-4 A Feasibility Study of Dual-element Intravascular Ultrasound Transducer with Inversion Layer Technique

Jin Ho Sung[1], Sung Min Kim[1], Jong Seob Jeong[1]

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P5-A2-6 Compensation of the Inside Gap in a Large Field-of-View Array Probes for an Automated Breast Ultrasound System

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P5-A2-8 Design and Fabrication of an Electromagnetic Micro-Motor for Intravascular Ultrasound (IVUS) Imaging

Jue Peng[1,2], Zhifei Qin[1,2], Siping Chen[1,2]

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P5-A2-10 A One-wavelength-pitch 40MHz Piezocomposite Linear Array

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Session P3-A1. PA Acoustic Tweezers

Chair: **Anne Bernassau**
Heriot Watt University

P3-A1-1 Acoustical vortex on a chip

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P3-A1-3 Surface Acoustic Wave Particle Manipulation and Sorting: Acoustic Wavelengths in the order of the Particle Size

Adrian Neild[1], Citsabehsan Devendran[1], Armaghan Fakhfouri[1], Jia Wei Ng[1], Nipuna Gunasekara[1], David Collins[2]

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P3-A1-5 Spatial selective manipulation of microbubbles by tunable surface acoustic waves

Wei Zhou[1], Lili Niu[1], Feiyan Cai[1], Fei Li[1], Xiaowei Huang[1], Chen Wang[1], Jingjing Wang[1], Long Meng[1], Hairong Zheng[1]

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P3-A1-7 Acoustic radiation force of a quasi-Gaussian beam on an elastic sphere in a fluid

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P3-A1-9 Fragmentation of iron dendrites by acoustically excited oscillating bubbles in a microchannel

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P3-A1-11 A Deterministic Method for Particle Sorting by Dynamic Acoustic Field

Gergely Simon[1], Marco A. B. Andrade[2], Danny Roolvink[3], Peter A. G. Cormack[3], Mathis O. Riehle[4], Anne L. Bernassau[1]

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P3-A1-13 Trapping and propulsion of objects by acoustic vortex beams at the water-air interface

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P3-A1-15 Investigating Calcium Response of Cancer Cells in an Acoustic Trap at 30 MHz High-frequency Ultrasound

Jihun Kim[1], Jin Man Park[1], JinWoo Choi[2], Sang Yeon Youn[1], Jin Ho Chang[3], Hee Chan Kim[2], Joe Youn Hwang[1]

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P3-A1-17 Dynamic quantification of the Angular Momentum Transferred to objects through an airborne acoustic vortex

Ruben Darío Muelas Hurtado[1], Gonzalo Casanova[1], **Joao Luis Eolo Cuello**[1]

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P3-A1-19 Acoustic radiation force on a sphere in an acoustic levitation device

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Session P3-A2. PA Opto-Acoustics Chair: Anne Bernassau, Heriot Watt University			
P3-A2-1 Influence of Temperature Gradients on Spectral Transmission of Acousto-optic Tunable Filters Based on KH2PO4 Crystal **Tatyana Yukhnevich**[1], Emmanuel Dekemper[2], Sergey Montsevich[3], Jurgen Vanhamme[4], Vitaly Volushinov[4], Bert von Opstal[2], Didier Fussen[2] *[1]Physics, Lomonosov Moscow State University, Moscow, Russian Federation, [2]Belgian Institute for Space Aeronomy, Brussels, Belgium, [3]Physics, Lomonosov Moscow State University, Moscow, Russian Federation, [4]Physics, Lomonosov Moscow State University, Moscow, Russian Federation*	**P3-A2-3** Radiofrequency impedance spectroscopy of nonlinear-optical crystal piezoelectric modes for measuring low optical absorption coefficients Aleksey Pigorev, **Aleksey Konyashkin**[1,2], Oleg Ryabushkin[1,2] *[1]Moscow Institute of Physics and Technology, Dolgoprudnyy, Russian Federation, [2]Kotelnikov Institute of Radioengineering and Electronics, Fryazino Branch, RAS, Fryazino, Russian Federation*	**P3-A2-5** Unpolarized light diffraction in an acoustic field created by a phased array transducer **Andrey Voloshin**, Vladimir Bolotskiy, Sergey Montsevich *[1]Physics Department, Moscow State University, Moscow, Moscow, Russian Federation*	**P3-A2-7** General method to determine optimal values of acousto-optic figure of merit in cubic crystals **Pavel Nikitin**[1] *[1]Lomonosov Moscow State University, Russian Federation*

ORAL PROGRAM TUESDAY

08:00 AM -09:30 AM — ORAL --- TUESDAY, SEPTEMBER 20, 2016

	Session 1D. MCA: New contrast agents and contrast agent physics Chair: Nico de Jong	Session 2D. MEL: (Pre-)clinical applications of elasticity imaging Chair: Caterina Gallippi, The University of North Carolina at Chapel Hill	Session 3D. MTH: Blood brain barrier Chair: Chih-Kuang Yeh	Session 4D. MBB: High frame rate imaging Chair: Marvin Doyley, University of Rochester	Session 5D. Material and Defect Characterization Chair: Bernhard Tittmann, Penn State University	Session 6D. PA Phononics Chair: Vincent Laude, Centre National de la Recherche Scientifique	Session 7D. Applied CMUTs Chair: Omer Oralkan, North Carolina State University
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
8:00 AM	**1D-1** <I>In Vivo</I> Biodistribution of Radiolabeled Gas Vesicles in Mice using Single Photon Emission Computed Tomography (SPECT) and MicroCT **Johann Le Floc'h**[1], Aimen Zlitni[2], Melissa Yin[1], Holly Bilton[2], Arash Farhadi[3], Suchita Nety[3], Audrey Lee-Gosselin[3], Mikhail G. Shapiro[3], John Valliant[3], F. Stuart Foster[1] *[1]Sunnybrook Research Institute, TORONTO, Ontario, Canada, [2]McMaster University, Canada, [3]California Institute of Technology, USA*	**2D-1** Full-Field Laser Speckle Contrast Imaging for Shear Wave Measurements of 3D Cell Culture Systems **Pei-Yu Chao**[1], Wei-Wen Liu[2], Ya-Ting Lu[1], Shu-Ching Chen[1], Pai-Chi Li[2] *[1]National Taiwan University, Taiwan, [2]National Taiwan University, Taipei, Taiwan*	**3D-1** Controlled ultrasound-mediated blood-brain barrier opening using passive acoustic mapping of subharmonic microbubble activity **Ryan Jones**[1,2], Meaghan O'Reilly[1,2], Lulu Deng[1], Kogee Leung[1], Kullervo Hynynen[1,3] *[1]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada, [3]Medical Biophysics and Institute for Biomaterials and Biomedical Engineering, University of Toronto, Toronto, Ontario, Canada*	**4D-1** Multi-Plane-Transmit Beamforming for Fast Volumetric Cardiac Imaging - A Simulation Study **Yinran Chen**[1], Ling Tong[1], Alejandra Ortega[2], Jianwen Luo[1], Jan D'hooge[2] *[1]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of, [2]Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium*	**5D-1** Laser-ultrasound characterization of impact damage in CFRP composites **Ivan Pelivanov**[1,2], Łukasz Ambroziński[1], Solver Thorsson[3], Anthony Waas[3], Matthew O'Donnell[1] *[1]Bioengineering, University of Washington, Seattle, WA, USA, [2]Physics Faculty, Moscow State University, Moscow, Russian Federation, [3]AeronautcsGAstronautics, University of Washington, Seattle, WA, USA*	**6D-1** Interaction of surface acoustic waves with microparticles **Alexei Maznev**[1] *[1]Department of Chemistry, MIT, Cambridge, Massachusetts, USA*	**7D-1** Fully Integrated 2D CMUT Ring Arrays for Endoscopic Ultrasound and Cardiac Imaging **Azadeh Moini**[1], Amin Nikoozadeh[1], Jung Woo Choe[1], Chienliu Chang[1], Douglas N. Stephens[2], Lowell S. Smith[3], David J. Sahn[4], Pierre T. Khuri-Yakub[1] *[1]Electrical Engineering, Stanford University, Stanford, California, USA, [2]University of California, Davis, USA, [3]General Electric Global Research, USA, [4]Oregon Health and Science University, USA*

08:00 AM -09:30 AM	ORAL --- TUESDAY, SEPTEMBER 20, 2016						
8:15 AM	**1D-2 Initial experience in <I>in vivo</I> tumor imaging with gas vesicle contrast agents** **Melissa Yin**[1], Arash Farhadi[2], Audrey Lee-Gosselin[2], Mikhail G. Shapiro[2], F. Stuart Foster[1,3] [1]*Physical Sciences, Sunnybrook Research Institute, Toronto, Canada,* [2]*Bioengineering, California Institute of Technology, Pasadena, USA,* [3]*Medical Biophysics, University of Toronto, Toronto, Canada*	**2D-2 Shear wave elasticity imaging to measure elastic properties of the crystalline lens at different IOP** **Salavat Aglyamov**[1], Heechul Yoon[2], Fabrice Manns[3,4], Kirill Larin[5,6], Stanislav Emelianov[2,7] [1]*Department of Biomedical Engineering, University of Texas at Austin, Austin, TX, USA,* [2]*School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA,* [3]*Ophthalmic Biophysics Center, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL, USA,* [4]*Department of Biomedical Engineering, University of Miami College of Engineering, Miami, USA,* [5]*Department of Biomedical Engineering, University of Houston, Houston, TX, USA,* [6]*Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX, USA,* [7]*Department of Biomedical Engineering, Georgia Institute of Technology and Emory University School of Medicine, Atlanta, GA, USA*	**3D-2 Closed-loop control of targeted drug delivery across the blood-brain barrier** **Tao Sun**[1,2], Chanikarn Power[1], Yongzhi Zhang[1], Jonathan Sutton[1], Eric Miller[2], Nathan McDannold[1] [1]*Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA,* [2]*Department of Electrical and Computer Engineering, Tufts University, Medford, MA, USA*	**4D-2 Doppler-based motion compensation for high-frame-rate echocardiography** **Jonathan Porée**[1], Daniel Posada[1], Amir Hodzic[2], François Tournoux[2], Guy Cloutier[1,3], Damien Garcia[1,3] [1]*CRCHUM, University of Montreal, QC, Canada,* [2]*CHUM, Dept of echocardiography, University of Montreal, Canada,* [3]*Dept of radiology, University of Montreal, Canada*	**5D-2 Compact Ultrasound Board for Measurement of Concrete Compressive Strength** **Valentino Meacci**[1], Stefano Ricci[1], Armin Bruehwiler[2], Didier Lootens[2] [1]*Information Engineering Dept., University of Florence, Florence, Italy,* [2]*Central Research, Sika Technology AG, Zurich, Switzerland*		**7D-2 Tissue Harmonic Imaging with CMUT Probe by Amplitude Modulation** **Hiroki Tanaka**[1], Chizue Ishihara[1], Kunio Hashiba[1], Shuntaro Machida[1], Taiichi Takezaki[1], Hiroaki Hasegawa[1], Akifumi Sako[1], Tatsuya Nagata[1] [1]*Hitachi, Ltd., Japan*
8:30 AM	**1D-3 Acoustic Reporter Genes for High-Resolution Ultrasound Imaging of Engineered Bacteria In Vivo** **Raymond Bourdeau**[1], Audrey Lee-Gosselin[2], Anupama Lakshmanan[1], Sripriya Kumar[1], Arash Farhadi[1], Mikhail Shapiro[1] [1]*California Institute of Technology, Pasadena, CA, USA,* [2]*California Institute of Technology, Pasadena, California, USA*	**2D-3 Mapping of storage G' and loss G" moduli of blood during coagulation using supersonic shear imaging** **Eliana Budelli**[1,2], Miguel Bernal[1], Javier Brum[3], Patrice Floud[4], Patricia Lemo[2], Mickaël Tanter[1], Carlos Negreira[3], Jean-Luc Gennisson[1] [1]*Institut Langevin – Ondes et Images, ESPCI Paris, PSL Research University, CNRS UMR 7587INSERM U979, Paris, France,* [2]*Instituto de Ingeniería Química, Facultad de Ingeniería - Universidad de la República, Montevideo, Uruguay,* [3]*Laboratorio de Acústica Ultrasonora, Instituto de Física - Universidad de la República, Montevideo, Uruguay,* [4]*Matière et Systèmes Complexes, CNRS UMR7057, Université Paris VII Denis Diderot, Paris, France*	**3D-3 Magnetic resonance guided ultrasound induced blood brain barrier opening in rats: influence of the acoustic pressure** **Matthieu Gerstenmayer**[1], Rémi Magnin[1,3], Matthieu Gerstenmayer[1], François Lux[1], Olivier Tillement[1], Sébastien Mériaux[1], Stefania Della Penna[2], Gian Luca Romani[2], Erik Dumont[3], Denis Le Bihan[1], Benoît Larrat[1] [1]*NeuroSpin, CEA, Gif-sur-Yvette, France*	**4D-3 Advanced Ultrafast Imaging with Mixed Wave Compounding** **Ping Gong**[1], Pengfei Song[1], Shigao Chen[1] [1]*Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	**5D-3 Study on lamb wave propagation in single crystal silicon wafer using large aperture line focusing ultrasonic transducer** **Jaewon Oh**[1], Inyoung Jung[1], Kyubeom Han[1], Donghyun Kim[1], Young H. Kim[1] [1]*Applied Acoustics Lab., Korea Science Academy of KAIST, Busan, Korea, Republic of*	**6D-2 Evidence of a large band gap in a phononic strip** **Etienne Coffy**[1], Sébastien Euphrasie[1], Pascal Vairac[1], Abdelkrim Khelif[1] [1]*MN2S, FEMTO-ST, Besançon, France*	**7D-3 CMUTs on glass with ITO bottom electrodes for improved transparency** **Xiao Zhang**[1], Oluwafemi Adelegan[1], F.Yalcin Yamaner[2], Omer Oralkan[1] [1]*Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA,* [2]*School of Engineering and Natural Sciences, Istanbul Medipol University, Beykoz, Istanbul, Turkey*
8:45 AM	**1D-4 Microbubble Lipid Shell Elasticity: Simulation and Measurement** **Jordan Lum**[1], Jacob Dove[1], Todd Murray[1], Mark Borden[1] [1]*Department of Mechanical Engineering, University of Colorado, Boulder, Colorado, USA*	**2D-4 Cross-Sectional Comparison of <I>In Vivo </I>Viscoelastic Response (VisR) Ultrasound in the Vastus Intermedius and Gastrocnemius Muscles of Boys with and without Duchenne Muscular Dystrophy** **Christopher Moore**[1], Mallory Selzo[2,3], Melissa Caughey[4], Diane Meyer[5], Regina Emmett[5], Manisha Chopra[6], James Howard Jr.[4,6], Caterina Gallippi[1,2] [1]*Electrical and Computer Engineering, North Carolina State University, Chapel Hill, NC, USA,* [2]*Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,* [3]*Ultrasound Business Unit, Siemens Healthcare, Issaquah, WA, USA,* [4]*Department of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA,* [5]*Rehabilitation Services, University of North Carolina Hospital, Chapel Hill, NC, USA,* [6]*Department of Neurology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*	**3D-4 Focused ultrasound-enhanced intranasal brain delivery of gold nanoparticles** **Dezhuang Ye**[1], Ramesh Raliya[2], Biswas Pratim[2], Hong Chen[3,4] [1]*Department of Mechanical Engineering and Material Science, Washington University in St. Louis, St. Louis, Missouri, USA,* [2]*Department of Energy, Environmental & Chemical Engineering, Washington University in St. Louis, St. Louis, Missouri, USA,* [3]*Department of Biomedical Engineering, Washington University in St. Louis, St Louis, Missouri, USA,* [4]*Department of Radiation Oncology, Washington University in St. Louis, St Louis, Missouri, USA*	**4D-4 Multi-Plane Echocardiography Using Multi-Line Transmit Beamforming: A Simulation Study** **Ling Tong**[1], Bidisha Chakraborty[2], Alejandro Ortega[2], Martino Alessandrini[2,3], Brecht Heyde[2], Jianwen Luo[1], Jan D'hooge[2] [1]*Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of,* [2]*Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium,* [3]*Department of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy*	**5D-4 Damage imaging through compressed wavefield recovery in Lamb wave inspections** **Yasamin Keshmiri Esfandabadi**[1], Luca De Marchi[1], Alessandro Marzani[1], Guido Masetti[1] [1]*University of Bologna, Italy*	**6D-3 SAW based phononic crystal liquid sensor - Periodic microfluidic channels approach.** **Aleksandr Oseev**[1], Rolf Lucklum[1], Mikhail Zubtsov[1], Marc-Peter Schmidt[1], Soeren Hirsch[2] [1]*Institute of Micro and Sensor Systems (IMOS), Otto-von-Guericke University Magdeburg, Magdeburg, Germany,* [2]*Department of Engineering, University of Applied Sciences Brandenburg, Germany*	**7D-4 CMUT Chip with Integrated Temperature and Pressure Sensors** **Quintin Stedman**[1], Kwan Kyu Park[2], Butrus T. Khuri-Yakub[3] [1]*Applied Physics, Stanford University, USA,* [2]*Mechanical Engineering, Hanyang University, Korea, Republic of,* [3]*Electrical Engineering, Stanford University, USA*
9:00 AM	**1D-5 Impact of gas composition and Incident acoustic pressure on the generation of subharmonics from phospholipid contrast agents** **Emma Kanbar**[1], Damien Fouan[1], Charles A Sennoga[1], Ayache Bouakaz[1] [1]*UMR Inserm U930, Université François Rabelais, Tours, France*	**2D-5 A high resolution acoustic radiation force impulse (ARFI) imaging for assessing the elastic properties of brain in mice model of Alzheimer's disease** **Cho-Chiang Shih**[1], Chih-Chung Huang[1] [1]*Department of Biomedical Engineering, National Cheng Kung University, Taiwan*	**3D-5 Characterization of the diffusion process of different Gadolinium-based nanoparticles within the brain tissue after ultrasound induced Blood-Brain Barrier permeabilization** **Allegra Conti**[1,2], Rémi Magnin[1,3], Matthieu Gerstenmayer[1], François Lux[1], Olivier Tillement[1], Sébastien Mériaux[1], Stefania Della Penna[2], Gian Luca Romani[2], Erik Dumont[3], Denis Le Bihan[1], Benoît Larrat[1] [1]*CEA/DRF/I2BM/NeuroSpin, Gif-sur-Yvette, France,* [2]*University G. D'Annunzio, Chieti, Italy,* [3]*Image Guided Therapy, Pessac, France,* [4]*Université Lyon I, Institut Lumière Matière, Lyon, France*	**4D-5 Holographic Image Formation: a Novel Matrix Beamforming Approach for Ultrafast Ultrasound Imaging** **Beatrice Berthon**[1], Pierre Morichau-Beauchant[1], Mickaël Tanter[1], Jean Provost[1] [1]*Institut Langevin, ESPCI Paris, PSL Research University, CNRS UMR 7587, INSERM U979, Paris, France*	**5D-5 Characterization of continuous-fiber reinforced thermoplastics using thermoacoustically excited ultrasonic Lamb waves** **Manuel Webersen**[1], Sarah Johannesmann[1], Leander Claes[1], Bernd Henning[1] [1]*Measurement Engineering Group, Paderborn University, Paderborn, Germany*	**6D-4 Nonlinear effects in one-dimensional piezoelectric phononic crystals with time-dependent electrode connections** **Charles Croënne**[1], Olivier Bou Matar[2], Jérôme O. Vasseur[3], Marie-Froise Ponge[4], Anne-Christine Hladky-Hennion[1], Pierre Deymier[5], Bertrand Dubus[1] [1]*ISEN, IEMN - UMR 8520 CNRS, Lille, France,* [2]*Ecole Centrale de Lille, IEMN - UMR 8520 CNRS, Villeneuve d'Ascq, France,* [3]*IEMN - UMR 8520 CNRS, Lille, France,* [4]*I2M - Université de Bordeaux, Talence, France,* [5]*Department of Materials Science and Engineering, University of Arizona, Tucson, Arizona, USA*	**7D-5 A High-transmit-sensitivity Annular CMUT Array for Air-coupled Applications** **Shuai Na**[1], Lawrence Wang[1], Albert Chen[1], Zhenhao Li[1], Mirek Macecek[2], John Yeow[1] [1]*System Design Engineering, University of Waterloo, Waterloo, Ontario, Canada,* [2]*Techno Scientific Inc. (TSI), Concord, Ontario, Canada*

9:15 AM	1D-6 Bubble-cell interactions for endothelial sonoporation at long pulses using targeted and non-targeted microbubbles Tom van Rooij[1], Ilya Skachkov[1], Inés Beekers[1], Kirby Lattwein[1], Jason Voorneveld[1], Tom Kokhuis[1], Deep Bera[1], Ying Luan[1], Antonius F.W. van der Steen[1,2], Nico de Jong[1,2], **Klazina Kooiman[1]** *[1]Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands, [2]Laboratory of Acoustical Wavefield Imaging, Delft University of Technology, Netherlands*	2D-6 Comparison Between 3D ARFI Imaging and mpMRI in Detecting Clinically-Significant Prostate Cancer Lesions **Mark Palmeri[1]**, Tyler Glass[1], Rajan Gupta[2], Alison Brown[2], Thomas Polascik[3], Stephen Rosenzweig[3], Andrew Buck[4], Kathryn Nightingale[1] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA, [2]Radiology, Duke University, Durham, North Carolina, USA, [3]Surgery, Duke University, Durham, North Carolina, USA, [4]Pathology, Duke University, Durham, North Carolina, USA*	3D-6 P-glycoprotein expression changes by MR-guided focused ultrasound induced blood-brain barrier disruption in rat brain **Hongseok Cho[1]**, Hwayoun Lee[1], Mun Han[2], Heegyu Baek[1], Minyeong Jeong[1], Yujin Huh[1], Taekwan Lee[3], Sanghyun Ahn[3], Yongmin chang[2], Juyoung Park[1] *[1]Medical Device Development Center, DGMIF, Daegu, Korea, Republic of, [2]Biomedical Engineering, Kyungpook National University, Daegu, Korea, Republic of, [3]Laboratory Animal Center, DGMIF, Daegu, Korea, Republic of*	4D-6 Ultrafast Imaging Using Combined Transmissions with Cross-correlation Reconstruction **Yang Zhang[1]**, Yuexin Guo[1], Wei-Ning Lee[1,2] *[1]Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, [2]Medical Engineering Programme, The University of Hong Kong, Hong Kong*	5D-6 Ultrasound characterization of C60-based nanocomposite ceramics, sintered by HPS and SPS methods **Viacheslav Prokhorov[1]**, Michail Popov[2,3], Danila Ovsyannikov[2] *[1]Directorate, Technological Institute for Superhard and Novel Carbon Materials, Moscow, Troitsk, Russian Federation, [2]Laboratory for Functional Nanomaterials, Technological Institute for Superhard and Novel Carbon Materials, Moscow, Troitsk, Russian Federation, [3]National University of Science and Technology MISIS, Moscow, Russian Federation*	6D-5 Controlling Lamb wave propagation in phononic piezoelectric plates for various electric boundary conditions. **Nesrine Kherraz[1,2]**, Lionel Haumesser[1], Franck Levassort[1], Paul Benard[2], Maxime Bavencoffe[3], Bruno Morvan[2] *[1]GREMAN UMR CNRS 7347, University of Tours, Blois, France, [2]LOMC UMR CNRS 6294, University of Le Havre, Le Havre, France, [3]GREMAN UMR CNRS 7347, INSA-CVL, Blois, France*	7D-6 Interstitial CMUTs for MR-guided High Intensity Ultrasound Heating in Brain: An In-Vivo Feasibility Study in the Porcine Model **W. Apoutou N'Djin[1,2]**, Jérémy Vion[1,2], Loïc Dounizeau[1,2], Christopher Bowiec[2,2], Guillaume Bouchoux[1,3], Nicolas Sénégond[4], Jean-Yves Chapelon[1,2], Alexandre Carpentier[3] *[1]UI032, LabTAU, Inserm, Lyon, France, [2]Université Lyon I, Univ Lyon, Lyon, France, [3]CarThera Research Team, Brain and Spine Institute, Pitié Salpêtrière Hospital, Paris, France, [4]Vermon SA, Tours, France*

10:30 AM -12:00 PM				ORAL --- TUESDAY, SEPTEMBER 20, 2016			
	Session 1E. Clinical: Clinical applications of emerging ultrasound techniques Chair: **Ton Van Der Steen** *Technical chair IUS2016*	Session 2E. MIM: Cardiovascular imaging Chair: **Mathieu Pernot** *Institut Langevin, ESPCI ParisTech*	Session 3E. MPA: Functional photoacoustic imaging of cells and tissues Chair: **Pai-Chi Li** *National Taiwan University*	Session 4E. MBB: Adaptive imaging and coherence-based beamforming Chair: **Jeremy Dahl**	Session 5E. Signal Processing Chair: **Erdal Oruklu** *Illinois Institute of Technology*	Session 6E. Acoustic Nonlinearity Chair: **Rich Ruby** *Wireless Semiconductor Division*	Session 7E. Front-end and Integrated Electronics Chair: **David Cowell** *Ultrasound Group*
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
10:30 AM	1E-1 Photoacoustic imaging: principles, application to breast cancer and rheumatoid arthritis, and quantification challenges **Wiendelt Steenbergen[1]**, Srirang Manohar[1] *[1]Institute MIRA, University of Twente, Enschede, Netherlands*	2E-1 First observation of 2D elliptical wave on in vivo carotid wall in ultrafast imaging with transverse oscillations. **Sébastien Salles[1]**, Anne Long[2,3], Lorena Petrusca[4], Hervé Liebgott[5], Didier Vray[5] *[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Department of Internal Medicine and Vascular Medicine, Hospices Civils de Lyon, University Hospital Edouard Herriot, Lyon, France, [3]Claude Bernard Lyon I University, Lyon, France, [4]Univ Lyon, INSA-Lyon, Université Lyon I, UJM-Saint Etienne, CNRS, Inserm, CREATIS UMR 5220, U1206, F, Saint-Etienne, France, [5]Univ Lyon, INSA-Lyon, Université Lyon I, CNRS, Inserm, CREATIS UMR 5220, U1206, F-69621, Lyon, France*	3E-1 Single red blood cell oxygen saturation imaging using multispectral photoacoustic microscopy **Michael Moore[1,2]**, Patrick Schygulla[3], Eric Strohm[1,2], Michael Kolios[1,2] *[1]Ryerson University, Toronto, Canada, [2]Keenan Research Centre for Biomedical Science, St. Michael's Hospital, Toronto, Canada, [3]Heidelberg University, Germany*	4E-1 Adaptive beamforming using Doppler information with application to functional ultrasound **Pieter Kruizinga[1,2]**, Richard Rau[3], Frits Mastik[1], Wolfgang Scheffer[3], Markus Belau[3], Johannes G Bosch[1], Antonius FW van der Steen[1,2], Georg Maret[3], Nico de Jong[1,2] *[1]Thorax Center - Biomedical Engineering, Erasmus Medical Center, Netherlands, [2]Applied Physics - Acoustical Wavefield Imaging, Delft University of Technology, Netherlands, [3]Physics, University of Konstanz, Germany*	5E-1 Time-Frequency Analysis for Ultrasonic Echo Detection and Parameter Estimation **Jafar Saniie[1]** *[1]Electrical and Computer Engineering Department, Illinois Institute of Technology, Chicago, Illinois, USA*	6E-1 Observation for nonlinear harmonic generation of bulk modes in SAW resonators. **Marc Solal[1]**, Kimmo Kokkonen[2], Shogo Inoue[3], Jean-Bernard Briot[1], Ben Abbott[1] *[1]Qorvo, Apopka, FL, USA, [2]Qorvo, Munich, Germany*	7E-1 Progress towards a multi-modal capsule endoscopy device featuring microultrasound imaging **Holly Lay[1]**, Yongqiang Qiu[1], Rachael McPhillips[2], Mohammed Al-Rawhani[1], James Beeley[1], Ben Cox[2], Vipin Seetohul[1], Gerard Cummins[3], Christine Demore[1], Margeaux Wallace[4], Susan Trollier-McKinstry[4], Marc Desmulliez[3], David Cumming[1], Sandy Cochran[1] *[1]University of Glasgow, Glasgow, United Kingdom, [2]University of Dundee, Dundee, United Kingdom, [3]Heriot-Watt University, Edinburgh, United Kingdom, [4]The Pennsylvania State University, State College, USA*

10:45 AM		**2E-2 Intracardiac myocardial elastrography for lesion quantification in cardiac radiofrequency ablation** **Ethan Bunting**[1], Clement Papadacci[1], Elaine Wan[2], Julien Grondin[1], Elisa Konofagou[1,3] [1]Department of Biomedical Engineering, Columbia University, New York, New York, USA, [2]Division of Cardiology, Columbia University, New York, New YOrk, USA, [3]Department of Radiology, Columbia University, New York, New York, USA	**3E-2 Photoacoustic SO2 estimation with fluence correction in an interstitially irradiated excised prostate** Trevor Mitcham[1,2], Houra Taghavi[1], David Fuentes[1], John Ward[3], Brian Hobbs[4], **Richard Bouchard**[1,2] [1]Imaging Physics, University of Texas MD Anderson Cancer Center, Houston, TX, USA, [2]Graduate School of Biomedical Sciences, University of Texas at Houston, USA, [3]Urology, University of Texas MD Anderson Cancer Center, Houston, TX, USA, [4]Statistics, University of Texas MD Anderson Cancer Center, Houston, TX, USA	**4E-2 Angular Coherence Theory and Beamforming in Medical Ultrasound Imaging** **You Li**[1], Jeremy Dahl[2] [1]Biomedical Engineering, Duke University, Palo Alto, California, USA, [2]Department of Radiology, School of Medicine, Stanford University, Palo Alto, CA, USA		**6E-2 Influence of electrode materials and structural design on third-order nonlinear signals of SAW devices** **Ryo Nakagawa**[1], Takanao Suzuki[1], Hiroshi Shimizu[1], Haruki Kyoya[1], Ken-ya Hashimoto[2] [1]Murata Manufacturing Co., Ltd., Yasu-shi, Shiga, Japan, [2]Chiba University, Chiba, Japan	**7E-2 Acoustic Characterisation of a 32x32 Element PZT-on-CMOS Matrix Transducer for 3D TEE.** **Shreyas Raghunathan**[1], Deep Bera[2], Chao Chen[3], Zhao Chen[3], Maysam Shabanimotlagh[1], Emile Noothout[1], Zu-yao Chang[3], Henrik Vos[2], Christian Prins[4], Jacco Ponte[4], Johan Bosch[2], Michiel Pertijs[3], Nico de jong[1,2], Martin Verweij[1,2] [1]Lab. of Acoustic Wavefield Imaging, Delft University of Technology, Delft, Netherlands, [2]Dept. of Biomedical Engineering, Erasmus Medical Centre, Netherlands, [3]Electron. Instrum. Lab., Delft University of Technology, Delft, Netherlands, [4]Oldelft Ultrasound, Netherlands
11:00 AM	**1E-2 Clinical Applications of Ultrafast Ultrasound** **Valerie Vilgrain**[1,2] *[1]Radiology Department, Beaujon University Hospital, Beaujon, France, [2]Laboratory of Biomedical Imaging, University Paris 7, Clichy, France*	**2E-3 Real-Time Ablation Monitoring of High-Intensity Focused Ultrasound Treatment Using Harmonic Motion Imaging for Focused Ultrasound** **Yang Han**[1], Shutao Wang[1], Thomas Payen[1], Elisa Konofagou[1,2] *[1]BME, Columbia University, New York, New York, USA, [2]Radiology, Columbia University, New York, New York, USA*	**3E-3 Photoacoustic imaging of stimuli-responsive red blood cell drug delivery agents** **Adam Dixon**[1], Justin Farry[1], Johnny Chen[1], John Hossack[1], Alexander Klibanov[1,2] *[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA, [2]School of Medicine - Cardiovascular Division, University of Virginia, Charlottesville, VA, USA*	**4E-3 Adaptive windowing in mechanically-steered intravascular ultrasound imaging: ex vivo and in vivo studies with contrast enhancement** **Brooks Lindsey**[1], Xiaoning Jiang[1,2], Paul A. Dayton[1] *[1]Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, NC, USA, [2]Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA*	**5E-2 Haptics by time reversal of elastic waves** **Sebastian Wöckel**[1], Hendrik Arndt[2], Ulrike Steinmann[2] *[1]Ifak e.V., Magdeburg, Saxony-Anhalt, Germany, [2]Ifak e.V., Germany*	**6E-3 Nonlinear BAW Filter Effects on the Performance of an LTE Receiver** **Victor Silva Cortes**[1], Vikrant Chauhan[1], Robert Weigel[1], Georg Fischer[1], Amelie Hagelauer[1] *[1]Institute of Electronics Engineering, University Erlangen-Nuremberg, Germany*	**7E-3 200-V CMOS Analog Switch** **Isaac Ko**[1], Tim Chan[1] *[1]APID, Microchip Technology Inc., Hong Kong, Hong Kong*

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11:15 AM		**2E-4 Intraventricular pressure difference by color Doppler M-mode for diastology** **Damien Garcia**[1], Amir Hodzic[2], François Tournoux[2] *[1]CRCHUM, University of Montreal, QC, Canada, [2]CHUM, Dept of echocardiography, University of Montreal, Canada*	**3E-4 Photoacoustic radiofrequency spectroscopy for monitoring cancer treatment response** **Eno Hysi**[1,2], Lauren A. Wirtzfeld[1,2], Jonathan P. May[3], Eljus Undzys[4], Shyh-Dar Li[3], Michael C. Kolios[1,2] *[1]Physics, Ryerson University, Toronto, ON, Canada, [2]Institute for Biomedical Engineering, Science and Technology, St. Michael's Hospital, Toronto, Ontario, Canada, [3]Faculty of Pharmaceutical Sciences, The University of British Columbia, Vancouver, British Columbia, Canada, [4]Drug Discovery and Formulation Group, Ontario Institute for Cancer Research, Toronto, Ontario, Canada*	**4E-4 Enhancing Microcalcifications with Plane-Wave Imaging and the Coherence Factor** **Ole Marius Hoel Rindal**[1], Andreas Austeng[1] *[1]Department of Informatics, University of Oslo, Oslo, Norway*	**5E-3 Focusing aspects of delayed Time Reversal based Nonlinear Elastic Wave Spectroscopy methods** Martin Lints[1,2], Andrus Salupere[2], **Serge Dos Santos**[1] *[1]INSA Centre Val de Loire, UMR Inserm U930-Université François-Rabelais « Imaging and Brain », Blois, France, [2]Institute of Cybernetics at Tallinn University of Technology, Tallinn, Estonia*	**6E-4 2D-FEM calculations of third-order intermodulations in SAW devices** **Andreas Mayer**[1], Elena Mayer[1], Werner Ruile[2], Philipp Jäger[2], Markus Mayer[2], Ingo Bleyl[2], Karl Wagner[2] *[1]Hochschule Offenburg, Germany, [2]TDK corporation, Germany*	**7E-4 Performance of Switched Mode Arbitrary Excitation using Harmonic Reduction Pulse Width Modulation (HRPWM) in Array Imaging Applications** **David Cowell**[1], Thomas Carpenter[1], Peter Smith[1], Chris Adams[1], Sevan Harput[1], Steven Freear[1] *[1]School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom*
11:30 AM	**1E-3 Dynamic Contrast-Enhanced US for Monitoring of Anti-Angiogenic Treatments** **Nathalie Lassau**[1,2] *[1]Institute Gustave Roussy Cancer Campus Grand Paris, Villejuif, France, [2]IR4M UMR8081 Université Paris-Sud II, France*	**2E-5 Simultaneous Ultrafast Ultrasound Imaging and Positron Emission Tomography: Application to Cardiology** **Joevin Sourdon**[1], Anikitos Garofalakis[2], Thomas Viel[1], Béatrice Berthon[3], Mickaël Tanter[3], Jean Provost[3], Bertrand Tavitian[1] *[1]Paris-Cardiovascular Research Center, Paris Descartes University, Paris, France, [2]Paris-Cardiovascular Research Center, INSERM U970, Paris, France, [3]Institut Langevin, ESPCI Paris, INSERM U979, France*	**3E-5 Contrast-enhanced Ultrasound in Combination with Photoacoustic Imaging Reveals Both Functional Flow Patterns and Blood Pooling in Tumor Models** **Avinoam Bar-Zion**[1], Melissa Yin[2], Dan Adam[1], F. Stuart Foster[2,3] *[1]Department of Biomedical Engineering, Technion - Israel Institute of Technology, Haifa, Israel, [2]Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada, [3]Department of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada*	**4E-5 Robust Minimum Variance Beamformer using Locally Adaptive Phase Aberration Correction** **Gustavo Chau**[1,2], Marko Jakovljevic[2], Roberto Lavarello[1], Jeremy Dahl[2] *[1]Departamento de Ingeniería, Pontificia Universidad Catolica del Peru, Peru, [2]Department of Radiology, Stanford University, USA*	**5E-4 Indoor wireless communication using airborne ultrasound and OFDM methods** Wentao Jiang[1], **William Wright**[1] *[1]Electrical and Electronic Engineering, University College Cork, Cork, Ireland*	**6E-5 X-parameter Based Behavioral Modeling of Piezoelectric Filters** **Siamak Fouladi**[1], Farhad Bayatpur[1], Dong Shim[1], David Feld[1] *[1]Broadcom, San Jose, CA, USA*	**7E-5 Front-End Electronics for Cable Reduction in Intracardiac Echocardiography (ICE) Catheters** M. Wasequr Rashid[1], Thomas Carpenter[2], Gwangrok Jung[1], Amirabbas Pirouz[1], Caskun Tekes[2], David Cowell[3], Steven Freear[3], Maysam Ghovanloo[1], **F. Levent Degertekin**[1,2] *[1]Electrical and Computer Engineering, Georgia Tech, Atlanta, Georgia, USA, [2]Mechanical Engineering, Georgia Tech, Atlanta, Georgia, USA, [3]School of Electronic & Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom*

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	Session 1F. MEL: Cardiac strain and elasticity imaging Chair: Hiroshi Kanai	Session 2F. MCA: Molecular imaging and imaging of therapeutic response Chair: Ayache Bouakaz INSERM	Session 3F. MTH: Cavitation and microbubbles Chair: Christopher Hall	Session 4F. MTC: Tissue characterization Chair: James Greenleaf	Session 5F. Ultrasonics in Air and Water Chair: Mario Kupnik TU Darmstadt	Session 6F. PA Nonlinear Acoustics 2 Chair: Robert Thalhammer Broadcom Ltd	Session 7F. Medical Imaging I Chair: Sandy Cochran University of Glasgow
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
01:30 PM	**1F-1** Temporal Coherence of Ultrasonic Speckle in Transthoracic Cardiac Imaging: Impact on Displacement Estimation **Vaibhav Kakkad**[1], Peter Hollender[1], Gregg Trahey[1] [1]*Biomedical Engineering, Duke University, Durham, North Carolina, USA*	**2F-1** Molecular acoustic angiography: comparison of contrast-to-tissue ratio with multi-pulse techniques and imaging multiple targeted microbubbles **Sarah E Shelton**[1], Brooks D Lindsey[1], F Stuart Foster[2], Paul A Dayton[1] [1]*UNC-NCSU Joint Department of Biomedical Engineering, Chapel Hill, NC, USA,* [2]*Sunnybrook Health Sciences Ctr., Toronto, Ontario, Canada*	**3F-1** Sonothrombolysis efficacy of microbubbles produced by a microfluidic device in a rat ischemic stroke model **Adam Dixon**[1], John Robert Rickel[1], Brian Shin[1], John Hossack[1] [1]*Biomedical Engineering, University of Virginia, Charlottesville, VA, USA*	**4F-1** Homodyned K-distribution parametric maps combined with elastograms for carotid artery plaque assessment **Marie-Hélène Roy Cardinal**[1], François Destrempes[1], Gilles Soulez[2,3], Guy Cloutier[1,3] [1]*Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center (CRCHUM), Montréal, Québec, Canada,* [2]*Department of Radiology, University of Montreal Hospital, Montréal, Québec, Canada,* [3]*Department of Radiology, Radio-Oncology, Nuclear Medicine, and Institute of Biomedical Engineering, University of Montreal, Montréal, Québec, Canada*	**5F-1** Temporal and spatial determination of pressure in airborne ultrasound fields by means of Refracto-Vibrometry Hendrik Just[1], Christoph Kling[2], **Klaus Jenderka**[1] [1]*University of Applied Sciences Merseburg, Germany,* [2]*Physikalisch-technische Bundesanstalt, Braunschweig, Germany*	**6F-1** Numerical Modeling of Nonlinear Ultrasound **Martin Verweij**[1,2] [1]*Acoustical Wavefield Imaging, Imaging Physics, Delft University of Technology, Delft, Netherlands,* [2]*Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands*	**7F-1** 4D ICE: a 2D Array Transducer with Integrated ASIC in a 10 Fr Catheter for Intracardiac Echocardiography **Douglas Wildes**[1], Warren Lee[1], Bruno Haider[2], Scott Cogan[3], Krishnakumar Sundaresan[1], David Mills[1], Christopher Yetter[4], Patrick Hart[5], Christopher Haun[1], Mikael Concepcion[6], Johan Kirkhorn[7], Marc Bitoun[8] [1]*GE Global Research, Niskayuna, NY, USA,* [2]*GE Healthcare, USA,* [3]*Michigan State University, USA,* [4]*GE Oil & Gas, USA,* [5]*GE Fuel Cells, USA,* [6]*Merit Medical Systems, USA,* [7]*GE Healthcare, Norway,* [8]*Shifamed LLC, USA*

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01:45 PM	**1F-2 Non-linear Beamforming with ADMIRE to Facilitate Deformation Imaging in Cluttered Cardiac Ultrasound** Brecht Heyde[1,2], Kazuyuki Dei[3], **Brett Byram[3]** *[1]University of Leuven (KU Leuven), Belgium, [2]Duke University, USA, [3]Vanderbilt University, USA*	**2F-2 Characterization of Sentinel Lymph Nodes using Dual-targeted Microbubbles** **Kibo Nam[1]**, Maria Stanczak[1], Flemming Forsberg[1], Ji-Bin Liu[1], John Eisenbrey[1], Andrej Lyshchik[1] *[1]Radiology, Thomas Jefferson University, Philadelphia, PA, USA*	**3F-2 Action of ultrasound and contrast microbubbles on amikacin diffusion in the pulmonary tissue in a rabbit model.** **Fabien ESPITALIER[1,2]**, Francis REMERAND[1,2], François DARROUZAIN[3,4], Jean Michel ESCOFFRE[2], Anthony NOVELL[2], Eric PIVER[5,6], Ayache BOUAKAZ[2] *[1]Pôle Anesthésie et Réanimations, CHRU de Tours, TOURS, France, [2]INSERM U930, Université François Rabelais, TOURS, France, [3]Laboratoire de Pharmacologie-Toxicologie, CHRU de Tours, TOURS, France, [4]CNRS UMR 7292, Université François Rabelais, TOURS, France, [5]Laboratoire de biochimie et biologie moléculaire, CHRU de Tours, TOURS, France, [6]INSERM UMR 966, Université François Rabelais, TOURS, France*	**4F-2 Multiparametric Dynamic Contrast-Enhanced Ultrasound Classification of Prostate Cancer** **Rogier Wildeboer[1]**, Arnoud Postema[2], Libertario Demi[1], Maarten Kuenen[3], Hessel Wijkstra[1,2], Massimo Mischi[1] *[1]Dept. of Electrical Engineering, Labs of Medical Diagnostics, Eindhoven University of Technology, Eindhoven, Netherlands, [2]Dept. of Urology, Amsterdam Medical Center, University of Amsterdam, Amsterdam, Netherlands, [3]Philips Research, Eindhoven, Netherlands*	**5F-2 Airborne Ultrasonic Systems for One-Sided Inspection Using Thermoacoustic Transmitters** **Mate Gaal[1]**, Maxim Daschewski[1], Jürgen Bartusch[1], Florian Schadow[1], Uwe Beck[1], Marc Kreutzbruck[1,2] *[1]BAM Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany, [2]Institut für Kunststofftechnik, University of Stuttgart, Stuttgart, Germany*		**7F-2 A dual-frequency endoscopic transducer for imaging vascular invasion in pancreatic cancer** **Brooks Lindsey[1]**, Jinwook Kim[2], Paul A. Dayton[1], Xiaoning Jiang[1,2] *[1]Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, NC, USA, [2]Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, USA*
02:00 PM	**1F-3 The effect of ultrafast imaging on shear wave observations** **Annette Caenen[1]**, Mathieu Pernot[2], Darya Shcherbakova[1], Ingvild Kinn Ekroll[3], Patrick Segers[1], Abigail Swillens[1] *[1]IBiTech - bioMMeda, Department of Electronics and Information systems, Ghent University, Ghent, Belgium, [2]Institut Langevin, Ecole Supérieure de Physique et de Chimie Industrielles, CNRS UMR 7587, INSERM U979, Paris, France, [3]Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway*	**2F-3 Volumetric contrast-enhanced ultrasound monitoring of renal cell carcinoma recurrence following ablation** **John Eisenbrey[1]**, Maria Stanczak[1], Andrej Lyshchik[1], Colette Shaw[1], Ji-Bin Liu[1], Costas Lallas[2], Edouard Trabulsi[2], Flemming Forsberg[1] *[1]Radiology, Thomas Jefferson University, USA, [2]Urology, Thomas Jefferson University, USA*	**3F-3 Passive cavitation imaging using different advanced beamforming methods** **Paul Boulos[1,2]**, François Varray[1], Adrien Poizat[1,2], Mohammad Azizian Kalkhoran[1], Bruno Gilles[2], Jean Christophe Bera[2], Christian Cachard[1] *[1]Université de Lyon, Creatis, France, [2]Université de Lyon, Inserm U1032, LabTau, France*	**4F-3 Ultrasound- and Nanodroplet-Induced Extracellular Vesicle Shedding for Enhanced Blood Biomarker Detection** **Robert Paproski[1]**, Juan Jovel[1], Gane Ka-Shu Wong[1], John Lewis[1], Roger Zemp[1] *[1]University of Alberta, Canada*	**5F-3 Ultrasound sensor for a single-sided pulse-echo airborne NDT concept** **Balthasar Fischer[1]**, Wolfgang Rohringer[1], Stefan Preißer[2] *[1]XARION Laser Acoustics GmbH, Vienna, Austria, [2]Medical University of Vienna, Vienna, Austria*	**6F-2 Acoustic nonlinearity as a mechanism for liquid drop explosions in drop-chain fountains generated by a focused ultrasound beam** **Elena Annenkova[1]**, Wayne Kreider[2], Julianna Simon[2], Oleg Sapozhnikov[1,2] *[1]Department of Acoustics, Physics Faculty, Moscow State University, Moscow, Russian Federation, [2]Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA*	**7F-3 High frequency ultrasound probe with integrated kerfless array and multiplexing device for intraoral applications** Steffen Tretbar[1], Anette Jakob[1], **Wolfgang Bost[1]** *[1]Fraunhofer Institute for Biomedical Engineering, Germany*
02:15 PM	**1F-4 Shear wave tracking: open chest versus closed chest** **Hendrik J. Vos[1,2]**, Mihai Strachinaru[3], Bas M. Van Dalen[3], Ilkka Heinonen[4], Jeremy Bercoff[5], Johan G. Bosch[1], Antonius F.W. Van der Steen[1,2], Nico De Jong[1,2] *[1]Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands, [2]Acoustical Wavefield Imaging, Delft University of Technology, Netherlands, [3]Cardiology, Erasmus MC, Rotterdam, Netherlands, [4]Experimental Cardiology, Erasmus MC, Rotterdam, Netherlands, [5]Supersonic Imagine, France*	**2F-4 Quantitative ultrasound molecular imaging for antiangiogenic therapy monitoring** **Simona Turco[1]**, Ahmed El Kaffas[2], Jianhua Zhou[2], Hessel Wijkstra[1,3], Juergen K. Willmann[2], Massimo Mischi[1] *[1]Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands, [2]Radiology, Stanford Medicine, Stanford, CA, USA, [3]Urology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands*	**3F-4 Binary localization of cavitation activity during transcranial therapy based on harmonic content** **Guillaume Maimbourg[1]**, Mathieu David Santin[2,3], Alexandre Houdouin[1], Stéphane Lehericy[2], Mickael Tanter[1], Jean-François Aubry[1] *[1]Langevin Institute, CNRS UMR 7587, Inserm U979, ESPCI ParisTech, Paris, France, [2]CENIR, ICM, Paris, France, [3]CNRS UMR 7225, INSERM UMRS 975, UPMC, ICM, Hopital Pitié-Salpêtrière, Paris, France*	**4F-4 Mapping of myocardial fiber orientation using ultrasound Backscatter Tensor Imaging in ex vivo myocardium and in the human beating heart** **Victor Finel[1]**, Clément Papadacci[1], Jean Provost[1], Mickael Tanter[1], Mathieu Pernot[1] *[1]Institut Langevin (ESPCI Paris, CNRS UMR 7587, INSERM U979, Université Paris 7), Paris, France*	**5F-4 Automatic Optimization of an Airborne Ultrasound Imaging System** **Wei Yap Tan[1]**, Till Steiner[2], Nicole V. Ruiter[1] *[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany, [2]Pepperl+Fuchs GmbH, Mannheim, Germany*	**6F-3 Nonlinear shear wave interaction in soft solids** **Thomas Gallot[1]**, Nicolas Benech[1], Carlos Negreira[1] *[1]Instituto de Física, Universidad de la República, Facultad de Ciencias, Montevideo, Uruguay*	**7F-4 Fabrication and performance of ultrasound transducers with PIN-PMN-PT and PMN-PZT Single Crystal** Xiaowen Ma[1], Xiang Li[1], **Jianren Yuan[2]** *[1]R&D, Acoustic Life Science Co.,Ltd, Shanghai, China, People's Republic of, [2]Acoustic Life Science Co.,Ltd, Shanghai, China, People's Republic of*
02:30 PM	**1F-5 Myocardial stiffness assessment using shear wave imaging in healthy adult population** **Olivier Villemain[1]**, Mafalda Correia[1], Elie Mousseaux[2], Jerome Baranger[1], Samuel Zarka[2], Emmanuel Messas[2], Mathieu Pernot[1] *[1]Institut Langevin, Paris, France, [2]Hopital Européen Goerges Pompidou, France*	**2F-5 Low-dose ultrasound molecular imaging in mouse tumor model** **Elizabeth Herbst[1]**, Shiying Wang[1], F. William Mauldin Jr.[1], Alexander L. Klibanov[1,2], John A. Hossack[1] *[1]Department of Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA, [2]Division of Cardiovascular Medicine, University of Virginia, USA*	**3F-5 Role of Periodic Shock Waves in Passive Acoustic Mapping of Cavitation** **Jae Hee Song[1]**, Graeme McLeod[2], George Corner[1], Sandy Cochran[3], Paul Prentice[3] *[1]Division of Imaging and Technology, Ninewells Hospital, University of Dundee, United Kingdom, [2]Institute of Academic Anaesthesia, Ninewells Hospital, University of Dundee, United Kingdom, [3]CavLab, Cluster of Ultrasound Science, Technology and Engineering Research, University of Glasgow, United Kingdom*	**4F-5 Noninvasive identification of vulnerable atherosclerotic plaques using texture analysis of ultrasound carotid elastography: an <I>in-vivo</I> study validated by magnetic resonance imaging** **Chengwu Huang[1]**, Xiaochang Pan[1], Qiong He[1], Manwei Huang[2], Lingyun Huang[3], Xihai Zhao[1], Chun Yuan[1,4], Jianwen Luo[1] *[1]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of, [2]Department of Sonography, China Meitan General Hospital, Beijing, China, People's Republic of, [3]Clinical Sites Research Program, Philips Research China, Shanghai, China, People's Republic of, [4]Department of Radiology, University of Washington, Seattle, Washington, USA*	**5F-5 3D Low Cost Real Time underwater acoustic Imaging System** **Fabrizio Ferraioli[1]**, Renato Marasco[1], Ramona Guida[1] *[1]Defense Systems Division, Finmeccanica, Pozzuoli (Naples), Italy*	**6F-4 A preliminary experimental study of parameters' effects on parametric loudspeaker** **Peifeng Ji[1]**, Jun Yang[1] *[1]Key Laboratory of Noise and Vibration Research, Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, People's Republic of*	**7F-5 Additive Manufacturing and Automated Processes for Ultrasound Transducers** **Flavien Dalaz[1]** *[1]Ultrasound Probes, GE Healthcare Parallel Design, Valbonne, France*

01:30 PM -03:00 PM	ORAL --- TUESDAY, SEPTEMBER 20, 2016						
02:45 PM	**1F-6** 3D strain elastography in vivo at high volume rates **Clement Papadacci**[1], Ethan Bunting[1], Elaine Y. Wan[2], Pierre Nouleau[1], Elisa E. Konofagou[1] [1]*Department of Biomedical Engineering, Columbia University, New York, NY, USA,* [2]*Department of Medicine, Division of Cardiology, Columbia University, New York, NY, USA*	**2F-6** Coherence-Based Beamforming for Improved Detection of Targeted Microbubbles **Dongwoon Hyun**[1,2], Lotfi Abou-Elkacem[3], Juergen Willmann[3], Jeremy Dahl[3] [1]*Biomedical Engineering, Duke University, USA,* [2]*Bioengineering, Stanford University, USA,* [3]*Radiology, Stanford University, USA*	**3F-6** High-speed acoustic cavitation monitoring and control for HIFU applications. **Bjoern Gerold**[1], Jeremie Anquez[1], Sylvain Yon[1] [1]*Theraclion, France*	**4F-6** Comparing QUS Parameters to Structural and Functional Changes in Tumors During Therapy Alexandre Dizeux[1], Delphine Le Guillou Buffelo[1], Eva Comperat[2], Micheal Oelze[3], **Lori Bridal**[1] [1]*Laboratoire d'Imagerie Biomedicale, Paris, France,* [2]*Central Department of Pathological Anatomy and Cytology, GH Pitié-Salpetriere, AP-HP, Paris, France,* [3]*Bioacoustics Research Laboratory, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Illinois, USA*	**5F-6** Effect of sound speed and sea current during propagation on Doppler shift **Shokichi TANAKA**[1,2], Tomoo KAMAKURA[1], Hideyuki NOMURA[1] [1]*The University of Electo-Communications, Japan,* [2]*Japan Radio Co.,Ltd, Japan*	**6F-5** Magnetohydrodynamics-Enhanced Acoustic Pressure **Alejandro García Pérez**[1], Heikki Nieminen[1,2], Edward Hæggström[1] [1]*Physics, University of Helsinki, Helsinki, Finland,* [2]*University of Oulu, Finland*	

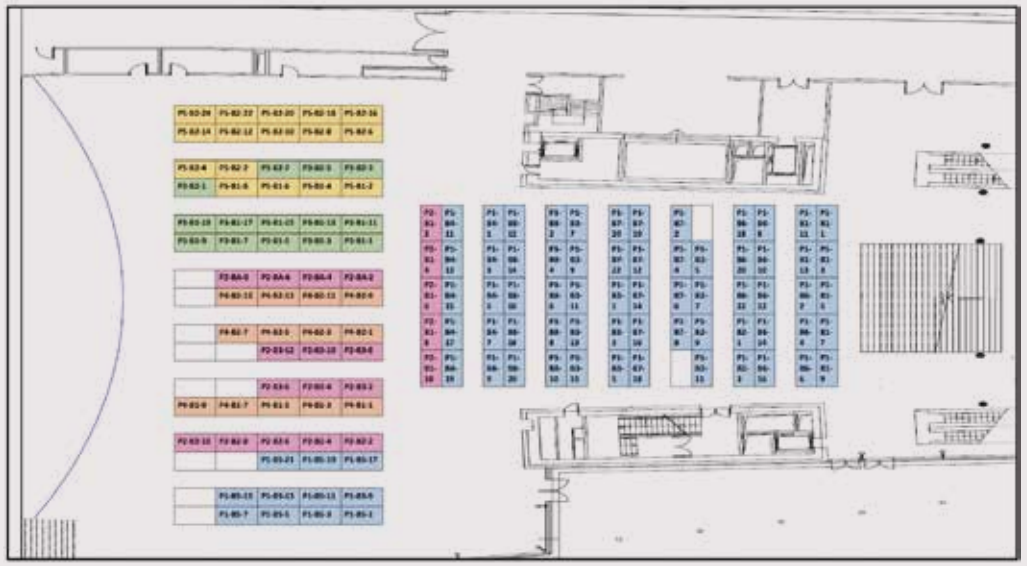
04:00 PM -05:30 PM	ORAL --- TUESDAY, SEPTEMBER 20, 2016						
	Session 1G. MTH: Ultrasound mediated agent delivery Chair: Elisa Konofagou	Session 2G. MEL: Carotid elasticity imaging Chair: Chris de Korte	Session 3G. MIM: Fast imaging strategies Chair: Jan Dhooge	Session 4G. MPA: Technical advances in photoacoustics Chair: Stas Emelianov	Session 5G. Transducers and Arrays Chair: Lawrence Kessler *Sonoscan Inc.*	Session 6G. PA General Physical Acoustics Chair: Andreas Mayer *HS Offenburg - University of Applied Sciences, Gengenbach*	Session 7G. Memorial Session Franz Seifert Chair: Karl Wagner *TDK Corporation*
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
04:00 PM	**1G-1** Focused Ultrasound Facilitated Gene Delivery for Neuro-restoration in Parkinson's Disease Mice **Shutao Wang**[1], Oluyemi Olumolade[2], Tara Kugelman[1], Vernice Jackson-Lewis[3], Maria Eleni Karakatsani[1], Serge Przedborski[3], Elisa Konofagou[1,4] [1]*Biomedical Engineering, Columbia University, New York, New York, USA,* [2]*Columbia University, New York, New York, USA,* [3]*Pathology&Cell Biology, Columbia University, New York, New York, USA,* [4]*Radiology, Columbia University, New York, New York, USA*	**2G-1** Principal strain vascular elastography using compounded plane wave imaging **Marvin Doyley**[1], Rohit Nayak[1], Jacques Ohayon[2], Giovanni Schifitto[3] [1]*Electrical and Computer Engineering, University of Rochester, Rochester, New York, USA,* [2]*University Joseph-Fourier, Grenoble, France,* [3]*Neurology, School of Medicine and Dentistry, University of Rochester, Rochester, NY, USA*	**3G-1** Multi transmit beams for fast cardiac imaging towards clinical routine **Alessandro Ramalli**[1], Alessandro Dallai[1], Enrico Boni[1], Luca Bassi[1], Valentino Meacci[1], Matteo Giovannetti[1], Ling Tong[2], Jan D'hooge[3], Piero Tortoli[1] [1]*Department of Information Engineering, University of Florence, Italy,* [2]*Deptartment of Biomedical Engineering, Tsinghua University, China, People's Republic of,* [3]*Deptartment of Cardiovascular Sciences, KU Leuven, Belgium*	**4G-1** Lipid Detection by High-speed Intravascular Photoacoustic and Ultrasound Imaging with a Flexible Catheter at 20 Frames per Second **Min Wu**[1], Geert Springeling[2], Frits Mastik[1], Robert Beurskens[1], Veryo Doeichin[1], Tianshi Wang[1], Antonius F. W. van der Steen[1,3], Bijs van Soest[1] [1]*Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands,* [2]*Experimental Medical Instrumentation, Erasmus MC, Rotterdam, Netherlands,* [3]*Interuniversity Cardiology Institute of The Netherlands, Utrecht, Netherlands*	**5G-1** Fast Ultrasonic Phased Array Inspection of Complex Geometries Delivered Through Robotic Manipulators and High Speed Data Acquisition Instrumentation Carmelo Mineo[1], **Charles MacLeod**[1], Timothy Lardner[1], Gareth Pierce[1], Maxim Morozov[1], Rahul Summan[1], Jonathan Powell[2], Paul McCubbin[2], Coreen McCubbin[2], Gavin Munro[2], Scott Paton[2], David Watson[2], David Lines[3] [1]*Electronic & Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom,* [2]*Spirit AeroSystems, United Kingdom,* [3]*Diagnostic Sonar Ltd, United Kingdom*	**6G-1** Broad angle negative reflection and focusing of elastic waves from a plate edge **Istvan Attila Veres**[1], Clemens Grünsteidl[1], David M. Stobbe[2], Todd Murray[2] [1]*Research Center for Non-destructive Testing GMBH, Linz, Austria,* [2]*Department of Mechanical Engineering, University of Colorado at Boulder, Boulder, USA*	**7G-1** 30 Years of Acoustic Wave Technology (Invited Paper) **Clemens Ruppel**[1] [1]*EPCOS AG (retired), Munich, Germany*
04:15 PM	**1G-2** iRGD-modified thermo-sensitive liposomes combined with high intensity focused ultrasound : in vitro and in vivo anti-tumor effects in breast cancer **Zhiting Deng**[1], Fei Yan[1], Fei Li[1], Hairong Zheng[1] [1]*Paul C.Lauterbur research center for biomedical imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of*	**2G-2** A modified affine phase-based estimator for non-invasive vascular ultrasound elastography using coherent plane wave compounding and transverse oscillation imaging **Hongliang Li**[1], Jonathan Porée[1], Guy Cloutier[1,2] [1]*Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center (CRCHUM), Montréal, Québec, Canada,* [2]*Department of Radiology, Radio-Oncology and Nuclear Medicine, University of Montreal, and Institute of Biomedical Engineering, University of Montreal, Montréal, Québec, Canada*	**3G-2** Multiplane wave imaging for ultrafast ultrasound imaging at higher signal-to-noise ratio **Elodie Tiran**[1], Thomas Deffieux[1], Mafalda Correia[1], David Maresca[1], Bruno-Felix Osmanski[1], Lim-Anna Sieu[2], Antoine Bergel[2], Ivan Cohen[2], Mathieu Pernot[1], Mickael Tanter[1] [1]*Institut Langevin, ESPCI-ParisTech, PSL University, CNRS UMR7587, INSERM U979, Paris, France,* [2]*Neuroscience Paris Seine, University Pierre et Marie Curie, UMCR 18, INSERM U1130, CNRS UMR8246, France*	**4G-2** An advanced interpolation approach for photoacoustic clutter reduction based on a linear plane wave scatter model **Hans-Martin Schwab**[1], Georg Schmitz[1] [1]*Chair for Medical Engineering, Ruhr-Universität Bochum, Bochum, NRW, Germany*	**5G-2** Total Focusing Phased Array **Jorge Cruza**[1], Jorge Camacho[1], Jose Miguel Moreno[1] [1]*DSSU, CSIC, Madrid, Madrid, Spain*	**6G-2** Coupling of a granular chain to an acoustic medium: sensitivity analyses of the propagation of ultrasonic pulse trains **Pierre Gelat**[1], Nader Saffari[1], David Hutchens[2], Jia Yang[2], Omololu Akonji[2], Peter J Thomas[2], Steven Freear[3], Sevan Harput[3] [1]*UCL Mechanical Engineering, University College London, United Kingdom,* [2]*School of Engineering, University of Warwick, United Kingdom,* [3]*School of Electronic and Electrical Engineering, University of Leeds, United Kingdom*	

04:00 PM -05:30 PM	ORAL --- TUESDAY, SEPTEMBER 20, 2016						
04:30 PM	**1G-3 Focused ultrasound hyperthermia mediated drug delivery using thermosensitive liposomes and visualized with <I>in vivo</I> two-photon microscopy** **Marc Santos[1,2]**, Kullervo Hynynen[1,2], David Goertz[1,2] [1]*Sunnybrook Research Institute, Toronto, Ontario, Canada,* [2]*Medical Biophysics, University of Toronto, Toronto, Ontario, Canada*	**2G-3 Atherosclerotic Plaque Characterization in Humans with Acoustic Radiation Force Impulse (ARFI) Imaging: Blinded Reader Study** Tomasz Czernuszewicz[1], Jonathon Homeister[2], Melissa Caughey[3], Benjamin Huang[4], Ellie Lee[4], Carlos Zamora[4], Mark Forber[4], Joseph Fulton[5], Peter Ford[5], William Marston[5], Raghu Vallabhaneni[5], Timothy Nichols[6], **Caterina Gallippi[1,6]** [1]*Department of Biomedical Engineering, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA,* [2]*Department of Pathology and Laboratory Medicine, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA,* [3]*Department of Medicine, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA,* [4]*Department of Radiology, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA,* [5]*Department of Surgery, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA,* [6]*Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA*	**3G-3 Wide field tissue Doppler echocardiography at very high frame rates** **Jonathan Porée[1]**, Amir Hodzic[2], François Tournoux[2], Guy Cloutier[1,3], Damien Garcia[1,3] [1]*CRCHUM, University of Montreal, Montreal, QC, Canada,* [2]*CHUM, dept of echocardiography, University of Montreal, Montreal, QC, Canada,* [3]*Dept. of radiology, University of Montreal, Canada*	**4G-3 Optimization of photoacoustic multi-angle compounding: towards in vivo plaque imaging** **M. U. Arabul[1]**, M.C.M. Rutten[1], F. N. van de Vosse[1], R.G.P. Lopata[1] [1]*Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*	**5G-3 Design of Flexural Ultrasonic Phased Array for Fluid-Coupled Applications** **Lei Kang[1]**, Tobias Eriksson[1], Sivaram Ramados[1,2], Riliang Su[3], David Lines[3], Mario Kupnik[4], Steve Dixon[1] [1]*University of Warwick, United Kingdom,* [2]*Honeywell, United Kingdom,* [3]*Diagnostic Sonar Limited, United Kingdom,* [4]*Technische Universität Darmstadt, Germany*	**6G-3 Can sources and receivers be interchanged for imaging?** Ana B. Ramirez[1], **Koen W.A. van Dongen[2]** [1]*Department of Electrical and Electronics Engineering, Industrial University of Santander, Bucaramanga, Colombia,* [2]*Laboratory of Acoustical Wavefield Imaging, Faculty of Applied Sciences, Delft University of Technology, Delft, Netherlands*	**7G-2 A Fast and Precise Six-Port-based IFM Technique for Wireless Resonant SAW Sensing** **Robert Weigel[1]**, Fabian Lurz[1], Stefan Lindner[1], Sebastian Mann[1], Sarah Linz[1], Alexander Koelpin[1] [1]*Institute for Electronics Engineering, University of Erlangen-Nuremberg, Erlangen, Germany*
04:45 PM	**1G-4 Combination of Anti-Angiogenesis Treatment and Chemotherapy in Solid Tumors by Using Drug-Loaded Nanodroplets Vaporization** **Yi-Ju Ho[1]**, Chih-Kuang Yeh[1] [1]*Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan*	**2G-4 Visualizing the 2D motion induced by an acoustic radiation force push pulse in transverse cross-sections of vessel-mimicking phantoms** **Hendrik Hansen[1]**, Stein Fekkes[1], Gijs Hendriks[1], Anne Saris[1], Maartje Nillesen[1], Chris de Korte[1] [1]*Medical UltraSound Imaging Center, Department of Radiology and Nuclear Medicine, Radboud university medical center, Netherlands*	**3G-4 High-frame-rate velocity vector imaging echocardiography** **Philippe Joos[1]**, Jonathan Porée[2], Hervé Liebgott[1], Didier Vray[1], Guy Cloutier[2], Barbara Nicolas[1], Damien Garcia[2] [1]*CREATIS UMR 5220, INSA-Lyon, Université Lyon I, Lyon, France,* [2]*CRCHUM, University of Montreal, QC, Canada*	**4G-4 Injection-seeded Raman fiber amplifier for photoacoustic microscopy of lipids** Song Won Choi[1], **Takashi Buma[2]** [1]*Union College, USA,* [2]*Union College, Schenectady, NY, USA*	**5G-4 Design of A Low Profile Array Transducer in d15 Mode for High Angled Shear Wave Generation** Zhen Qiu[1], **Richard O'Leary[1]**, Jeff Dobson[1,2], Anthony Gachagan[1] [1]*Dept of EEE, University of Strathclyde, Glasgow, United Kingdom,* [2]*PZFlex, Thornton Tomasetti, Glasgow, United Kingdom*	**6G-4 Direct shadowgraphic observation of needle hydrophone-field interaction at 10 million frames per second** **Kristoffer Johansen[1]**, Joe Hee Song[2], Paul Prentice[1] [1]*CavLab, Cluster of Ultrasound Science, Technology and Engineering Research, University of Glasgow, Glasgow, United Kingdom,* [2]*Division of Imaging and Technology, Ninewells Hospital, University of Dundee, United Kingdom*	**7G-3 Memory of Franz Seifert from outside Europe** **Ken-ya Hashimoto[1]** [1]*Graduate School of Engineering, Chiba University, Chiba, Japan*
05:00 PM	**1G-5 Ultrasound triggered mRNA delivery to dendritic cells - towards an in vivo cancer vaccination strategy** Heleen Dewitte[1], Emmelie Stock[2], Katrien Vanderperren[3], Stefaan De Smedt[1], Karine Breckpot[4], **Ine Lentacker[1]** [1]Department of Pharmaceutics, Ghent University, Ghent, Belgium, [2]bDepartment of Veterinary sciences, Ghent university, Merelbeke, Belgium, [3]Department of Veterinary sciences, Ghent university, Merelbeke, Belgium, [4]Department of medicine, Free University Brussels, Jette, Belgium	**2G-5 <I>In Vivo</I> Comparison of Shear Wave Elastography Measurements in Carotid Plaques with Contrast Enhanced Ultrasound and Magnetic Resonance Imaging** **Matthew Urban[1]**, Runqing Huang[2], J. Kevin DeMarco[3], Waleed Brinjikji[1], Eric Dailey[2], Mary Hagen[2], John Huston III[1], Sharon Mulvagh[2] [1]Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [2]Department of Cardiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [3]Department of Radiology, Michigan State University, East Lansing, Michigan, USA	**3G-5 A Fourier-based formalism for 3D ultrafast imaging with diverging waves** **Miaomiao Zhang[1]**, Hervé Liebgott[1], Francois Varray[1], Denis Friboulet[1], Olivier Bernard[1] [1]CREATIS, Villeurbanne, France	**4G-5 Background-Free Photoacoustic Imaging of GFA2 Photoswitchable Chromoproteins** **Ryan Chee[1]**, Yan Li[1], Robert Campbell[1], Roger Zemp[1] [1]University of Alberta, Canada	**5G-5 Focused ultrasonic projector** **Jean-Francois SAILLANT[1]** [1]AREVA INTERCONTROLE, Chalon sur Saone, France	**6G-5 Full geometric and elastic characterization of plates using ZGV Lamb waves** **Clemens Grünsteidl[1]**, Istvan Attila Veres[1] [1]Research Center for Non-destructive Testing GMBH, Linz, Austria	**7G-4 Enhanced Near-field Computation in Micro-acoustic Devices by Taming Infinities and Enabling Acceleration – What Comes Next?** **Alireza Baghai-Wadji[1]** [1]Electrical Engineering, University of Cape Town, Cape Town, South Africa
05:15 PM		**2G-6 Feasibility of 4D Pulse Wave Imaging of human carotid in vivo** **Pierre Nauleau[1]**, Clement Papadacci[1], Iason Apostolakis[1], Matthew McGarry[1], Elisa Konofagou[1,2] [1]Ultrasound and Elasticity Imaging Laboratory, Departement of Biomedical Engineering, Columbia University, New York, NY, USA, [2]Department of Radiology, Columbia University, New York, NY, USA	**3G-6 High Frame Rate 3D Tissue Velocity Imaging using sub aperture beam forming: a pilot study in-vivo** **Pedro Santos[1,2]**, Lasse Lovstakken[2,3], Eigil Samset[2,4], Jan D'hooge[1,3] [1]Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, [2]GE Vingmed Ultrasound AS, Horten, Norway, [3]Department of Circulation and Medical Imaging, NTNU, Trondheim, Norway, [4]Center for Cardiological Innovation, Oslo, Norway	**4G-6 Image-Guided Tissue Engineering: Tracking Stem Cells in Ophthalmic Applications with Ultrasound and Photoacoustic Imaging** **Kelsey Kubelick[1]**, Eric Snider[1], Heechul Yoon[2], C. Ross Ethier[1], Stanislav Emelianov[1,2] [1]Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University School of Medicine, Atlanta, Georgia, USA, [2]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA	**5G-6 First results of non-destructive testing in immersion under liquid sodium at 200°C** **Jean-Francois SAILLANT[1]**, Régis MARLIER[2], Francois BAQUE[3] [1]AREVA INTERCONTROLE, Chalon-sur-Saone, France, [2]AREVA NP, Lyon, France, [3]CEA, Centre de Cadarche, France	**6G-6 Surface wave trapping in isolated mechanical resonators** Sarah Benchabane[1], Roland Salut[1], Olivier Golffe[1], Valérie Petrini[1], Abdelkrim Khelif[1], **Vincent Laude[1]** [1]Institut FEMTO-ST, UMR CNRS 6174, Université de Bourgogne - Franche-Comté, Besancon, France	**7G-5 A Numerical Study of Resonant SAW Strain Sensors using Model Order Reduction** **Taimur Aftab[1]**, Suleman Shakil[2], Jochen Hempel[1], Adnan Yousaf[1], Leonhard Reindl[1] [1]Laboratory for Electrical Instrumentation, Institute of Microsystems Engineering, University of Freiburg, Freiburg, Germany, [2]Laboratory for Simulation, Institute of Microsystems Engineering, University of Freiburg, Freiburg, Germany

Tuesday, September 20, 2016
Poster Session
Hall Chinon

Morning Sessions (odd numbers)	
P1-B1	MBB: Adaptive imaging and coherence-based beamforming
P1-B2	MBF: New methods: Algorithms, phantoms, and hardware
P1-B3	MCA: Contrast detection and characterization
P1-B4	MEL: Clinical elasticity imaging
P1-B5	MIM: Medical imaging I
P4-B1	Microacoustic Device Design
P4-B2	Microacoustic Materials & Wave Propagation
P3-B1	PA General Physical Acoustics
P3-B2	PA Thin Films and Ultrasonic Motors & Actuators

Afternoon Sessions (even numbers)	
P1-B6	MPA: Photoacoustic technology and contrast agent development
P1-B7	MTC: Tissue characterization
P1-B8	MTH: Therapy systems and therapy control
P2-B1	Air Coupled Transducers
P2-B2	SHM and Flaw Detection
P2-B3	NDE
P2-B4	Imaging
P5-B1	Electronics and Applications
P5-B2	CMUTs



09:30 AM - 04:00 PM POSTER --- TUESDAY, SEPTEMBER 20, 2016 CHINON

Session P1-B1.
MBB: Adaptive imaging and coherence-based beamforming
Chair: **Jessy Yen**
Department of Biomedical Engineering, University of Southern California.

P1-B1-1 Multi-Line Acquisition combined with Short Lag Spatial Coherence for High Framerate Cardiac Ultrasound

Grigoriy Zurakhov[1], Zvi Friedman[2], Dan Adam[1]

[1]Lab for Ultrasound Signals and Image Processing and Modeling, Department of Biomedical Engineering, Technion, Haifa, Israel, [2]GE Healthcare, Haifa, Israel

P1-B1-3 Real-time, 45 MHz, Split-Aperture Phased Array Beamformer with Efficient Sign Coherence Grating Lobe Suppression

Christopher Samson[1], Katherine Latham[1], Jeremy Brown[1]

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P1-B1-5 Minimum variance beamformer applied to frequency components of the RF signal of the eye: enhancing the image quality of curved interfaces

Hirofumi Taki[1], Alfred Yu[2], Billy Yiu[3], Hiroshi Kanai[4]

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P1-B1-7 Large coherent apertures: improvements in deep abdominal imaging and fundamental limits imposed by clutter

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P1-B1-9 The dynamic range of adaptive beamformers

Ole Marius Hoel Rindal[1], Andreas Austeng[1], Hans Torp[2], Sverre Holm[3], Alfonso Rodrigues-Molares[2]

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P1-B1-11 Enhanced Delay and Sum Beamforming (EDAS) Technique for Better Cyst Classification

Asraf Mohamed Moubark[1], Sevan Harput[1], David M. J Cowell[1], Steven Freear[1]

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P1-B1-13 Impacts of histology-assessed tissue structures on ultrasound clutter

Jasmine Shu[1], Brett Byram[1]

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Session P1-B2.
MBF: New methods: Algorithms, phantoms, and hardware
Chair: **Stefano Ricci**
University of Florence

P1-B2-1 Velocity Estimation Error Reduction in Stenosis Areas Using a Correlation Correction Method

Luzhen Nie[1], Sevan Harput[1], David M. J. Cowell[1], Steven Freear[1]

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P1-B2-3 Time-resolved intraventricular vector flow imaging by high-frame-rate Doppler echocardiography

Kondo Claude Assi[1], Etienne Gay[1], Damien Garcia[1,2]

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P1-B2-5 Patient-Specific Walled Cerebral Aneurysm Phantoms: Design Principles and Imaging Investigations

Chung Kit Ho[1], Adrian J. Y. Chee[1], Billy Y. S. Yiu[1], Alfred C. H. Yu[1,2]

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P1-B2-7 Comparison of native blood speckle and ultrasound contrast agent for particle image velocimetry with high-framerate ultrasound imaging – in vitro experiments

Jason Voorneveld[1], Pieter Kruizinga[1], Hendrik J. Vos[1,2], Frank J.H. Gijsen[1], Erik Groot Jebbink[3,4], Antonius F.W. van der Steen[1,2], Nico de Jong[1,2], Johan G. Bosch[1]

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P1-B2-9 Vector Velocity Estimation for a Portable Ultrasound Scanner using Synthetic Aperture Sequential Beamforming and Directional Transverse Oscillation

Tommaso Di Ianni[1], Martin Christian Hemmsen[1], Jørgen Arendt Jensen[1]

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P1-B2-11 Implementation of color-flow plane-wave imaging in real-time

Francesco Guidi[1], Enrico Boni[1], Piero Tortoli[1]

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Session P1-B3.
MCA: Contrast detection and characterization
Chair: Brian Fowlkes

P1-B3-1 Ultrasound characterization of oxygen contrast agents produced during the reaction of hydrogen peroxide with catalase-loaded nanoparticles

Chris Malone[1], **Kenneth Hoyt**[2,3], Yasan Yeh[4], Sadik Esener[5], Robert Mattrey[3]

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P1-B3-3 Estimation of size and number density of microbubbles under irradiation of finite-amplitude ultrasound

Kenji Yoshida[1], Kazuki Tamura[1], Tadashi Yamaguchi[1]

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P1-B3-5 Contrast artifact in CPS plane wave imaging using array subapertures.

Damien Fouan[1], Ayache Bouakaz[1]

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P1-B3-7 High frequency experimental characterization and modeling of Halobacterium salinarum gas vesicle acoustic behavior

Emmanuel Cherin[1], Johan Melis[2], Raymond Bourdeau[3], Melissa Yin[1], Dennis Kochmann[4], F. Stuart Foster[1], Mikhail Shapiro[3]

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P1-B3-9 Measurement of concentration of molecule by evaluating the number density of targeted microbubbles

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P1-B3-11 Nonlinear pulse sequences for selective imaging of gas vesicles

David Maresca[1], Raymond W. Bourdeau[1], Anupama Lakshmanan[1], Mikhail G. Shapiro[1]

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P1-B3-13 Noninvasive pressure estimation using ultrasound methods: Preliminary in vitro results

Kenneth Hoyt[1,2], Shashank Sirsi[1], Robert Mattrey[2]

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P1-B3-15 Characterizing the subharmonic response of four new microbubble formulations compared to three commercially available ultrasound contrast agents

Ji-Bin Liu[1], Amanda Nio[1,2], Cara Esposito[1,3], Jie Chen[4], Jie Zhang[5], Xing Zhang[6], Renfa Liu[7], Jinrui Wang[8], Zhifei Dai[7], Flemming Forsberg[1], **Jaydev Dave**[1]

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Session P1-B4.
MEL: Clinical elasticity imaging
Chair: Chih-Kuang Yeh

P1-B4-1 Elastographic assessment of stromal changes in pancreatic cancer

Marvin Doyley[1], Micheal Nieskoski[2], Hexuan Wang[3], Rahul Baidya[1], Jason Gunn[2], Kayla Marra[2], Brian Pogue[2]

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P1-B4-3 Harmonic Motion Imaging (HMI) for growth and HIFU treatment monitoring in a transgenic mouse model of pancreatic cancer

Thomas Payen[1], Carmine Palermo[2], Steve Sastra[2], Kenneth Olive[2], Elisa Konofagou[1,3]

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P1-B4-5 Ultrasound surface wave elastography of the living human eye

Xiaoming Zhang[1], Jay McLaren[2], Arash Kazemi[2], Shuai-Chun Lin[2], Christopher Pruet[2], Arthur Sit[2]

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P1-B4-7 2D transient elastography system adapted to shear wave speed dispersion measurement in placenta: <I>ex vivo</I> validation

Samuel Callé[1], Emmanuel Simon[1,2], Germain Marcheteau[1], Marie-Coline Dumoux[1], Chloé Arthuis[1,2], Frédéric Patat[1,3], Franck Perrotin[1,2], Jean-Pierre Remenieras[1]

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P1-B4-9 Median Nerve Mobility Assessed by Ultrasound Strain Imaging at Different Wrist Postures

Xue Yu[1], He Li[1], Sai Hung Yu[1], Yin-Yin Liao[2], Chih-Kuang Yeh[3], Wei-Ning Lee[1,4]

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P1-B4-11 Model-based Viscoelasticity Analysis with Ultrasound Shear Wave Elastography for Quantitative Liver Steatosis Diagnosis

Hideki Yoshikawa[1], Takashi Maruoka[1], Ken-ichi Kawabata[1], Teruyuki Sonoyama[1], Noriaki Inoue[1], Kunio Hashiba[1]

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P1-B4-13 High Resolution Shear Wave Imaging for Alzheimer's Disease Mice Brain

Pei-Yu Chen[1], Fang-Yi Lay[1], Teng Ma[2], Qifa Zhou[2], K. Kirk Shung[2], Chih-Chung Huang[1]

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P1-B4-15 Minimizing strain error for in vivo ultrasound elasticity imaging of human tendon

Liang Gao[1], Hannah Schmitz[1], Jacob Klewer[2], John Szivek[2], Mihra Taljanovic[1], L. Daniel Latt[2], Russell Witte[1]

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P1-B4-17 Towards a more accurate model for shear wave propagation in skin: characterizing the effects of the lower boundary material on the propagation of Lamb waves

Adam Pely[1], Kathryn Nightingale[1], Mark Palmeri[1]

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P1-B4-19 Comparison of Beam Sequence Dependent Variation in Group Shear Wave Speed and Single Tracking Location Viscosity Estimation (STL-VE) Measurements in Fibrotic Liver Phantoms

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Session P1-B5.
MIM: Medical imaging I
Chair: Jianwen Luo
Tsinghua University

P1-B5-1 Imaging Performance of Frequency-Agile Collapse-Mode CMUT

Martin Pekar[1,2], Nenad Mihajlovic[1], Harm Belt[1], Alexander F. Kolen[1], Bas Jacobs[3], Johan G. Bosch[2], Hendrik J. Vos[2], Gijs van Soest[2], Nico de Jong[2,4], Debbie Rem-Bronneberg[1]

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P1-B5-3 3D Imaging with a Single-Element Forward-Looking Steerable IVUS Catheter

Jovana Janjic[1], Merel Leistikow[2], Aimee Sakes[3], Frits Mastik[1], Robert H. S. H. Beurskens[1], Geert Springeling[4], Nico de Jong[5], Johan G. Bosch[1], Antonius F. W. van der Steen[1], Gijs van Soest[1]

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P1-B5-5 3D-Pulse-Echo-Tomography for Breast Cancer and Rheumatoid Arthritis Diagnosis – Add-on-System and Latest In-Vivo-Results

Andreas Koch[1,2], Florian Stiller[1], Reinhard Lerch[1], **Helmut Ermert**[1,2]

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P1-B5-7 S-Sequence enhanced synthetic aperture Ultrasound Scattering Tomography

Quinn Barber[1], Roger Zemp[1]

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P1-B5-9 Effect of nanoparticle size and magnetic field strength on the displacement signal in magnetomotive ultrasound imaging

Roger Andersson[1], Maria Evertsson[2], Hanna Toftevall[3], Magnus Cinthio[2], Sarah Fredriksson[3], Tomas Jansson[1,4]

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P1-B5-11 Non-invasive flow measurement in shunt catheters using ultrasound and acoustic cavitation

Robert Andrew Fowler[1], Robin Hartman[1,2], Douglas Fox[3], Stanislav Emelianov[2,4], **Salavat Aglyamov[1]**

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P1-B5-13 Quantifying the image quality improvement using elevated acoustic output in tissue harmonic imaging (THI) and shear wave elasticity imaging (SWEI)

Yufeng Deng[1], Mark Palmeri[1], Ned Rouze[1], Clare Haystead[2], Kathryn Nightingale[1]

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P1-B5-15 Transcranial Ultrasonic Imaging with a 2D Synthetic Array

Sergey Tsysar[1], Vera Khokhlova[1,2], Victor Svet[3], Andrey Malotilov[4], Wayne Kreider[2], Oleg Sapozhnikov[1,2]

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P1-B5-17 Doppler passive acoustic mapping for estimating microbubble velocities

Antonios Pouliopoulos[1], Caiqin Li[1], Meng-Xing Tang[1], James Choi[1]

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P1-B5-19 Blind Deconvolution of Medical Ultrasound Images Using a Parametric Model for the Point Spread Function

Ningning Zhao[1], Qi Wei[2], **Adrian Basarab[3]**, Denis Kouamé[3], Jean-Yves Tourneret[1]

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P1-B5-21 Reverberation clutter and sources of image degradation in transcostal imaging

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Session P1-B6.
MPA: Photoacoustic technology and contrast agent development

Chair: **Georg Schmitz**
Ruhr-Universität Bochum

P1-B6-2 Ultrafast acousto-optic imaging with ultrasonic plane waves

Jean-Baptiste Laudereau[1], Alexander Grabar[2], Mickael Tanter[1], Jean-Luc Gennisson[1], François Ramaz[1]

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P1-B6-4 Three-dimensional Photoacoustic Reconstruction for Sparse Array Using Compressed Sensing Based on k-space Algorithm

Kengo Kondo[1], Takeshi Namita[1], Makoto Yamakawa[1], Tsuyoshi Shiina[1]

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P1-B6-6 Spatial Resolution and Contrast Enhancement in Photoacoustic Imaging with Filter Delay Multiply and Sum Beamforming Technique

Abdulrhman Alshaya[1], Sevan Harput[1], Asraf Mubarak[1], David M. J. Cowell[1], James McLaughlan[1], Steven Freear[1]

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P1-B6-8 Spatial and spectral regularization for multispectral photoacoustic image clustering

Aneline Dolet[1,2], François Varray[1], Simon Mure[1], Thomas Grenier[1], Yubin Liu[3], Zhen Yuan[3], Piero Tortoli[2], Didier Vray[1]

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P1-B6-10 Background noise rejection for photoacoustic images of dual-modal microbubbles

Haemin Kim[1], Hyuncheol Kim[1,2], Jin-Ho Chang[1,3]

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P1-B6-12 Optimizing photoacoustic-based thermal image formation by comparing four different methods

Joao Uliana[1], Diego Sampaio[1], Antonio Carneiro[1], **Theo Pavan[1]**

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P1-B6-14 Effects of Ultrasound Coupling Gel on Photoacoustic Signal Attenuation

Caitlin Finley[1], Maria Stanczak[1], Shunxin Zhang[2], Yanhong Wang[3], Ping Wang[4], Ji-Bin Liu[1], Flemming Forsberg[1], **John Eisenbrey[1]**

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P1-B6-16 Impact of transducer technologies on photoacoustic imaging

Martin Flesch[1,2], Cyril Meynier[1], Omri Warshavski[1], Nicolas Senegond[1], An Nguyen-Dinh[1], Nicolas Felix[1]

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P1-B6-18 Combined Photoacoustic and Acoustic 3D Tomography

Milan Oeri[1], Wolfgang Bost[1], Marc Fournelle[1], Steffen Tretbar[1]

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P1-B6-20 Single transducer LOVIT-enabled photoacoustic imaging: a feasibility study

Maria Theodorou[1], Michael Jaeger[2], Jeremie Fromageau[1], Tigran Petrosyan[2], Meng-Xing Tang[3], Martin Frenz[2], Jeff Bamber[1]

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P1-B6-22 Polypyrrole coated perfluorocarbon emulsions as a photoacoustic contrast agent

David Li[1], Soon Joon Yoon[2], Thomas Matula[3], Matthew O'Donnell[2], Lilo Pozzo[1]

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Session P1-B7.
MTC: Tissue characterization

Chair: **Kay Raum**
Charité-Universitätsmedizin Berlin

P1-B7-2 Improving local attenuation estimation using a spatial regularization strategy over frequencies

Julien Rouyer[1], Andrés Coila[1], Roberto Lavarello[1]

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P1-B7-4 Copolymer-in-oil tissue-mimicking material with tunable acoustic properties

Luciana Cabrelli[1], Felipe Grillo[1], Antonio Carneiro[1], **Theo Pavan[1]**

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P1-B7-6 Comparison of modeling accuracy of amplitude distribution models for ultrasonic tissue characterization of liver fibrosis

Shohei Mori[1], Shinnosuke Hirata[1], Tadashi Yamaguchi[2], Hiroyuki Hachiya[1]

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P1-B7-8 Spectral Analysis of Ultrasonic Backscatter from Human Carotid Plaque

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P1-B7-10 Phantom characterization using the mechanical resonance of a tissue-embedded magnetic sphere

Thomas Ersepke[1], Tim Kranemann[1], Georg Schmitz[1]

[1]Chair for Medical Engineering, Ruhr-Universität Bochum, Germany

P1-B7-12 A Comparison of Shear Wave Elastography and Pulse Wave Imaging in Carotid Plaque Phantoms

Erik Widman[1,2], Iason-Zacharias Apostolakis[3], Pierre Nauleau[3], Matthew W. Urban[4], Matilda Larsson[1,2], Elisa Konofagou[3]

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P1-B7-14 Simultaneous estimation of shear wave speed and backscatter coefficient: phantom and human liver <I>in vivo</I> study

Julien Rouyer[1], Gabriela Torres[1], Carolina Amador[2], Matthew Urban[3], Roberto Lavarello[1]

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P1-B7-16 An inverse method to determine the elastic modulus of the artery wall with guided waves

Guo-Yang Li[1], Qiong He[2], Jianwen Luo[2], Yanping Cao[1]

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P1-B7-18 Joint imaging techniques for mechanical and structure characteristics of atherosclerosis plaques

Meng Han[1], Jinjin Wan[2], Yujin Zong[1], Mingxi Wan[1]

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P1-B7-20 Method for Extracting Microcalcifications with Analysis of Isotropy of Scattered Acoustic Signals in Ring-array Transducer System

Kazuhiro Yamanaka[1], Takahide Terada[1], Takashi Maruoka[1], Yushi Tsubota[1], Wenjing Wu[1], Ken-ichi Kawabata[1]

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P1-B7-22 <I>In-vivo</I> Cervical Spine FSU Dynamic Motion Measured by Dual Ultrasound: The Effect of Muscle Activation

Mingxin Zheng[1,2], Thomas Szabo[1], Brian Snyder[2,3]

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Session P1-B8.
MTH: Therapy systems and therapy control
Chair: **Jean-François Aubry**
Institut Langevin, ESPCI ParisTech

P1-B8-2 Robotized HIFU system for motion compensation in real time
Laure-Anais Chanel[1], Florent Nageotte[1], Loïc Cuvillon[1], Jianwen Luo[2], Michel de Mathelin[1], **Jonathan Vappou[1]**
[1]ICUBE CNRS Université de Strasbourg, France, [2]Department of Biomedical Engineering, Tsinghua University, China

P1-B8-4 A New Method for Absolute Accuracy Evaluation of a US-guided HIFU System with Heterogeneous Phantom
Tianhan Tang[1], Takashi Azuma[1], Kazunori Itani[2], Toshihide Iwahashi[1], Kazuhiro Matsui[1], Keisuke Fujiwara[2], Hideki Takeuchi[1], Tsuyoshi Mitake[1], Shu Takagi[1], Etsuko Kobayashi[1], Ichiro Sakuma[1]
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P1-B8-6 Neuronavigation-guided focused ultrasound system with real-time cavitation mapping for blood-brain barrier opening in non-human primates
Shih-Ying Wu[1], Maria Elena Karakatsani[1], Julien Grondin[1], Carlos Sierra Sanchez[1], Vincent Ferrera[2], Elisa Konofagou[1,3]
[1]Biomedical Engineering, Columbia University, USA, [2]Neuroscience, Columbia University, USA, [3]Radiology, Columbia University, USA

P1-B8-8 A Comparison of Hydrophone Measurements in High Intensity Focused Ultrasound Fields
Yunbo Liu[1], Keith Wear[1]
[1]FDA, USA

P1-B8-10 A multi-frequency, dual-mode, sparse hemispherical phased array for microbubble mediated brain therapy and monitoring
Lulu Deng[1], Meaghan A. O'Reilly[1,2], Ryan M. Jones[1,2], Ran An[1], Kagee Leung[1], Kullervo Hynynen[1,2]
[1]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Department of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada

P1-B8-12 Theoretical optimisation of a time reversal cavity for 3D electronic focusing of high intensity ultrasound pulses
Justine Robin[1], Mickaël Tanter[1], Mathieu Pernot[1]
[1]Institut Langevin [ESPCI Paris, Université P7, PSL Research University, CNRS UMR 7587, INSERM U979], paris, France

P1-B8-14 Trajectory Optimisation in High-Intensity Focused Ultrasound
Bradley Treeby[1], Ben Cox[1]
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P1-B8-16 Design of a magnetic particle imaging compatible HIFU transducer array
Tim Christopher Kranemann[1], Thomas Ersepke[1], Georg Schmitz[1]
[1]Chair for Medical Engineering, Ruhr-Universität Bochum, Germany

P1-B8-18 A study of low power consumption high voltage staircase drive circuit for high-intensity focused ultrasound system
Satoshi Tamano[1,2], Hayato Jimbo[1], Shin Yoshizawa[1], Shin-ichiro Umemura[1]
[1]Tohoku University, Japan, [2]Healthcare Business Unit, Hitachi, Ltd., Japan

P1-B8-20 Multifrequency focused ultrasound transducer for neurostimulation in rodents and primates
Charlotte Constans[1], Thomas Deffieux[1], Nicolas Wattiez[2], Pierre Pouget[2], Mickaël Tanter[1], Jean-François Aubry[1]
[1]Institut Langevin, Paris, France, [2]ICM, France

Session P4-B1.
Microacoustic Device Design
Chair: **Jyrki Kaitila**
Broadcom

P4-B1-1 SAW/BAW Band Reject Filters Embedded in Impedance Converter
Yulin Huang[1,2], Jingfu Bao[1], Gongbin Tang[2,3], Tomoya Aonuma[2], Qiaozhen Zhang[2,3], Tatsuya Omori[2], Ken-ya Hashimoto[2]
[1]University of Electronic Science and Technology of China, China, [2]Chiba University, Japan, [3]Shanghai Jiao Tong University, China

P4-B1-3 Design of A Split Type Filter for Wide Band Cellular System
Kensei Uehara[1], Takahiro Sato[1]
[1]HANDY INTERNATIONAL Co., Ltd, Kawasaki, Japan

P4-B1-5 Analysis of Spurious Modes, Q, and Electromechanical Coupling for 1.22 GHz AlN MEMS Contour-Mode Resonators fabricated in an 8" Silicon Fab
Enes Calayir[1], Gianluca Piazza[1], Jeffrey Bo Woon Soon[2], Navab Singh[2]
*[1]Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, [2]Institute of Microelectronics, A*STAR (Agency for Science, Technology and Research), Singapore*

P4-B1-7 Optimization of piezo-MEMS layout for a bladder monitor
Reinout Woltjer[1], Matthijs Suijlen[1], Pramodh Srinivasa[1,2], Nirupam Banerjee[1,3], Jan-Jaap Koning[2,4], Guus Rijnders[3]
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P4-B1-9 Bulk acoustic wave transformer based on periodic structure of piezoelectric rods with alternating direction of polarization
Victor Plessky[1], Ventsislav Yantchev[2], Christian Granger[3], Anne-Christine Hladky[3]
[1]GVR Trade SA, Switzerland, [2]Chalmers University of Technology, Sweden, [3]IEMN, Institut d'Electronique, de Microélectronique et de Nanotechnologies, France

Session P4-B2.
Microacoustic Materials & Wave Propagation
National University of Science and Technology

P4-B2-1 X-ray resonance diffraction on acoustically modulated crystals of langasite family near the Ga and Ta absorption edges
Dmitrii Roshchupkin[1], Olga Plotitcyna[1], Dmitrii Irzhak[1], Evgenii Emelin[1], Luc Ortega[2], Alexei Erko[3], Simone Vadilonga[3], Ivo Zizak[3]
[1]Institute of Microelectronics Technology and High-Purity Materials Russian Academy of Sciences, Russian Federation, [2]Laboratoire de Physique des Solides, Univ. Paris-Sud, CNRS, France, [3]Institute for Nanometre Optics and Technology Helmholtz-Zentrum Berlin, Germany

P4-B2-3 SAW transmission across wedge-like contacts in composite substrates
Alexander Darinskii[1], Manfred Weihnacht[2], Hagen Schmidt[2]
[1]Institute of Crystallography RAS, Moscow, Russian Federation, [2]IFW Dresden, SAWLab Saxony, Dresden, Germany

P4-B2-5 Acoustically stimulated charge transport in graphene
Dmitrii Roshchupkin[1], Olga Plotitcyna[1], Oleg Kononenko[1], Evgenii Emelin[1], Gennady Panin[2]
[1]Institute of Microelectronics Technology and High-Purity Materials Russian Academy of Sciences, Russian Federation, [2]Quantum-Functional Semiconductor Research Center, Dongguk Universdity, Korea, Republic of

P4-B2-7 Dopant concentration dependence of electromechanical coupling coefficients of co-doped AlN thin films for BAW devices
Tsuyoshi Yokoyama[1], Yoshiki Iwazaki[1], Takihiro Nishihara[1], Jun Tsutsumi[1]
[1]TAIYO YUDEN CO., LTD., Japan

P4-B2-9 Elastic and dielectric properties of CTGS piezoelectric single crystal at cryogenic temperatures
Andrei Sotnikov[1,2], Hagen Schmidt[1], Manfred Weihnacht[1], Elena Smirnova[2], Sergey Sakharov[3]
[1]IFW Dresden, SAWLab Saxony, Dresden, Germany, [2]Ioffe Institute, Russian Federation, [3]JSC Fomos-Materials, Russian Federation

P4-B2-11 Surface acoustic waves properties on Ba2TiSi2O8 for high temperature sensors
Marianne Sagnard[1], Sylvain Ballandras[2], Thierry Laroche[2]
[1]temps fréquence, femto-st, besançon, France, [2]frec|n|sys, France

P4-B2-13 Analysis of the Surface Acoustic Wave Propagation in Ca3TaGa3Si2O14 crystal by Raman Spectroscopy
Dmitry Roshchupkin[1,2], Dmitry Irzhak[1], Artemly Irzhak[1,2], Svetlana Chernych[1,2], Evgenia Marushkina[1,2]
[1]Institute of Microelectronics Technology and High-Purity Materials RAS, Russian Federation, [2]National University of Science and Technology MISIS, Russian Federation

P4-B2-15 Al Content Dependence of Acoustic Properties for Ca₃Nb(Ga_{1-x}Al_x)₃Si₂O₁₄ Single Crystals
Yuji Ohashi[1], Yuui Yokota[2], Mototaka Arakawa[2], Tetsuo Kudo[1], Shunsuke Kurosawa[2], Kei Kamada[2], Akira Yoshikawa[1]
[1]IMR, Tohoku University, Japan, [2]NICHe, Tohoku University, Japan

Session P2-B1.
Air Coupled Transducers
Chair: **Mario Kupnik**
TU Darmstadt

P2-B1-2 Air-coupled ultrasound inspection of complex aluminium-CFRP components
Jose Brizuela[1], Jorge Camacho[2], Tomás G. Alvarez-Arenas[2], **Jorge Cruza[2]**, Ezequiel Poodts[3]
[1]ENDE, CONICET - CNEA, Buenos Aires, Argentina, [2]DSSU, CSIC, Madrid, Madrid, Spain, [3]R&D, KOHLENIA, Composite Materials, Buenos Aires, Argentina

P2-B1-4 Mechanical Characterization of Nanoparticles-Doped Composites Using Air Coupled Transducers
Alberto Rodriguez[1], Arturas Aleksandrovas[2], Linas Svilainis[2], Tomas E. G. Alvarez-Arenas[3], Miguel Angel de la Casa Lillo[4]
[1]Communications Egineering, University Miguel Hernandez, Elche, Alicante, Spain, [2]Electronics Engineering, Kaunas University of Technology, Kaunas, Kaunas, Lithuania, [3]Institute of Physical and Information Technologies (ITEFI), Spanish National Research Council (CSIC), Madrid, Madrid, Spain, [4]Bioengineering Institute, University Miguel Hernandez, Elche, Alicante, Spain

P2-B1-6 Airborne broad-beam emitter from a capacitive transducer and a cylindrical structure
Francesco Guarato[1], Guilherme Barduchi de Lima[1], **James Windmill[1]**, Anthony Gachagan[1]
[1]Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom

P2-B1-8 A time-domain simulation of non-contact Rayleigh wave testing system and its experimental validation
Ji LI[1], Bogdan PIWAKOWSKI[1], Li LI[2]
[1]IEMN, Ecole Centrale de Lille, Lille, France, [2]Hubei Key Laboratory of Hydroelectric Machinery Design & Maintenance, China Three Gorges University, Yichang, China

P2-B1-10 Development of large displacement transducer for air-coupled ultrasonic measurement
Toshihiro Tsuji[1], Yasuhiro Tanaka[1], Tsuyoshi Mihara[1]
[1]Tohoku University, Japan

Session P2-B2.
SHM and Flaw Detection
Chair: **Lawrence Kessler**
Sonoscan Inc.

P2-B2-2 Ultrasonic Flaw Detection using Hidden Markov Model with Wavelet Features
Kushal Virupakshappa[1], **Erdal Oruklu[1]**
[1]Department of Electrical and Computer Engineering, Illinois Institute of Technology, Chicago, IL, USA

P2-B2-4 Multi-Layered and Multiple Feature Based Analysis of Ultrasonic Flaw Signals using Deep Learning
Kushal Virupakshappa[1], **Erdal Oruklu[1]**
[1]Department of Electrical and Computer Engineering, Illinois Institute of Technology, Chicago, IL, USA

P2-B2-6 Characterization of Local Residual Stress on Curved Blades by Ultrasound
Yunze Li[1], **Yanxun Xiang[1]**, Chang-Jun Liu[1]
[1]Key Laboratory of Pressure Systems and Safety of MOE, School of Mechanical and Power Engineering, East China University of Science and Technology, Shanghai, China

P2-B2-8 Ultrasonic Non Destructive Testing (UT) modelization based on a hybrid numerical method and a reciprocity equation.
Florian Lyonnet[1,2], Didier Cassereau[1], Marie-Françoise Cugnet[2]
[1]Laboratoire d'Imagerie Biomédicale, Paris, France, [2]AREVA NP, Ugine, France

P2-B2-10 Exploratory analysis of acoustic emissions in steel using dictionary learning
Sergio Martin-del-Campo[1,2], Fredrik Sandin[1], Stephan Schnabel[2,3], Pär Marklund[3], Jerker Delsing[1]
[1]EISLAB, Luleå University of Technology, Luleå, Sweden, [2]SKF-LTU University Technology Center, Luleå University of Technology, Luleå, Sweden, [3]Division of Machine Elements, Luleå University of Technology, Luleå, Sweden

Session P2-B4.
Imaging
Chair: **Joel Harley**
University of Utah

P2-B4-2 Reflection and Mode-Conversion of Ultrasonic Leaky Lamb Waves at Inaccessible Discontinuities in Layered Structures
Thilo M. Brill[1], Christoph Klieber[1]
[1]Schlumberger-Riboud Product Centre, Clamart, France

P2-B4-4 An Improved Ultrasound System for Biometric Recognition Based on 3D Palmprint
Donatella Nardiello[1], Antonio Iula[1]
[1]Engineering School, University of Basilicata, Potenza, PZ, Italy

P2-B4-6 A Frequency Synthetic Aperture Focusing Technique for Eccentric Circular Scanning
Haoran Jin[1], Shiwei Wu[2], Keji Yang[2]
[1]Zhejiang University, Hangzhou, Zhejiang Province, China, [2]Zhejiang University, China

P2-B4-8 Adaptive background noise reduction for ultrasonic imaging logging
Zhijuan Zhang[1], Doug Patterson[1], Roger Steinslek[1], Wei Han[1]
[1]Baker Hughes, USA

Session P2-B3.
NDE
Chair: **Erdal Oruklu**
Illinois Institute of Technology

P2-B3-2 Performance Analysis of System-on-Chip Architectures for Ultrasonic Data Compression
Boynag Wang[1], Pramod Govindan[2], Jafar Saniie[1]
[1]Illinois Institute of Technology, USA, [2]University of North Florida, USA

P2-B3-4 A Comparative Study of Singular Spectrum Analysis and Empirical Mode Decomposition for Ultrasonic NDE
Yufeng Lu[1], Jafar Saniie[2]
[1]Electrical and Computer Engineering, Bradley University, USA, [2]Electrical and Computer Engineering, Illinois Institute of Technology, USA

P2-B3-6 Development of an Inline Water Mains Inspection Technology
Hector Hernandez Delgadillo[1], Doekle Yntema[2], Remko Akkerman[1], Richard Loendersloot[1], Roy Visser[1]
[1]The University of Twente, Enschede, Twente, Netherlands, [2]Wetsus European Centre of Excellence for Sustainable Water Technology, Leeuwarden, Netherlands

P2-B3-8 Coded Excitation for Low SNR Pulse-Echo Systems: Enabling Quasi-Real-Time Low Power EMATs
Julio Isla[1], Frederic Cegla[1]
[1]Mechanical Engineering, Imperial College London, London, United Kingdom

P2-B3-10 Improvement of non-contact measurement of propagation characteristics in human tissues using pass-through airborne ultrasound
Shinnosuke Hirata[1], Koichi Terashima[1], Hiroyuki Hachiya[1]
[1]Tokyo Institute of Technology, Japan

P2-B3-12 A Phase Velocity Filter for the Measurement of Lamb Wave Dispersion
Chris Adams[1], Sevan Harput[1], David Cowell[1], Steven Freear[1]
[1]University of Leeds, United Kingdom

Session P5-B1.
Electronics and Applications
Chair: **Paul Reynolds**
Siemens

P5-B1-2 2D CMUT Array Based Ultrasonic Micromanipulation Platform
Aroaba Zeshan[1], Xiao Zhang[2], Omer Oralkan[2], F. Yalcin Yamaner[1]
[1]School of Engineering and Natural Sciences, Istanbul Medipol University, Istanbul, Turkey, [2]Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA

P5-B1-4 A memristor based ultrasonic transducer: the memosducer
Serge DOS SANTOS[1], Sadataka FURUI[2]
[1]INSA Centre Val de Loire - Inserm U930 «Imaging and Brain», BLOIS, France, [2]Graduate School of Science and Engineering, Teikyo University, Teikyo, Japan

P5-B1-6 High Frequency Integrated Transceiver System-on-a-Chip for CMUT based IVUS on a Guidewire
Jaemyung Lim[1], Coskun Tekes[2], F. Levent Degertekin[3], Maysam Ghovanloo[4]
[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA, [2]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technlolgy, USA, [3]G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA, [4]School of Electrical and Computer Engineering, Georgia Institute of Technology, USA

P5-B1-8 Design of High Voltage 1 to 64 Mux/ De-Mux For High Frequency Ultrasound Synthetic Aperture Imaging System
Hayong Jung[1], Robert Wodnicki[1], Hae Lim[1], Mike. S.W Chen[2], K. Kirk Shung[1]
[1]Biomedical Engineering, University of Southern California, Los Angeles, California, USA, [2]Electrical Engineering, University of Southern California, Los Angeles, California, USA

Session P5-B2.
CMUTs
Chair: **Arif Ergun**
TOBB, University of Economics

P5-B2-2 Porous silicon as backing material for capacitive micromachined ultrasonic transducers
Julie Lascaud[1], Audren Boulmé[1], Dominique Gross[1], Emilie Bahette[1], Thomas Defforge[1], Daniel Alquier[1], Gaël Gautier[1], Dominique Certon[1]
[1]Université François Rabelais de Tours, CNRS, CEA, INSA-CVL, GREMAN UMR7347, Tours Cedex 2, France

P5-B2-4 Modelling of Large-Scale Multi-Frequency CMUT Arrays with Circular Membranes
Mohammad Maadi[1], Roger Zemp[1]
[1]Electrical and Computer Engineering, University of Alberta, Edmonton, Alberta, Canada

P5-B2-6 Elimination of Second-Harmonics in CMUTs Using Square Pulse Excitation
Anders Lei[1], **Søren Elmin Diederichsen[1]**, Sebastian Molbech Hansen[1], Matthias Bo Stuart[2], Jan Peter Bagge[3], Jørgen Arendt Jensen[2], Erik Vilain Thomsen[1]
[1]DTU Nanotech, Technical University of Denmark, Kongens Lyngby, Denmark, [2]Center for Fast Ultrasound Imaging, Technical University of Denmark, Kongens Lyngby, Denmark, [3]BK Ultrasound, Herlev, Denmark

P5-B2-8 CMUT design equations for optimizing noise figure and source pressure
Ira Wygant[1], **Mario Kupnik[2]**, Butrus T. Khuri-Yakub[3]
[1]Texas Instruments, USA, [2]Technische Universität Darmstadt, Germany, [3]Stanford University, USA

P5-B2-10 Mutual-radiation impedance of circular CMUT cells on a cylinder
Reza Pakdaman Zangabad[1], Ayhan Bozkurt[2], Goksenin Yaralioglu[3], Vincent Henneken[4], Gijs Van Soest[5], Antonius F.W. van der Steen[1,5]
[1]Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands, [2]Electronics Engineering, Sabanci University, Istanbul, Turkey, [3]Electronics Engineering, Ozyegin University, Istanbul, Turkey, [4]Microsystems & Devices Philips Research, Philips Innovation Group, Eindhoven, Netherlands, [5]Department of Imaging Science and Technology, Delft University of Technology, Delft, Netherlands

P5-B2-12 Fabrication of CMUTs using a boron etch-stop method
Søren Elmin Diederichsen[1], Filip Sandborg-Olsen[1], Mathias Engholm[1], Kim Christiansen[1], Anders Lei[1], Jørgen Arendt Jensen[2], Erik Vilain Thomsen[1]
[1]Department of Micro- and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark, [2]Center for Fast Ultrasound Imaging, Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark

P5-B2-14 Nonlinear ultrasound imaging experiments using a CMUT probe
Alessandro Stuart Savoia[1], Enrico Boni[2], Alessandro Ramalli[2], Giulia Matrone[3], Piero Tortoli[2], Giosuè Caliano[1]
[1]Department of Engineering, University Roma Tre, Rome, Italy, [2]Department of Information Engineering, University of Florence, Florence, Italy, [3]Department of Electrical, Computer and Biomedical Engineering, University of Pavia, Pavia, Italy

P5-B2-16 Analysis of Energy Conversion in CMUTs for High Power Operation
Amirabbas Pirouz[1], **F. Levent Degertekin[2]**
[1]School of Electrical and Computer Engineering, Georgia Institute of Technology, ATLANTA, GA, USA, [2]Woodruff School of Mechanical Engineering, Georgia Institute of Technology, ATLANTA, GA, USA

P5-B2-18 Acoustical Tuning of cMUT Receiver Arrays
Akif Sinan Tasdelen[1], Abdullah Atalar[2], Hayrettin Köymen[3]
[1]Bilkent University, Ankara, Turkey, [2]Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey, [3]Electrical and Electronics Engineering, Bilkent University, Turkey

P5-B2-20 Modelling a cmut covered with passivation layer by means of boundary element method
Maxime Hery[1], Dominique Gross[1], Audren Boulmé[1], Cyril Meynier[2], Dominique Certon[1]
[1]Francois-Rabelais University, GREMAN UMR 7347, France, [2]VERMON, France

P5-B2-22 Analytical Model with Lateral Force for Conventional CMUT Membranes under Large Deflection using Von Karman Equations

JiuJiang Wang[1,2], YuanYu Yu[1,2], Sio Hang Pun[1], Peng Un Mak[2], Ching-Hsiang Cheng[1,3], Mang I Vai[1,2]

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P5-B2-24 Capacitive Micromachined Ultrasonic Transducers with Graphene Membranes

Po Fat Chang[1], Xiaomei shi[1], **Ching-Hsiang Cheng**[1]

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Session P3-B1.
PA General Physical Acoustics
Chair: John Larson
Avago Technologies

P3-B1-1 Investigation of high-pressure phase transitions in biofuels by means of ultrasonic methods

Piotr Kielczynski[1], Marek Szalewski[1], Andrzej Balcerzak[1], Krzysztof Wieja[1], Aleksander Rostocki[2], Stanislaw Ptasznik[3]

[1]*Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland,* [2]*Institute of Physics, Warsaw University of Technology, Poland,* [3]*Institute of Agricultural and Food Biotechnology, Poland*

P3-B1-3 Evaluation of viscoelastic parameters of surface layers by ultrasonic Love waves

Piotr Kielczynski[1], Marek Szalewski[1], Andrzej Balcerzak[1], Krzysztof Wieja[1]

[1]*Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland*

P3-B1-5 Piezoelectric resonance laser calorimetry of glass and crystalline optical materials

Oleg Ryabushkin[1,2], Aleksey Konyashkin[1,2], **Andrei Korolkov**[1]

[1]*Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russian Federation,* [2]*Kotelnikov Institute of Radio-engineering and Electronics of RAS, Fryazino, Moscow region, Russian Federation*

P3-B1-7 Leaky backward Lamb waves in various isotropic and anisotropic plate/liquid systems

Ilya Nedospasov[1], Vladimir Mozhaev[2], Iren Kuznetsova[1]

[1]*Kotel'nikov Institute of Radio-engineering and Electronics, Moscow, Russian Federation,* [2]*Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation*

P3-B1-9 Influence of Conductive and Viscose Liquid on Properties of Bleustein-Gulyaev Wave in Potassium Niobate Crystal

Iren Kuznetsova[1], **Ilya Nedospasov**[1], Boris Zaitsev[2], Anastasia Kuznetsova[1]

[1]*Kotel'nikov Institute of Radio-Engineering and Electronics of RAS, Moscow, Russian Federation,* [2]*Kotel'nikov Institute of Radio-Engineering and Electronics of RAS, Saratov, Russian Federation*

P3-B1-11 Gabor and Radon Fourier transform for local space-time acoustic wave estimation: Lamb modes on fluid filled cylindrical shells.

Loïc Martinez[1]

[1]*Laboratoire SATIE, Universite de Cergy Pontoise, Neuville sur oise, France*

P3-B1-13 Slant-Stack analysis for the estimation of a marble degradation profile

Mohamed El Boudani[1], Loïc Martinez[1], **Nicolas Wilkie-Chancellier**[1], Ronan Hébert[2], Olivier Rolland[3], Sébastien Forst[3], Véronique Vergès-Belmin[4], Stéphane Serfaty[1]

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P3-B1-15 Peculiar incidence and reflection of acoustic waves from a free boundary separating crystalline medium and the vacuum

Vitaly Voloshinov[1], Nataliya Polikarpova[1], Polina Ivanova[1]

[1]*Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation*

P3-B1-17 Acoustic Impedance change with Concentration in Nano Particle Suspension

Jung-Soon KIM[1], **Ji-Hyang KIM**[2], Ji-Yeong YEOM[2], Moo-Joon KIM[2], Kang-Lyeol HA[2]

[1]*Tongmyong University, Korea, Republic of,* [2]*Pukyong National University, Korea, Republic of*

P3-B1-19 Vibrational Modes of Equilateral Triangular Solid Bars

Omar Asfar[1], **Omar Asfar**[1], Bruno Morvan[2]

[1]*Electrical Engineering, Jordan University of Science & Technology, Irbid, Jordan,* [2]*Laboratoire Ondes et Milieux Complexes, Universite du Havre, Le Havre, France*

Session P3-B2.
PA Thin Films and Ultrasonic Motors & Actuators
Chair: John Larson
Avago Technologies

P3-B2-1 High electromechanical coupling of Sezawa mode SAW in c-axis-parallel-oriented ScAlN film/high-velocity-substrate structures

Shinji Takayanagi[1], Mami Matsukawa[2], Takahiko Yanagitani[3]

[1]Nagoya Institute of Technology, Nagoya, Japan, [2]Doshisha University, Kyotanabe, Japan, [3]Waseda University, Tokyo, Japan

P3-B2-3 Modelling and Finite Element Simulation of a Dual Friction-drive SAW Motor using Flat Slider

Basudeba Behera[1], Harshal Nemade[1], Shyam Trivedi[2]

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P3-B2-5 The Novel Sapphire Stator in a Surface Acoustic Wave Motor

Deqing Kong[1], **Minoru Kurosawa**[1]

[1]Information Processing, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan

P3-B2-7 Electromechanical coupling hysteresis curves of Pb(Zr,Ti)O₃ and PbTiO₃ epitaxial films determined by ultrasonic measurement using film/substrate structure

Takeshi Mori[1,2], Masashi Suzuki[2], Shinji Takayanagi[1], Takahiko Yanagitani[2]

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ORAL PROGRAM WEDNESDAY

08:00 AM -09:30 AM — ORAL --- WEDNESDAY, SEPTEMBER 21, 2016

	Session 1H. MBF: Angiography and functional imaging Chair: Alfred Yu *University of Waterloo*	Session 2H. MEL: Novel shear wave imaging methods Chair: Mostafa Fatemi	Session 3H. MTH: Histotripsy, sonothrombolysis, and transcranial applications Chair: Jean-Yves Chapelon *INSERM*	Session 4H. MSP: Medical signal processing Chair: John Hossak	Session 5H. NDE Chair: Edward Haeggstrom *University of Helsinki*	Session 6H. PA Thin Films and Actuators Chair: John Larson *Avago Technologies*	Session 7H. Microacoustic Materials and Propagation Chair: Mauricio Pereira da Cunha *University of Maine*
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
8:00 AM	**1H-1** Acoustic Angiography – Superharmonic Contrast Imaging to Assess Angiogenesis as a Biomarker of Cancer **Paul Dayton**[1], Sarah Shelton[1], Brooks Lindsey[1], Ryan Gessner[1,2], Yueh Lee[3], Stephen Aylward[4], Mike Lee[5], Emmanuel Cherin[5], Jay Sarvis[5], Chris Chaggares[6], F. Stuart Foster[5] *[1]Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill and North Carolina State University at Raleigh, Chapel Hill, NC, USA, [2]SonoVol, Inc., Durham, NC, USA, [3]Radiology, The University of North Carolina at Chapel Hill, Chapel Hill, NC, NC, USA, [4]Kitware, Inc, USA, [5]Medical Biophysics, Sunnybrook Health Sciences Centre, Canada, [6]Visualsonics, Inc, Canada*	**2H-1** A parametric study on acoustic particle palpation for elasticity imaging: The effects of ultrasound parameters, tissue stiffness and microbubble concentration **Hasan Koruk**[1,2], Niloufar Saharkhiz[1], James Choi[1] *[1]Department of Bioengineering, Imperial College London, London, United Kingdom, [2]Mechanical Engineering Department, MEF University, Istanbul, Turkey*	**3H-1** Noninvasive Thrombolysis using Microtripsy in a Porcine Deep Vein Thrombosis Model Xi Zhang[1], Jonathan Macoskey[1], Hitinder Gurm[2], Gabe Owens[3], Charles Cain[1], Matthew Pizzuto[3], **Zhen Xu**[1] *[1]Department of Biomedical Engineering, University of Michigan, Ann Arbor, USA, [2]Department of Internal Medicine, University of Michigan, Ann Arbor, USA, [3]Department of Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, USA*	**4H-1** Automatic Classification of Cardiac Disease Based on Strain (rate) Data: Handling Missing Curves **Mahdi Tabassian**[1,2], Martino Alessandrini[1,2], Luca De Marchi[2], Guido Masetti[2], Jan D'hooge[1] *[1]Department of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, [2]Department of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy*	**5H-1** Ultrasonic material characterization using matching pursuit algorithm with experimental dictionary **Julien P. Fortineau**[1], François Vander Meulen[1], Jérôme Fortineau[2], Guy Feuillard[2] *[1]Université François Rabelais de Tours, CNRS, CEA, INSA Centre Val de Loire, GREMAN UMR 7347, Blois, France, [2]INSA Centre Val de Loire, CNRS, CEA, Université François Rabelais de Tours, GREMAN UMR 7347, France*	**6H-1** The frequency switchable resonator consisting of polarity inverted Pb(Zr,Ti)O₃/PbTiO₃ epitaxial multilayer **Takeshi Mori**[1,2], Masashi Suzuki[2], Takahiko Yanagitani[2] *[1]Nagoya Institute of Technology, Nagoya, Japan, [2]Waseda University, Tokyo, Japan*	**7H-1** Bulk Acoustic Wave Resonator Integrated Microfluidics for Rapid and High Efficiency Fluids Mixing and Bioparticle Trapping Weiwei Cui[1], Meihong He[1], Hongxiang Zhang[1], Yang Yang[1], **Xuexin Duan**[1] *[1]State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, China, People's Republic of*
8:15 AM		**2H-2** Regularized Wavelength Average Velocity Estimator for Quantitative Ultrasound Elastography **Eduardo Gonzalez**[1], Roberto Lavarello[1], Benjamin Castaneda[1] *[1]Pontificia Universidad Católica del Perú, Lima, Lima, Peru*	**3H-2** In Vivo Histotripsy Brain Treatments Jonathan Sukovich[1], Charles Cain[1], Timothy Hall[1], Steven Allen[1], Aditya Pandey[2], Neeraj Choudhary[3], Sandra Camelo-Piragua[4], John Snell[5], Zhiyuan Xu[6], Jon Connato[7], Dejan Teofilovic[7], Jim Bertolina[7], **Zhen Xu**[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, [2]Neurosurgery, University of Michigan, Ann Arbor, Michigan, USA, [3]Radiology, University of Michigan, Ann Arbor, Michigan, USA, [4]Pathology, University of Michigan, Ann Arbor, Michigan, USA, [5]Focused Ultrasound Foundation, Charlottesville, Virginia, USA, [6]University of Virginia, Charlottesville, Virginia, USA, [7]Histosonics, Inc., Ann Arbor, Michigan, USA*	**4H-2** A fast and uniform procedure for computing time-harmonic pressures and transients for ultrasound transducers. **Jens Munk Hansen**[1] *[1]BK Ultrasound, Herlev, Denmark*	**5H-2** Ultrasonic Guided Wave Testing of Anchor Rods Embedded in Soil **Masanari Shoji**[1], Akihiko Hirata[1] *[1]NTT Device Technology Laboratories, NTT corporation, Atsugi-shi, Kanagawa Pref., Japan*	**6H-2** Evaluation of viscous liquid using resonance and anti-resonance of thickness-shear mode resonator consisting of c-axis parallel oriented ZnO film **Rikuya Iwanaga**[1], Shinji Takayanagi[2], Yoshiaki Watanabe[3], Mami Matsukawa[1], Toshiyuki Tsuchiya[3], Takahiko Yanagitani[4] *[1]Doshisha University, Kyotanabe, Japan, [2]Nagoya institute of technology, Nagoya, Japan, [3]Kyoto University, Kyoto, Japan, [4]Waseda University, Tokyo, Japan*	**7H-2** Surface acoustic wave momentum **Sergey Biryukov**[1], Andrei Sotnikov[1,2], Hagen Schmidt[1] *[1]IFW Dresden, SAWLab Saxony, Dresden, Germany, [2]Ioffe Institute, St. Petersburg, Russian Federation*
8:30 AM	**1H-2** Functional Ultrasound Imaging of the Brain Activity in Human Neonates **Charlie Demene**[1], Miguel Bernal[1], Catherine Delanoe[2], Elisabeth Harribaud[2], Mathieu Pernot[1], Mickael Tanter[1], Olivier Baud[3] *[1]Institut Langevin, CNRS UMR 7587, Inserm U979, ESPCI Paris, PSL Research University, Paris, France, [2]Assistance Publique - Hôpitaux de Paris, Neurophysiology Unit, Robert Debré University Hospital, Paris, France, [3]Assistance Publique - Hôpitaux de Paris, Neonatal Intensive Care Unit, Inserm U1141, Fondation PremUp, Robert Debré University Hospital, Paris, France*	**2H-3** Induction of shear waves by laser in a soft medium **Pol Grasland-Mongrain**[1], Yuankang Lu[1,2], Frédéric Lesage[2,3], Stefan Catheline[4,5], Guy Cloutier[1,6] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center (CRCHUM), Montréal, Québec, Canada, [2]Department of Electrical Engineering, École Polytechnique of Montreal, Montréal, Québec, Canada, [3]Institute of Biomedical Engineering, École Polytechnique of Montreal, Montréal, Québec, Canada, [4]Laboratory of Therapeutic Applications of Ultrasound, INSERM, Lyon, France, [5]University of Lyon, Lyon, France, [6]Department of Radiology, Radio-Oncology and Nuclear Medicine and Institute of Biomedical Engineering, University of Montreal, Montréal, Québec, Canada*	**3H-3** Interaction of two crossing shockwaves: an experimental and numerical study. **Bastien Arnal**[1], Mickael Tanter[1] *[1]Institut Langevin, ESPCI Paris, INSERM U979, CNRS UMR7587, Paris, France*	**4H-3** Entropy analysis of the velocity fields of ultrasound contrast agents for prostate cancer localization **Ruud JG van Sloun**[1], Libertario Demi[1], Arnoud W Postema[2], Jean JMCH de la Rosette[2], Hessel Wijkstra[1,2], Massimo Mischi[1] *[1]Dept. of Electrical Engineering, Lab. of Biomedical Diagnostics, Eindhoven University of Technology, Eindhoven, Netherlands, [2]Academic Medical Center University of Amsterdam, Netherlands*	**5H-3** Finite Element Modeling of Ultrasonic Nonlinearity for Creep Damage of Steel P91 **Yanyan Liu**[1], Shiwei Ma[1], Haojie Yuan[1] *[1]Shanghai Key Laboratory of Power Station Automation Technology, Shanghai University, China, People's Republic of*	**6H-3** Effects of energetic negative ions generated from sputtering targets on ScAlN film growth **Shinji Takayanagi**[1], Mami Matsukawa[2], Takahiko Yanagitani[3] *[1]Nagoya Institute of Technology, Nagoya, Japan, [2]Doshisha University, Kyotanabe, Japan, [3]Waseda University, Tokyo, Japan*	**7H-3** Validity Evaluation of Sc_xAl_{1-x}N Material Constants Based on SAW Characteristics **Gongbin Tang**[1,2], Tao Han[1], Kenta Yamazaki[2], Qiaozhen Zhang[1,2], Tatsuya Omori[2], Kenya Hashimoto[2] *[1]Shanghai Jiao Tong University, Shanghai, China, People's Republic of, [2]Chiba University, Chiba, Japan*

08:00 AM -09:30 AM	ORAL --- WEDNESDAY, SEPTEMBER 21, 2016						
8:45 AM	**1H-3 Towards functional ultrasound imaging of the pigeon brain** **Richard Rau**[1], Pieter Kruizinga[2], Wolfgang Scheffer[1], Markus Belau[1], Antonius FW van der Steen[2,3], Nico de Jong[2,4], Georg Maret[1] *[1]University of Konstanz, Germany, [2]Thorax Center, Erasmus MC, Netherlands, [3]The Netherlands Heart Institute, Utrecht, Netherlands, [4]Applied Physics, Acoustical Wavefield Imaging, Delft University of Technology, Delft, Netherlands*	**2H-4 Quantitative MR-guided transient shear wave imaging for tissue elasticity assessment** **Yu Liu**[1], Jingfei Liu[1], Brett Fite[1], Jasquin Foiret[1], Kent Leach[1], Katherine Ferrara[1] *[1]Biomedical Engineering, UC Davis, Davis, California, USA*	**3H-4 Effects of Dosing and Focal Spacing in Rapid Ablation of Large Tissue Volume Using Histotripsy with Electronic Focal Steering** **Jonathan Lundt**[1], Steven Allen[2], Jonathan Sukovich[1], Timothy Hall[1], Zhen Xu[1] *[1]Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, [2]Biomedical Engineering, University of Michigan, USA*	**4H-4 Accelerated randomized blind source suppression of quasi-static reverberant artifacts in echocardiography** **Sushanth Sathyanarayana**[1], Scott Acton[2], John Hossack[1] *[1]Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA, [2]Electrical and Computer Engineering, University of Virginia, Charlottesville, Virginia, USA*	**5H-4 Nonlinear Rayleigh surface waves for determining yielding of titanium alloy materials** **Shifeng Guo**[1], Lei Zhang[1], Meysam Sharifzadeh Mirshekarloo[1], Shuting Chen[1], Yi Fan Chen[1], Zheng Zheng Wang[1], Zhiyuan Shen[1], Huajun Liu[1], Kui Yao[1] *[1]Institute of Materials Research and Engineering, A*STAR, Singapore, Singapore*	**6H-4 Improvement of electromechanical properties in c-axis parallel oriented ZnO film by RF magnetron sputtering with negative ion bombardment** **Kazuma Mori**[1], Shinji Takayanagi[2], Mami Matsukawa[1], Takahiko Yanagitani[3] *[1]Doshisha University, Kyotanabe, Japan, [2]Nagoya Institute of Technology, Japan, [3]Waseda University, Japan*	**7H-4 Material parameter determination in BAW resonators using combined dispersion and electrical response input data** **Susanne Kreuzer**[1], Ralph Rothemund[1], Gernot Fattinger[1] *[1]Qorvo, Apopka, FL, USA*
9:00 AM	**1H-4 Spatiotemporal response of rat visual cortex during moving stimuli using Functional Ultrasound (fUS) Imaging** **Marc Gesnik**[1], Kevin Blaize[2], Alexandre Dizeux[1], Serge Picaud[2], José-Alain Sahel[2], Mathias Fink[1], Thomas Deffieux[1], Jean-Luc Gennisson[1], Mickaël Tanter[1] *[1]Institut Langevin (ESPCI Paris, PSL Research University, CNRS UMR 7587, INSERM U979), Paris, France, [2]Institut de la Vision (INSERM U986), Paris, France*	**2H-5 Ultrasound-based shear wave MRE for the biomechanical characterization of complex soft tissues** **Simon Chatelin**[1,2], Nadège Corbin[1], Isabelle Charpentier[1], Jonathan Vappou[1] *[1]ICube, CNRS, University of Strasbourg, Strasbourg, France, [2]IHU, Institute of Image-Guided Surgery, Strasbourg, France*	**3H-5 A Numerical Study on the Oblique Focus in MR-guided Transcranial Focused Ultrasound** **Alec Hughes**[1,2], Yuexi Huang[1], Aki Pulkkinen[3], Michael L Schwartz[4], Andres M Lozano[5], Kullervo Hynynen[1,2] *[1]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, Canada, [2]Department of Medical Biophysics, University of Toronto, Toronto, Canada, [3]Department of Applied Physics, University of Eastern Finland, Kuopio, Finland, [4]Division of Neurosurgery, Department of Surgery, Sunnybrook Health Sciences Centre, Toronto, Canada, [5]Division of Neurosurgery, Department of Surgery, Krembil Neuroscience Centre, Toronto Western Hospital, Toronto, Canada*	**4H-5 Blind Source Separation – Based Motion Detector for Sub-Micrometer, Periodic Displacement in Ultrasonic Imaging** **Md Murad Hossain**[1], Diwash Thoppa[2], Justin Sierchio[2], Amy oldenburg[2], Caterina Gallippi[1] *[1]Department of Biomedical Engineering, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA, [2]Department of Physics and Astronomy, UNC, Chapel Hill, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA*	**5H-5 Flaw detection in rotating structures by Lamb mode analysis** **Daniel Veira Canle**[1], Ari Salmi[2], Edward Hæggström[2] *[1]University of Helsinki, Helsinki, Finland, [2]Material Physics, Electronic Research Laboratory, University of Helsinki, Helsinki, Finland*	**6H-5 A Cryogenic Ultrasonic Actuator Using a Torsional Transducer** **Takefumi Kanda**[1], Masataka Kurada[1], Daisuke Yamaguchi[2], Koichi Suzumori[3] *[1]Okayama University, Okayama, Japan, [2]Saitama University, Japan, [3]Tokyo Institute of Technology, Japan*	**7H-5 LiNbO₃ Films for Acoustic Wave Applications** **Ausrine Bartasyte**[1], Stefania Oliveri[1], Thomas Baron[1], Roland Salut[1], Samuel Margueron[1], Sylvain Ballandras[2], Guillaume Saint-Girons[3], Brice Gautier[3], Romain Bachelet[3], David Albertini[3], Pascal Boulet[4] *[1]Institute FEMTO-ST, University of Bourgogne Franche-Comté, Besançon, France, [2]frecnisys, Besançon, France, [3]Lyon Institute of Nanotechnology, CNRS (UMR 5270) – University of Lyon, Ecully, France, [4]Institute Jean Lamour, CNRS (UMR 7198) – University of Lorraine, Nancy, France*
9:15 AM	**1H-5 Functional ultrasound imaging of the thalamo-cortical auditory tract and high resolution mapping of the tonotopic organization of the auditory cortex in awake ferrets** **Charlie Demene**[1], Célian Bimbard[2], Marc Gesnik[1], Susanne Radtke-Schuller[2], Shihab Shamma[2], Yves Boubenec[2], Mickael Tanter[1] *[1]Institut Langevin, CNRS UMR 7587, Inserm U979, ESPCI ParisTech, PSL Research University, Paris, France, [2]Laboratoire des Systèmes Perceptifs, Équipe Audition, CNRS UMR 8248, École Normale Supérieure, Paris, France*	**2H-6 Remote induction of shear waves using a Transcranial Magnetic Stimulation coil and a magnet** **Pol Grasland-Mongrain**[1], Erika Miller-Jolicoeur[1], An Tang[2,3], Stefan Catheline[4,5], Guy Cloutier[1,3] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center (CRCHUM), Montréal, Québec, Canada, [2]Department of Radiology and Research Center, University of Montreal Hospital (CHUM), Montréal, Québec, Canada, [3]Department of Radiology, Radio-Oncology and Nuclear Medicine, University of Montreal, Montréal, Québec, Canada, [4]Laboratory of Therapeutic Applications of Ultrasound, INSERM, Lyon, France, [5]University of Lyon, Lyon, France*	**3H-6 Transcranial Histotripsy Aberration Correction with Drainage Catheter Integrated Hydrophone for Treatment of Intracerebral Hemorrhage** **Tyler Gerhardson**[1], Jonathan R. Sukovich[1], Aditya S. Pandey[2], Zhen Xu[1] *[1]Biomedical Engineering, University of Michigan, USA, [2]Neurosurgery, University of Michigan, USA*	**4H-6 Phase-Corrective Compressed-Beamforming for Ultrasound Imaging** **Bo Zhang**[1], Jean-Luc Robert[2], Guillaume David[3] *[1]Medisys, Philips Research France, France, [2]Philips Research North America, USA, [3]Columbia University, USA*	**5H-6 Mapping the material microstructure of safety-critical components using ultrasonic phased arrays** **Katherine Tant**[1], Erica Golett[2], Anthony Mulholland[1], Andrew Curtis[2], Anthony Gachagan[3] *[1]Mathematics and Statistics, University of Strathclyde, Glasgow, United Kingdom, [2]Geosciences, The University of Edinburgh, Edinburgh, United Kingdom, [3]Centre of Ultrasonic Engineering, University of Strathclyde, Glasgow, United Kingdom*	**6H-6 Highly Responsive and Stable Flow Control Valve using a PZT transducer** **Daisuke HIROOKA**[1], Tomomi YAMAGUCHI[1], Naomichi FURUSHIRO[1], Koichi SUZUMORI[2], Takefumi KANDA[3] *[1]Kansai University, Japan, [2]Tokyo Institute of Technology, Japan, [3]Okayama University, Japan*	**7H-6 Acoustic Multiplexing by Beamsteering for SAW Chemical Multisensors** **Alice Fischerauer**[1], Anna Geyer[1], Christian Schwarzmüller[1], Gerhard Fischerauer[1] *[1]Chair of Measurement and Control Systems, University of Bayreuth, Bayreuth, Germany*

10:30 AM -12:00 PM — ORAL --- WEDNESDAY, SEPTEMBER 21, 2016

	Session 1I. MTH: Ultrasound therapy Chair: Ralf Seip	Session 2I. MEL: Liver elasticity imaging Chair: Kathy Nightingale	Session 3I. MBF: Innovations in algorithms and methods Chair: Lasse Lovstakken Norwegian University of Science and Technology	Session 4I. MCA: Microvascular and perfusion imaging Chair: Massimo Mischi Eindhoven University of Technology	Session 5I. Wave Propagation Chair: Walter Arnold Saarland University	Session 6I. Microacoustic Modeling Chair: Marc Solal Qorvo	Session 7I. Therapeutics Chair: Xiaoning Jiang North Carolina State University
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
10:30 AM	**1I-1 Ultrasound for Correction of Secretory Deficiencies as a Potential Novel Treatment for Type 2 Diabetes** **Ivan Suarez Castellanos**[1], Bogdan Balteanu[1], Tania Singh[1], Joshua Cohen[2], Aleksandar Jeremic[3], Vesna Zderic[1] [1]*Department of Biomedical Engineering, The George Washington University, Washington, DC, USA,* [2]*Division of Endocrinology & Metabolism, GW Medical Faculty Associates, Washington, DC, USA,* [3]*Department of Biological Sciences, The George Washington University, Washington, DC, USA*	**2I-1 Measurement of Liver Stiffness Using Single Tracking Location Shear Wave Elasticity Imaging in a Rat Model** **Jonathan Langdon**[1], Etana Elegbe[1], Laurentius Osapoetra[1], Tristan Ford[1], Stephen McAleavey[1] [1]*Department of Biomedical Engineering, University of Rochester, Rochester, New York, USA*	**3I-1 Block-wise Adaptive Clutter Filtering for Ultrasound Microflow Imaging** **Pengfei Song**[1], Armando Manduca[2], Joshua D. Trzasko[1], Shigao Chen[1] [1]*Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA,* [2]*Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	**4I-1 Early assessment of tumor response to radiation therapy using acoustic angiography microvascular imaging** **Sandeep Kasoji**[1], Judith Rivera[1], Ryan Gessner[1,2], Xiao Sha Chang[3], Paul A. Dayton[1] [1]*Joint Dept. of Biomedical Engineering, University of North Carolina Chapel Hill/North Carolina State University, CHAPEL HILL, NC, USA,* [2]*Sonovol, USA,* [3]*Radiation Oncology, UNC School of Medicine, Chapel Hill, NC, USA*	**5I-1 Finite aperture influence on energy concentration, frequency shift, and signal enhancement, for acoustic transmission in the negative group velocity region of the SI leaky Lamb mode** **Magne Aanes**[1,2], Kjetil Daae Lohne[2], Per Lunde[1,2], Magne Vestrheim[1] [1]*Department of Physics and Technology, University of Bergen, Bergen, Norway,* [2]*Christian Michelsen Research AS, Bergen, Norway*	**6I-1 Causal P-matrix description of leaky SAW devices** **Markus Mayer**[1], Gholamreza Dadgar-Javid[1], Thomas Ebner[1], Karl Wagner[1] [1]*TDK corporation, Germany*	**7I-1 High-intensity focused ultrasound treatment combined with high-frame-rate imaging** **Shin-ichiro Umemura**[1], Shin Yoshizawa[2], Ryo Takagi[2] [1]*Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan,* [2]*Engineering, Tohoku University, Japan*
10:45 AM	**1I-2 Preliminary Investigation of Focused Ultrasound in the Treatment of Leptomeningeal Metastases** **Meaghan O'Reilly**[1,2], Kullervo Hynynen[1,2], My-Linh Yee[1], Gregory Czarnota[1,2], Kathleen Pritchard[3,4], Robert Kerbel[1,2], Arjun Sahgal[1,5] [1]Sunnybrook Research Institute, Canada, [2]Medical Biophysics, University of Toronto, Canada, [3]Odette Cancer Centre, Sunnybrook Health Sciences Centre, Canada, [4]Medicine, University of Toronto, Canada, [5]Radiation Oncology, University of Toronto, Canada	**2I-2 Single Track Location Shear Wave Elasticity Imaging of the Liver: *In Vivo* Performance with Reduced Propagation Windows** **Peter Hollender**[1], Mark Palmeri[1,2], Gregg Trahey[1,3] [1]Biomedical Engineering, Duke University, Durham, North Carolina, USA, [2]Anesthesiology, Duke University Medical Center, Durham, North Carolina, USA, [3]Radiology, Duke University Medical Center, Durham, North Carolina, USA	**3I-2 Plane wave perfusion ultrasound imaging without contrast** **Jaime Tierney**[1], Brett Byram[1] [1]Biomedical Engineering, Vanderbilt University, Nashville, Tennessee, USA	**4I-2 Differential intensity projection (DIP) for visualisation and quantification of plaque neovascularisation in CEUS images of carotid arteries** Wing Keung Cheung[1], Benoy Shah[2], Antonio Stanziola[3], Dorothy Gujral[4], Navtej Chahal[2], David Cosgrove[5], Roxy Senior[2], **Meng-Xing Tang**[6] [1]Imperial College London, London, United Kingdom, [2]Royal Brompton Hospital, United Kingdom, [3]Imperial College London, United Kingdom, [4]The Royal Marsden Hospital, United Kingdom, [5]Hammersmith Hospital, United Kingdom, [6]Bioengineering, Imperial College London, London, United Kingdom	**5I-2 Measurements of Backward Wave Propagation Using the Dynamic Photoelastic Technique** **Zhongtao Hu**[1], Hanyin Cui[1], Zhiwu An[1], Jie Mao[1] [1]State Key Laboratory of Acoustics, Institute of Acoustics Chinese Academy of Sciences, beijing, beijing, China, People's Republic of	**6I-2 Steady-State and Transient Thermal Modeling For a SAW Duplexer** **Kevin Gamble**[1], William Buettner[2] [1]Mobile Devices Design Engineering, Qorvo Inc, Apopka, FLORIDA, USA, [2]Package Engineering, Qorvo Inc, Hillsboro, Oregon, USA	
11:00 AM	**1I-3 Clinical experience of intra-operative high intensity focused ultrasound in patients with colorectal liver metastases. Results of a Phase II study.** **David Melodelima**[1,2], Aurelien Dupre[2,3], Yao Chen[2], Jeremy Vincenot[3], David Perol[2], Michel Rivoire[2] [1]*LabTAU -U1032, INSERM, Lyon, France,* [2]*Centre Leon Berard, France,* [3]*LabTAU - U1032, INSERM, France*	**2I-3 Influence of the transducer frequency in Shear Wave Elastography of the liver** **Linda Chami**[1,2], Olivier Lucidarme[1,2], Muriel Lefort[1], Jin Long Yue[3], Claire Pellot-Barakat[3] [1]*Laboratoire d'Imagerie Biomédicale, Sorbonne Universités, UPMC, CNRS, INSERM, Paris, France,* [2]*Radiology, Hôpital Pitié-Salpêtrière, France,* [3]*SHFJ, IMIV, Orsay, France*	**3I-3 Model-based estimation of intra-cardiac blood flow velocities using an unscented Kalman filter** Jakob Høgenes[1], Morten Wigen[2], Patrick Segers[3], Abigail Swillens[3], **Lasse Lovstakken**[2] [1]*SINTEF ICT, Oslo, Norway,* [2]*Norwegian University of Science and Technology, Trondheim, Norway,* [3]*Biommeda, Ghent University, Belgium*	**4I-3 Contrast-Enhanced Non-Linear 3D Ultrasound Imaging of Breast Lesions in a Clinical Population** Anush Sridharan[1,2], John Eisenbrey[1], Maria Stanczak[1], Annemarie Doecher[1], Priscilla Machado[1], Annina Wilkes[1], Alexander Sevrukov[1], Haydee Ojeda-Fournier[3], Robert Mattrey[3], Kirk Wallace[4], **Flemming Forsberg**[1] [1]*Radiology, Thomas Jefferson University, Philadelphia, PA, USA,* [2]*Electrical and Computer Engineering, Drexel University, Philadelphia, PA, USA,* [3]*Radiology, University of California San Diego, San Diego, CA, USA,* [4]*GE Global Research, Niskayuna, NY, USA*	**5I-3 A Neural Network Approach for MIMO Ultrasonic Tomography** **Wenbo Zhao**[1,2], Zhun Chen[1,2], Yuanwei Jin[3], Ming Li[1,4], Jimmy Zhu[2] [1]*SYSU-CMU Joint Institute of Engineering, China, People's Republic of,* [2]*Carnegie Mellon University, USA,* [3]*University of Maryland Eastern Shore, USA,* [4]*SYSU-CMU Shunde International Joint Research Institute, China, People's Republic of*	**6I-3 Modeling of Lateral SAW Propagation Including Coupling Between Different SAW Modes** **Benfeng Zhang**[1,2], Tao Han[1], Gongbin Tang[1,2], Qiaozhen Zhang[1,2], Tatsuya Omori[2], Ken-ya Hashimoto[2] [1]*Shanghai Jiao Tong University, China, People's Republic of,* [2]*Chiba University, Japan*	**7I-2 Real-Time Imaging, Targeting, and Ablation of Ex-Vivo Tissue Using a Handheld Histotripsy Transducer and Coregistered 64-Element High-Frequency Endoscopic Phased Array** **Jeffrey Woodacre**[1], Thomas Landry[1], Jeremy Brown[1] [1]*Biomedical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada*
11:15 AM	**1I-4 Focused ultrasound therapy of cervical lymph nodes for alleviating multiple sclerosis** Anthony Podkowa[1], Rita Miller[1], Robert Motl[2], **Michael L. Oelze**[1] [1]*Bioacoustics Research Laboratory, Department of Electrical and Computer Engineering, The University of Illinois at Urbana-Champaign, USA,* [2]*Department of Kinesiology and Community Health, The University of Illinois at Urbana-Champaign, USA*	**2I-4 Measurements of Shear Wave Velocity and Attenuation in post-transplant livers with acute cellular rejection: a longitudinal study** **Ivan Nenadic**[1], Sara Aristizabal[1], Matthew Urban[1], William Sanchez[1], James Greenleaf[1], Shigao Chen[1] [1]*Mayo Clinic College of Medicine, Rochester, MN, USA*	**3I-4 Data Adaptive 2-D Tracking Doppler** **YÜCEL KARABIYIK**[1], Jørgen Avdal[1], Ingvild Kinn Ekroll[1], Hans Torp[1], Lasse Løvstakken[1] [1]*Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway*	**4I-4 Acoustic Sub-Aperture Processing (ASAP) for vascular imaging using high frame-rate ultrasound and microbubbles** **Antonio Stanziola**[1], Chee Hau Low[1], Eleni Bazigou[1], Peter D. Weinberg[1], Meng-Xing Tang[1] [1]*Bioengineering, Imperial College London, London, United Kingdom*	**5I-4 Effect of Layer Dimension on the Propagation of Lamb Waves in the Presence of Liquid Layers** **Detlef Pape**[1], Miklos Lenner[1] [1]*ABB Switzerland Ltd., Baden-Daettwil, Switzerland*	**6I-4 Impact of Thermo-Mechanical Stress on the TCF of WLP BAW Filter Devices** Wolfgang Heeren[1], **Michael Fattinger**[1], Gernot Fattinger[1], Alexandre Volatier[1], Mercedes Hernandez[2], Robert Aigner[1] [1]*RGD, Qorvo, Apopka, Florida, USA,* [2]*Package Engineering, Qorvo, Hillsboro, Oregon, USA*	**7I-3 Coupling of wideband impulses generated by granular chains into liquids for biomedical applications** **Sevan Harput**[1], James McLaughlan[1], Pierre Gelat[2], Nader Saffari[2], Jia Yang[3], Omololu Akonji[3], Peter J. Thomas[3], David A. Hutchins[3], Steven Freear[1] [1]*School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom,* [2]*Department of Mechanical Engineering, University College London, London, United Kingdom,* [3]*School of Engineering, University of Warwick, Coventry, United Kingdom*

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11:30 AM	**11-5 Antivascular photo-mediated ultrasound therapy** **Xinmai Yang**[1], Zizhong Hu[2], Haonan Zhang[2], Aghapi Mordovanakis[2], Yannis Paulus[2], Xueding Wang[2] *[1]University of Kansas, USA, [2]University of Michigan, USA*	**21-5 A frequency shift method for shear wave attenuation measurement in soft tissues** **Simon Bernard**[1], Siavash Kazemirad[1], Guy Cloutier[1,2] *[1]Laboratory of Biorheology and Medical Ultrasonics, University of Montréal Hospital Research Center (CRCHUM), Montréal, QC, Canada, [2]Department of Radiology, Radio-Oncology and Nuclear Medicine and Institute of Biomedical Engineering, University of Montréal, Montréal, QC, Canada*	**31-5 Quantitative measurements using ultrasound vector flow imaging** **Jørgen Arendt Jensen**[1] *[1]Dept. of Elec. Eng., Technical University of Denmark, Lyngby, Denmark*	**41-5 Super Resolution Contrast Ultrasound Imaging: Analysis of Imaging Resolution and Application to Imaging Tumor Angiogenesis** **Fanglue Lin**[1], Juan D. Rojas[1], Paul A. Dayton[1] *[1]Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, Chapel Hill, North Carolina, USA*	**51-5 Ultrasonic Complex Vibration Welding of Many Metal Foils and Terminals of Li-ion Battery and Capacitor** **Jiromaru Tsujino**[1,2], Eichi Sugimoto[3] *[1]Graduate School of Engineering, Kanagawa University, Yokohama, Japan, [2]R & D Center, Asahi EMS Co. Ltd, Yokohama, Japan, [3]Head office, Asahi EMS Co. Ltd, Tokyo, Japan*	**61-5 Hierarchical cascading in 2D FEM simulation of finite SAW devices with periodic block structure** **Julius Koskela**[1], Victor Plessky[1], Panagiotis Maniadis[2], Balam Willemsen[2], Patrick Turner[2], Bob Hammond[2], Neal Fenzi[2] *[1]GVR Trade SA, Switzerland, [2]Resonant Inc., USA*	**71-4 A 2D dual-curvature focused ultrasound phased-array transducer for transcranial deep brain stimulation in monkey studies** **Ming Qian**[1], Yongchuan Li[1], Jiajin Huang[1], Min Su[1], Lili Niu[1], Hairong Zheng[1] *[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, People's Republic of*
11:45 AM	**11-6 Low-intensity continuous ultrasound triggers effective bisphosphonate anticancer activity in breast cancer** Sophie Tordoski[1], Jacqueline Ngo[1], Evelyne Gineyts[2], Philippe Clezardin[2], **David Melodelima**[1] *[1]LabTAU - U1032, INSERM, France, [2]INSERM, France*	**21-6 Liver stiffness by shear wave elastography, new noninvasive and quantitative tool for acute variation estimation of central venous pressure in real-time?** **Olivier Villemain**[1], Fidelio Sitefane[2], Mathieu Pernot[1], Guiti Malekzadeh-Milani[2], Jerome Baranger[1], Damien Bonnet[2], Younes Boudjemline[2] *[1]Institut Langevin, Paris, France, [2]Necker-Enfants Malades, Paris, France*	**31-6 Pulsatile Flow Dynamics in Stenotic Aortic Models using Ultrasonic and Optical Particle Imaging Velocimetry** Javier Brum[1], **Miguel Bernal**[2], Nicasio Barrere[3], Andreina Tesis[1,3], Carlos Negreira[1], Cecilia Cabeza[3] *[1]Laboratorio de Acústica Ultrasonora, Instituto de Fisica, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay, [2]Cardiovascular Dynamics Research Group, Universidad Pontificia Bolivariana, Medellin, Colombia, [3]Fisica No Lineal, Instituto de Fisica, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay*	**41-6 Cardiac imaging with high frame rate contrast enhanced ultrasound: in-vivo demonstration** **Matthieu Toulemonde**[1], Yuanwei Li[1], Shengtao Lin[1], Mairead Butler[2], Robert Eckersley[3], W Colin Duncan[4], Vassilis Sboros[2], Meng-Xing Tang[1] *[1]Bioengineering, Imperial College London, United Kingdom, [2]Institute of Biological Chemistry, Biophysics & Bioengineering Heriot-Watt University, United Kingdom, [3]Biomedical Engineering Department, King's College London, United Kingdom, [4]Centre for Reproductive Health, University of Edinburgh, United Kingdom*	**51-6 Specimen-Agnostic Guided Wave Inspection Using Recursive Feedback** **Chris Adams**[1], Sevan Harput[1], David Cowell[1], David Charutz[2], Steven Freear[1] *[1]University of Leeds, United Kingdom, [2]SOREQ NRC, Israel*	**61-6 A Fully-Coupled Model Simulating Electromagnetic Radiation from Vibrating Ferroelectrics** **Zhengliu Zhou**[1], Scott Keller[1], Greg Carman[1] *[1]Mechanical and Aerospace Engineering Department, UCLA, Los Angeles, California, USA*	**71-5 Laser-Generated-Focused Ultrasound Transducers for Microbubble-Mediated, Dual-Excitation Sonothrombolysis** **Jinwook Kim**[1], Brooks D. Lindsey[2], Wei-Yi Chang[1], Xuming Dai[3], Joseph M. Stavas[4], Paul A. Dayton[2], Xiaoning Jiang[1] *[1]Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina, USA, [2]Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, Chapel Hill, North Carolina, USA, [3]Division of Cardiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, [4]Division of Vascular and Interventional Radiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA*

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	Session 1J. MTH: Therapy systems, devices, and treatment control Chair: **Nobuki Kudo** Hokkaido University	Session 2J. MEL: Elasticity imaging of the kidney and breast Chair: **Timothy Hall** University of Wisconsin	Session 3J. MSD: Medical systems and devices II Chair: **Kendall Waters**	Session 4J. MCA: Microbubble signal processing and dynamics Chair: **Hairong Zheng** Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences	Session 5J. Ultrasonic Systems and Industrial Applications Chair: **Jafar Saniie** Illinois Institute of Technology	Session 6J. Microacoustic Wireless Sensors and Bio-Sensing Chair: **Jan Kuypers** Qorvo	Session 7J. CMUT Design Chair: **Levent Degertekin** Georgia Tech
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
01:30 PM	**1J-1 A fully electronically steered phased array with 4096 elements for thermal ablation** **Kullervo Hynynen**[1,2], Benjamin Lucht[3], Ping Wu[3], Rohan Ramdoyal[3], Samuel Gunaseelan[3], Tyler Portelli[3] *[1]Medical Biophysics, University of Toronto, ON, Canada, [2]Physical Sciences Platform, Sunnybrook Research Institute, Toronto, ON, Canada, [3]Physical Sciences Plaform, Sunnybrook Research Institute, ON, Canada*	**2J-1 Application of Acoustoelasticity to Evaluate Non-linear Modulus in *ex vivo* Kidneys** **Sara Aristizabal**[1], Carolina Amador[1], James F. Greenleaf[1], Matthew W. Urban[1,2] *[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [2]Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	**3J-1 Multi-line measurements of blood Velocity Vectors in Real-Time** **Stefano Ricci**[1], Luca Bassi[1], Valentino Meacci[1], Alessandro Ramalli[1], Piero Tortoli[1] *[1]Information Engineering Dept., University of Florence, Firenze, Italy*	**4J-1 Improving contrast-enhanced power Doppler using signal coherence** **Charles Tremblay-Darveau**[1], Avinoam Bar-Zion[2], Ross Williams[1], Paul S. Sheeran[1], Laurent Milot[3], Thanasis Loupas[4], Dan Adam[2], Matthew Bruce[5], Peter N. Burns[1,6] *[1]Sunnybrook Research Institute, Sunnybrook Health Sciences Centre, Toronto, Canada, [2]Biomedical Engineering, Technion-Israel Institute of Technology, Haifa, Israel, [3]Medical Imaging, University of Toronto, Toronto, Canada, [4]Supersonic Imagine, Aix-en-Provence, France, [5]Center for Industrial and Medical Ultrasound, University of Washington, Seattle, USA, [6]Medical Biophysics, University of Toronto, Toronto, Canada*	**5J-1 Concepts and Architecture for a Thumb Size Ultrasonic IoT Measurement System** **Jerker Delsing**[1], Jan van Deventer[1], Jens Eliasson[1], Jonny Johansson[1], Torbjörn Löfqvist[1], Fredrik Sandin[1] *[1]EISLAB, Lulea University of Technology, Sweden*	**6J-1 LGS 2.45 GHz ISM Band SAW Resonator for Harsh Environment Wireless Applications** **Mauricio Pereira da Cunha**[1,2], Anin Maskay[1,2], Robert Lad[2,3], Gregory Harkay[4] *[1]Dept. of Electrical and Computer Engineering, University of Maine, Orono, Maine, USA, [2]Laboratory of Surface Science and Technology, University of Maine, Orono, Maine, USA, [3]Dept. of Physics and Astronomy, University of Maine, Orono, Maine, USA, [4]Environetix Technologies Corporation, Orono, USA*	**7J-1 Acoustic simulation of large CMUT arrays using a fast multipole algorithm** **Bernard Shieh**[1], Karim Sabra[1], F. Levent Degertekin[1] *[1]Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA*
01:45 PM	**1J-2 Real-time Transcranial Temperature Control *In Vivo* Using Dual-mode Ultrasound Array System** **Dalong Liu**[1], Joshua Hamburg[2], Raj Aravalli[1], Parker O'Brien[1], Hasan Aldiabat[1], Juan Du[1], Walter Low[2], Emad Ebbini[1] *[1]Electrical and Computer Engineering, Universit of Minnesota, Minneapolis, Minnesota, USA, [2]Neurosurgery, Universit of Minnesota, Minneapolis, Minnesota, USA*	**2J-2 Blood Pressure Dependent Elasticity Measurements of ex-vivo Porcine Kindey** **Caitlin Schneider**[1], Mohammad Honarvar[1], Julio Jobe[1], Samir Bidnur[2], Robert Rohling[1,3], Tim Salcudean[1], Christopher Nguan[2] *[1]Electrical and Computer Engineering, University of British Columbia, Vancouver, BC, Canada, [2]UBC Urology, Canada, [3]Mechanical Engineering, University of British Columbia, Canada*	**3J-2 3D airborne ultrasound vibrometer for the detection of skin surface heterogeneities** **Nathan Jeger**[1], Mathias Fink[1], Ros Kiri Ing[1] *[1]Institut Langevin, ESPCI ParisTech, PSL Research University, CNRS UMR 7587, UPMC, Paris, France*	**4J-2 Similarities of Harmonic Doppler Signals from Kidney Stones and Ultrasound Contrast Agents** **Matthew Bruce**[1], Bryan Cunitz[1], Charles Tremblay-Darveau[2], Barbrina Dunmire[1], Julianna Simon[1], Oleg Sapozhnikov[1], Peter Burns[2], Michael Bailey[1] *[1]University of Washington, Seattle, Washington, USA, [2]University of Toronto, Canada*		**6J-2 Rayleigh SAW assisted SH-SAW immunosensor on X-cut 148-Y LiTaO₃** **Takashi Kaga**[1,2], Hiromi Yatsuda[1], Jun Kondoh[2] *[1]Japan Radio Co., Ltd., Japan, [2]Shizuoka University, Japan*	**7J-2 Capacitive Substrate Coupling of Row-Column-Addressed 2-D CMUT Arrays** **Mathias Engholm**[1], Hamed Bouzari[1], Jørgen Arendt Jensen[2], Erik Vilain Thomsen[1] *[1]Department of Micro and Nanotechnology, Technical University of Denmark, Denmark, [2]Department of Electrical Engineering, Technical University of Denmark, Denmark*

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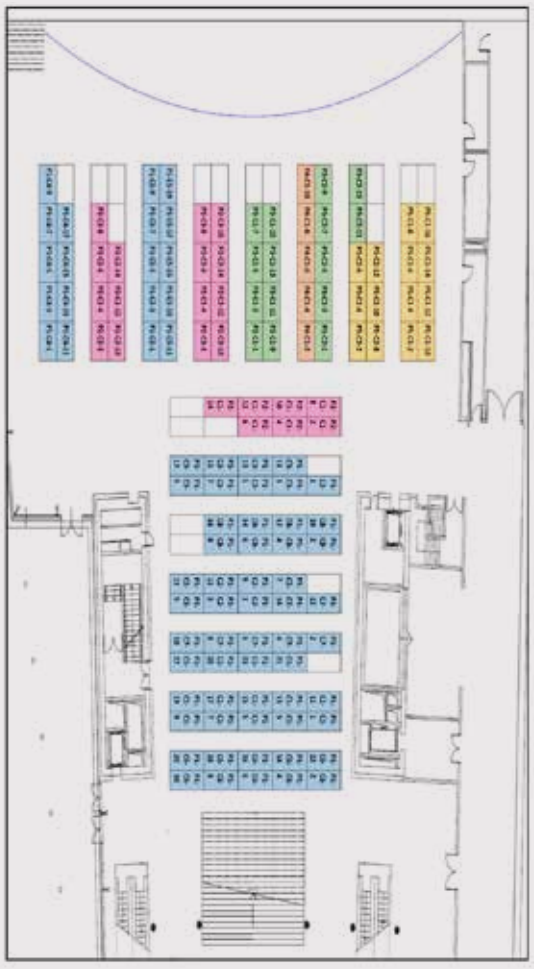
02:00 PM	**1J-3 Development of an implantable ultrasonic device for enhancing the delivery of chemotherapy to the brain** **Cyril Lafon[1,2]**, Michael Canney[3], Kevin Beccaria[4], Catherine Horodyckid[4], Alexandre Vignot[3], Jean-Yves Chapelon[1,2], Ahmed Idbaih[4], Alexandre Carpentier[4] *[1]LabTAU, INSERM, Lyon, France, [2]Université de Lyon, Lyon, France, [3]Carthera SAS, Lyon, France, [4]Pitie Salpetriere Hospital, Paris, France*	**2J-3 Evaluation of Renal Transplant Status using Viscoelastic Response (VisR) Ultrasound: A Pilot Clinical Study** **Md Murad Hossain[1]**, Mallory Selzo[2], Robert Hinson[3], Leslie Baggessen[4], Randal Detwiler[3], Wui Chong[5], Lauren Brubaker[6], Melissa Caughey,[3], Melrose Fisher[3], sonya whitehead[6], Caterina Gallippi[1] *[1]Department of Biomedical Engineering, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA, [2]Ultrasound Division, Siemens Medical Solutions, Seattle, Washington, USA, [3]Department of Medicine, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA, [4]Hunter Holmes McGuire VA Medical Center, Richmond, VA, USA, [5]Department of Radiology, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA*	**3J-3 Development of a Portable Ultrasound Device for Diagnosing Alzheimer's Disease by Measuring Pulse Wave Velocity of Carotid Artery** **Yi-Hsiang Chuang[1]**, Ming-Chyi Pai[2], C.L. Tsai[3], Chih-Chung Huang[1] *[1]Department of Biomedical Engineering, National Cheng Kung University, Taiwan, [2]Institute of Gerontology, National Cheng Kung University, Taiwan, [3]Institute of Physical Education, Health &Leisure Studies, National Cheng Kung University, Taiwan*	**4J-3 A regularized version of a Logan-based approach to improve reproducibility of perfusion parameters in CEUS** **Maxime Doury[1]**, Alexandre Dizeux[1], Alain De Cesare[1], Olivier Lucidarme[1], Lori Bridal[1], Frédérique Frouin[2] *[1]Sorbonne Universités, UPMC Univ Paris 06, Inserm, CNRS, AP-HP, LIB, Paris, France, [2]Université Paris Saclay, CEA, Inserm, CNRS, Univ Paris-Sud, IMIV, Orsay, France*	**5J-2 A GPU-based Ultrasound Phased-Array Research System for Non-destructive Testing** **Marcin Lewandowski[1]**, Mateusz Walczak[1], Beata Witek[1] *[1]Institute of Fundamental Technological Research, Warsaw, Poland*	**6J-3 High-temperature SAW electrodes based on Ir-Rh thin films** **Amine TAGUETT[1]**, Thierry AUBERT[1,2], Marc Lomello[1], Omar Elmazria[3], Jaafar Ghanbaja[3], Abdelkrim Talbi[4] *[1]Laboratoire SYMME, Université de Savoie, Annecy-le-Vieux, France, [2]Laboratoire LMOPS, CentraleSupélec - Université de Lorraine, Metz, France, [3]Institut Jean Lamour (IJL), UMR 7198 CNRS-Université de Lorraine, Vandoeuvre-lès-Nancy, France, [4]LIA LEMAC/LICS – IEMN, EC Lille-CNRS, Lille, France*	**7J-3 Representation of CMUT-based isolation transformer by means of an electrical two-port network** **Jacques Heller[1]**, Audren Boulme[1], Daniel Alquier[1], Sophie Ngo[1], Camille Compère[1], Dominique Certon[1] *[1]GREMAN, UMR-CNRS 7347, Université François-Rabelais de Tours, Tours, France*
02:15 PM		**2J-4 Evaluation of the Nonlinear Modulus in Renal Transplant Patients using Acoustoelasticity** **Sara Aristizabal[1]**, Carolina Amador[1], Matthew W. Urban[1,2] *[1]Department of Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, Minnesota, USA, [2]Department of Radiology, Mayo Clinic College of Medicine, Rochester, Minnesota, USA*	**3J-4 Portable Low Cost Ultrasound Imaging system** **M. R. Sobhani[1]**, H. E. Ozum[2], G. G. Yaralioglu, A. Bozkurt[3], A. S. Ergun[2] *[1]Ozyegin University, Istanbul, Turkey, [2]TOBB University, Ankara, Turkey, [3]Sabanci University, Istanbul, Turkey*	**4J-4 Subharmonic Extraction by Hammerstein Models for Microbubble Signals** **Sebastien Menigot[1]**, Emma Konbar[1], Ayache Bouakaz[1], Jean-Marc Girault[1] *[1]Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France*	**5J-3 Fast advanced imaging for the inspection with wedges using total focusing method** **Ewen Carcreff[1]**, Rémi Lallement[2], Gavin Dao[2], Dominique Braconnier[1] *[1]The Phased Array Company, West Chester, Ohio, USA, [2]Advanced OEM Solutions, West Chester, Ohio, USA*	**6J-4 Packageless WLAW devices based on Al2O3<Pt/GaN/Sapphire structure for high-temperature applications** **Florian Bartoli[1,2]**, Sergei Zhgoon[3], Thierry Aubert[1,4], Abdelkrim Talbi[5], Philippe Pigeat[5], Omar Elmazria[2] *[1]Laboratoire LMOPS, CentraleSupélec - Université de Lorraine, Metz, France, [2]IJL UMR 7198 Université de Lorraine - CNRS, France, [3]National Research University Moscow Power Engineering Institute, Russian Federation, [4]SYMME - Université Savoie Mont Blanc, France, [5]IEMN UMR-8520 Ecole Centrale de Lille, France*	**7J-4 A general multi-mode lumped equivalent circuit model for a circular cMUT cell** **Shengping Mao[1,2]**, Xavier Rottenberg[1], Liwang Liu[3], Véronique Rochus[1], Guilherme Brondani Torri[1], Rachid Haouari[1,4], Bart Nauwelaers[2], Harrie A.C. Tilmans[1] *[1]imec, Leuven, Belgium, [2]ESAT, KU Leuven, Belgium, [3]Departement d'Acoustique Physique, Université de Bordeaux, France, [4]Department of Physics and Astronomy, KU Leuven, Belgium*
02:30 PM	**1J-4 Sub second simultaneous displacement and temperature MR imaging during HIFU ablation** **Pierre Bour[1,2]**, Fabrice Marquet[1], Valéry Ozenne[1], Solenn Toupin[1,3], Matthieu Lepetit Coiffe[3], Erik Dumont[2], Bruno Quesson[1] *[1]IHU-liryc, France, [2]IGT, France, [3]Siemens Healthcare, France*	**2J-5 In vivo imaging of tissue viscoelastic retardation time for differentiation of breast masses** Mahdi Bayat[1], Alireza Nabavizadeh[1,2], Viksit Kumar[1], Max Denis[3], Adriana Gregory[1], Michael Insana[4], Azra Alizad[1,3], **Mostafa Fatemi[1]** *[1]Physiology and Biomedical Engineering, Mayo Clinic, Rochester, MN, USA, [2]Biomedical Informatics and Computational Biology, University of Minnesota, Rochester, USA, [3]Radiology, Mayo Clinic, Rochester, MN, USA, [4]Bioengineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA*	**3J-5 Controlling a shear wave field in soft tissue using a multichannel vibrator array** **Chadi ZEMZEMI[1]**, Ali ZORGANI[1], Stefan CATHELINE[1] *[1]INSERM, Université de Lyon, Lyon, France*	**4J-5 Simultaneous Trapping and Imaging of Microbubbles at Clinically Relevant Flow Rates** **Sevan Harput[1]**, Luzhen Nie[1], David M. J. Cowell[1], James McLoughlan[1,2], Steven Freear[1] *[1]School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom, [2]Division of Biomedical Imaging, University of Leeds, Leeds, United Kingdom*	**5J-4 Large-scale Trials of a Real-time Acoustic Backscatter System for Solids Concentration Measurement During Nuclear Waste Cleanup** **David Cowell[1]**, Tim Hunter[2], Hugh Rice[2], Alastair Tonge[2], Thomas Carpenter[1], Jeff Peakall[3], Michael Fairweather[2], Martyn Barnes[4], Steven Freear[1] *[1]School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom, [2]School of Chemical and Process Engineering, University of Leeds, Leeds, United Kingdom, [3]School of Earth and Environment, University of Leeds, Leeds, United Kingdom, [4]Sellafield Limited, United Kingdom*	**6J-5 Recent research results on wireless passive acoustic sensors for smart grids application** **Tao Han[1]** *[1]Department of Instrment Science and Engineering, Shanghai Jiao Tong University, Shanghai, China, People's Republic of*	**7J-5 Performance Analysis and Design of FET-Embedded Capacitive Micromachined Ultrasonic Transducers (CMUTs)** **Seung Geun Jung[1,2]**, Jinsik Kim[1], Kyo Seon Hwang[1], Hyun-Yong Yu[2], Byung Chul Lee[1] *[1]Center for BioMicrosystems, Korea Institute of Science and Technology (KIST), Seoul, Korea, Republic of, [2]Electrical Engineering, Korea University, Korea, Republic of*
02:45 PM	**1J-5 Noise Elimination of Therapeutic Ultrasound in Phase Modulated High Intensity Focused Ultrasound Exposure to Enhance the Heating Effect** **Ryo Takagi[1]**, Ryosuke Iwasaki[2], Shin Yoshizawa[1], Shin-ichiro Umemura[2] *[1]Communications Engineering, Tohoku University, Sendai, Miyagi, Japan, [2]Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan*	**2J-6 3-D Shear strain reconstruction for improved breast lesion detection** **Gijs A.G.M. Hendriks[1]**, Hendrik H.G. Hansen[1], Chris L. de Korte[1] *[1]Medical UltraSound Imaging Center (MUSIC), Radboud university medical center, Nijmegen, Netherlands*	**3J-6 Bio-acoustic levitational assembly of heterocellular multilayer constructs for tissue engineering** **Charlene bouyer[1,2]**, Pu Chen[3], Thomas J.F. Nieland[3], Utkan Demirci[3], Frederic Padilla[1,2] *[1]Inserm, U1032 LabTau, Lyon, France, lyon, France, [2]Université de Lyon, Lyon, France, France, [3]Bio-Acoustic MEMS in Medicine (BAMM) Lab, School of Medicine, Stanford University, CA, USA, USA*	**4J-6 Translational Dynamics of Bubbles Exposed to Ultrasound - Transporting Bubbles to a Boundary Under Flow Conditions** **Christopher Acconcia[1,2]**, Ben Leung[1], David Goertz[1,2] *[1]Physical Sciences, Sunnybrook Research Institute, Toronto, Ontario, Canada, [2]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada*	**5J-5 Statistical ultrasonic characterization of particulate filler distribution in polymer compounds** **Sebastian Wöckel[1]**, Hendrik Arndt[2], Ulrike Steinmann[2], Kilian Diet[3], Giovanni Schober[3], Christoph Kugler[3], Thomas Hochrein[3] *[1]Ifak e.V., Magdeburg, Saxony-Anhalt, Germany, [2]Ifak e.V., Germany, [3]SKZ, Germany*		**7J-6 Dynamic Characteristics of Circular CMUTs with Air-Filled Cavities** **Ayrat Galisultanov[1]**, Patrice Le Moal[1], Vincent Walter[1], Gilles Bourbon[1] *[1]Department of Applied Mechanics, FEMTO-ST, Besancon, France*

04:00 PM -05:30 PM	ORAL --- WEDNESDAY, SEPTEMBER 21, 2016						
	Session 1K. MBF: Flow imaging: From 2D to 4D Chair: Kai E. Thomenius	Session 2K. MEL: Methods in elasticity imaging Chair: Emad Ebbini	Session 3K. MBB: Novel imaging methods Chair: Svetoslav Nikolov	Session 4K. MTC: Bone Chair: James G. Miller	Session 5K. Energy harvesting and Flow Measurement Chair: Nishal Ramadas Elster Metering Limited (now Honeywell)	Session 6K. PA Opto-Acoustics Chair: yook-kong yong Rutgers University	Session 7K. Medical Imaging II Chair: Scott Smith GE Research
	Auditorium de Ronsard	Auditorium Descartes	Room Chambord	Room Cheverny	Room Villandry	Room Amboise	Room Langeais
04:00 PM	**1K-1 Reconstruction of In Vivo Flow Velocity Fields Based On a Rapid Ultrasound Image Segmentation and B-spline Regularization Framework** **Thomas Grønli**[1], Erik Smistad[1], Siri Ann Nyrnes[1,2], Alberto Gomez[3], Lasse Lovstakken[1] *[1]Dept. Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]St. Olavs University Hospital, Trondheim, Norway, [3]Dept. Biomedical Engineering, King's College, London, United Kingdom*	**2K-1 On-Axis Acoustic Radiation-Force-based Stiffness Estimate in Phantoms** **Kristy Walsh**[1], Mark Palmeri[2], Brett Byram[1] *[1]Biomedical Engineering, Vanderbilt University, Nashville, Tennessee, USA, [2]Biomedical Engineering, Duke University, Durham, North Carolina, USA*	**3K-1 Snell's beamformer** **Alfonso Rodriguez-Molares**[1], Ali Fatemi[2], Lasse Lovstakken[2], Hans Torp[2] *[1]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Norwegian University of Science and Technology, Norway*	**4K-1 Bone cortical thickness and porosity assessment using guided waves-based axial transmission technique** **Quentin Vallet**[1], Jean-Gabriel Minonzio[1], Nicolas Bochud[1], Yohann Bala[2], Rémy Gauthier[3], Hélène Follet[2], David Mitton[3], Pascal Laugier[1] *[1]Sorbonne Universités, UPMC Univ Paris 06, CNRS UMR 7371, INSERM UMR S1146, Laboratoire d'Imagerie Biomédicale, Paris, France, [2]Univ Lyon, Université Claude Bernard Lyon I, INSERM UMR 1033, Lyon, France, [3]Univ Lyon, Université Claude Bernard Lyon I, IFSTTAR, UMR_T9406, LBMC, Lyon, France*	**5K-1 Optimal Electric Load Prediction from the KLM Model for Ultrasound Energy Receivers** **Mikel Gorostiaga**[1], Matthias C. Wapler[1], Ulrike Wallrabe[1] *[1]Laboratory for Microactuators, IMTEK - University of Freiburg, Freiburg im Breisgau, Baden-Württemberg, Germany*	**6K-1 Rapid and simultaneous measurement of longitudinal and shear wave velocities by Brillouin scattering from artificially induced phonons** **Masahiko Kawabe**[1], Takahiko Yanagitani[2], Shinji Takayanagi[3], Yoshiaki Shibagaki[1], Masashi Suzuki[2], Mami Matsukawa[1] *[1]Doshisha University, Kyoto, Japan, [2]Waseda University, Tokyo, Japan, [3]Nagoya Institute of Technology, Aichi, Japan*	**7K-1 A 3606[deg] Fully Functional Endoscopic Ultrasound Radial Array** **Youwei Chen**[1], Xiaowen Ma[1], Haitao Huang[1], Xiang Li[1], Jianren Yuan[1] *[1]Acoustic Life Science Co. Ltd., Shanghai, China, People's Republic of*
04:15 PM	**1K-2 Three-dimensional intra-cardiac flow estimation using multi6#8209;planar echo particle image velocimetry: experimental validation against phase-contrast MRI** **Hang Gao**[1], Qiong He[2], Aiqi Sun[2], David Larsson[3], Xinheng Feng[4], Yunduo Li[2], Matilda Larsson[3], Rui Li[2], Jianwen Luo[2], Jan D'hooge[1] *[1]Cardiovascular Imaging & Dynamics, KU Leuven, Belgium, [2]Department of Biomedical Engineering, Tsinghua University, China, People's Republic of, [3]Medical Engineering, KTH Royal Institute of Technology, Sweden, [4]Department of Cardiology, Peking University Third Hospital, China, People's Republic of*	**2K-2 On the Quantitative Potential of Viscoelastic Response (VisR) Ultrasound using Matrix Array Transducers: in silico Demonstration** **Md Murad Hossain**[1], Christopher Moore[2], Caterina Gallippi[1,2] *[1]Department of Biomedical Engineering, University of North Carolina, Chapel Hill, Chapel hill, North Carolina, USA, [2]Department of Electrical and Computer Engineering, North Carolina State University, Chapel hill, North Carolina, USA*	**3K-2 Improved resolution and crosstalk rejection in multi-line transmit ultrasound imaging using delay multiply and sum beamforming** **Giulia Matrone**[1], Alessandro Ramalli[2], Alessandro Stuart Savoia[3], Piero Tortoli[2], Giovanni Magenes[1] *[1]Department of Electrical, Computer and Biomedical Engineering, University of Pavia, Pavia, Italy, [2]Department of Information Engineering, University of Florence, Firenze, Italy, [3]Department of Engineering, University Roma Tre, Roma, Italy*	**4K-2 Anisotropic behavior of induced electric potentials in bone by ultrasound irradiation** **Sayaka Matsukawa**[1], Shunki Mori[1], Isao Mano[1], Takahiko Yanagitani[2], Katsunori Mizuno[3], Shinji Takayanagi[4], Mami Matsukawa[1] *[1]Doshisha University, Japan, [2]Waseda University, Japan, [3]University of Tokyo, Japan, [4]Nagoya Institute of Technology, Japan*	**5K-2 MEMS Piezoelectric Energy Harvester Design and Optimization Based on Genetic Algorithm** **Seyedfakhreddin Nabavi**[1], Lihong Zhang[1] *[1]Electrical and Computer Engineering, Memorial University of Newfoundland, St. John's, NL, Canada*	**6K-2 Single pulse illumination of multi-layer photoacoustic holograms for patterned US field generation** **Michael Brown**[1], Eleanor Martin[1], Ben Cox[1], Bradley Treeby[1] *[1]Department of Medical Physics and Biomedical Engineering, University College London, London, United Kingdom*	**7K-2 Device-Mounted Wide-Angle Transducers for Ultrasound-Guided Procedures** **David Vilkomerson**[1], Thomas Chilipka[1], John Bagan[1] *[1]DVX, llc, Princeton, New Jersey, USA*
04:30 PM	**1K-3 Experimental 3-D vector flow estimation using a 62+62 row-column prototype probe** **Simon Holbek**[1], Matthias Bo Stuart[1], Jørgen Arendt Jensen[1] *[1]Center for Fast Ultrasound, Denmark*	**2K-3 Improved Multi-foci Beamforming for Combined High Frame Rate Acoustic Radiation Force Impulse Imaging and Thermal Strain Imaging** **Xuan Ding**[1,2], Isaac James[3], Kacey Marra[1,3], J. Peter Rubin[1,3], Kang Kim[1,4] *[1]Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA, [2]Medical Scientist Training Program, University of Pittsburg, Pittsburgh, PA, USA, [3]Plastic Surgery, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA, [4]Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA*	**3K-3 A method for intrapulse spatial compounding** **Nick Bottenus**[1] *[1]Duke University, Durham, North Carolina, USA*	**4K-3 Relationships among Quantitative Ultrasound Parameters and Linear and Nonlinear Mechanical Properties of Cancellous Bone** **Keith Wear**[1], Saghi Sadoughi[2], Shan Zhu[2], Shashank Nawathe[2], Srinidhi Nagaraja[1], Maureen Dreher[1], Tony Keaveny[2] *[1]Center for Devices and Radiological Health, Food and Drug Administration, USA, [2]University of California, Berkeley, USA*	**5K-3 Full-wave numerical simulation of ultrasonic transit-time gas flowmeters** **Adrian LUCA**[1], Kamel FODIL[1] *[1]R&D, Ultraflux S.A., Éragny, France*	**6K-3 Complex-valued frequency response of hydrophones: primary calibration and uncertainty evaluation** **Martin Weber**[1], Volker Wilkens[1] *[1]1.62 Ultrasonics, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany*	**7K-3 The Role of Sub-Dicing on the Acoustical Design of an Ultrasound Matrix Transducer for Carotid Arteries Imaging** **Maysam Shabanimotlagh**[1], Jovana Janjic[2], Shreyas Raghunathan[1], Nico de Jong[3], Martin Verweij[1,3] *[1]Technical University of Delft, Netherlands, [2]Erasmus MC, Netherlands, [3]Technical University of Delft, Erasmus MC, Netherlands*
04:45 PM	**1K-4 High Frame Rate Synthetic Aperture 3D Vector Flow Imaging** **Carlos Armando Villagómez Hoyos**[1], Simon Holbek[1], Matthias Bo Stuart[1], Jørgen Arendt Jensen[1] *[1]Technical University of Denmark, Copenhagen, Denmark*	**2K-4 Implementation of Probe Oscillation Shear Wave Elastography (PROSE) on a Portable Laptop Ultrasound Scanner** **Daniel Mellema**[1], Pengfei Song[1], Armando Manduca[2], Matthew Urban[1], Randall Kinnick[2], James Greenleaf[2], Shigao Chen[1] *[1]Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA, [2]Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN, USA*	**3K-4 A compressed beamforming framework for plane wave ultrasound imaging** **Adrien Besson**[1,2], Rafael E. Carrillo[1,3], Dimitris Perdios[1], Marcel Arditi[1], Olivier Bernard[4], Yves Wiaux[2], Jean-Philippe Thiran[1,3] *[1]Signal Processing Laboratory (LTS5), Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, [2]Institute of Sensors, Signals and Systems, Heriott-Watt University, Edinburgh, United Kingdom, [3]Department of Radiology, University Hospital Center (CHUV) and University of Lausanne, Lausanne, Switzerland, [4]CREATIS, CNRS UMR 5220, University of Lyon, INSA-Lyon, University of Lyon1, Villeurbanne, France*	**4K-4 Site-matched 200-MHz acoustic microscopy and nanoindentation reveals mineral cracking in aged cortical bone tissue.** **Kay Raum**[1], Susanne Schrof[1], Jinming Zhou[2], Hanna Isaksson[2] *[1]Charité-Universitätsmedizin Berlin, Germany, [2]Lund University, Sweden*	**5K-4 Modular Ultrasound Velocimeter for Adaptive Flow Mapping in Liquid Metals** **Richard Nauber**[1], Hannes Beyer[1], Kevin Maeder[1], Christian Kupsch[1], Norman Thieme[1], Lars Buettner[1], Juergen Czarske[1] *[1]MST, TU-Dresden, Dresden, Saxony, Germany*	**6K-4 High-Performance Acousto-optical Dispersive Delay Line for Ultrashort UV Pulse Controlling** Vladimir Molchanov[1], Natalya Naumenko[1], **Konstantin Yushkov**[1] *[1]Acousto-optical Research Center, National University of Science and Technology «MISIS», Moscow, Russian Federation*	**7K-4 Comparison of different optimized irregular sparse 2D ultrasound arrays** **Bakary Diarra**[1], Emmanuel Roux[2,3], Hervé Liebgott[2], Samikannu Ravi[1], Marc Robin[2], Piero Tortoli[3], Christian Cachard[2] *[1]Electrical, Electronics, Computer & Telecommunication Engineering Department, Botswana International University of Science & Technology, Palapye, Botswana, [2]CREATIS, Université de Lyon ; CNRS UMR 5220 ; INSERM U1044 ; Université Lyon 1 ; INSA-Lyon, Villeurbanne, France, [3]Electronics and Telecommunications Dept., Università degli Studi di Firenze, Florence, Italy*

04:00 PM -05:30 PM	ORAL --- WEDNESDAY, SEPTEMBER 21, 2016						
05:00 PM	**1K-5 Multimodal validation of patient-specific intraventricular flow simulations from 4D echocardiography** **David Larsson**[1], Jeannette H Spühler[2], Sven Petersson[3], Tim Nordenfur[1], Johan Hoffman[2], Massimiliano Colarieti-Tosti[1], Reidar Winter[4], Matilda Larsson[1] *[1]Medical Engineering, KTH Royal Institute of Technology, Huddinge, Sweden, [2]Computational Technology Laboratory, KTH Royal Institute of Technology, Stockholm, Sweden, [3]Diagnostic Medical Physics, Karolinska University Hospital, Huddinge, Sweden, [4]Clinical Sciences, Karolinska Institutet, Stockholm, Sweden*	**2K-5 Measurement of the stiffness and viscosity of viscoelastic materials using group shear wave speeds** **Ned Rouze**[1], Yufeng Deng[1], Mark Palmeri[1], Kathryn Nightingale[1] *[1]Biomedical Engineering, Duke University, Durham, North Carolina, USA*	**3K-5 Fast and sensitive passive cavitation mapping with the angular spectrum method** **Costas Arvanitis**[1], Nathan McDannold[1], Gregory Clement[2] *[1]Radiology, Harvard Medical School, Boston, USA, [2]Biomedical Engineering, Cleveland Clinic, USA*	**4K-5 BMD reflects porosity but is insensitive to tissue stiffness: a calibration study on micro-CT and scanning acoustic microscopy images of cortical bone** **Gianluca Iori**[1], Vantte Kilappa[1], Peter Varga[2], Johannes Schneider[1], Melanie Dougschies[3], Reinhard Barkmann[3], Kay Raum[1] *[1]Berlin-Brandenburg Center for Regenerative Therapies, Charité - Universitätsmedizin Berlin, Berlin, Germany, [2]AO Research Institute Davos, Davos, Switzerland, [3]Klinik für Diagnostische Radiologie, Universitätsklinikum Schleswig-Holstein Kiel, Kiel, Germany*	**5K-5 Modelling of transit-time ultrasonic flow meters under multi-phase flow conditions** **Matej Simurda**[1], Benny Lassen[1], Lars Duggen[1], Nils T. Basse[2] *[1]Mads Clausen Institute, University of Southern Denmark, Sonderborg, Denmark, [2]Siemens A/S Flow Instruments, Sonderborg, Denmark*	**6K-5 Differential optical interferometer for measuring transient SAW generated with ultra-wideband IDT** **ANURUPA SHAW**[1], Damien Teyssieux[1], Vincent Laude[1] *[1]Institut FEMTO-ST, UMR CNRS 6174, Université Bourgogne Franche-Comté, Besançon, France*	**7K-5 cMUT versus Bulk array transducer's acoustic pattern comparison** **Cyril Meynier**[1], Omri Warshavsky[1], Johannes Rebling[2,3], Daniel Razansky[2,3], Nicolas Felix[1], Martin Flesch[1,4], Nicolas Senegond[1], An Nguyen-Dinh[1] *[1]Vermon S.A., Tours, France, [2]Institute for Biological and Medical Imaging (IBMI), Helmholtz Zentrum München, Germany, Munchern, Germany, [3]School of Medicine and School of Electrical Engineering and Information Technology, Technische, Munchen, Germany, [4]Institut Langevin, Paris, France*
05:15 PM	**1K-6 In-vivo 4-D Ultrafast Vector Flow Imaging: quantitative assessment of arterial blood flow** **Mafalda Correia**[1], Jean Provost[1], Mickael Tanter[1], Mathieu Pernot[1] *[1]Institut Langevin (ESPCI Paris, PSL Research University, CNRS UMR 7587, INSERM U979), Paris, France*	**2K-6 On the Feasibility of Estimating Ultrasonic Shear Wave Attenuation using Amplitude-Based Methods** **Samantha Lipman**[1], Ned Rouze[1], Mark Palmeri[1], Kathryn Nightingale[1] *[1]Duke University, Durham, North Carolina, USA*	**3K-6 Computationally-efficient model-based clutter suppression with ADMIRE** **Kazuyuki Dei**[1], Brett Byram[1] *[1]Biomedical Engineering, Vanderbilt University, Nashville, Tennessee, USA*	**4K-6 On the anisotropic elasticity of femoral cortical bone assessed by resonant ultrasound spectroscopy** **Xiran CAI**[1], Laura Peralta[1], Pascal Laugier[1], Quentin Grimal[1] *[1]Sorbonne Université, UPMC Univ Paris 06, INSERM UMR-S 1146, CNRS UMR 7371, Laboratoire d'Imagerie Biomédicale, Paris, France*	**5K-6 Finite element modelling study to explore the possibilities of ultrasonic gas flow measurement in wet-gas applications** **Sivaram Nishal Ramadas**[1], Andrew Tweedie[2], Gerry Harvey[3] *[1]Honeywell, Stafford, United Kingdom, [2]PZFlex, United Kingdom, [3]PZFlex, USA*	**6K-6 Optical Tomography of Surface Waves for Tissue Characterization Application: Phantom study** **Ali Zorgani**[1], Maxime Lesconne[1], Aline Bel-Brunon[2], Tarek Abdul Ghafour[2], Stefan Catheline[1] *[1]LabTAU, U1032 INSERM, Lyon, France, [2]LaMCos, INSA-Lyon, villeurbanne, France*	**7K-6 Dual Frequency Transducer Design for Suppression of Multiple Scattering: Radiation Apertures** Johannes Kvam[1,2], **Ola F. Myhre**[1], Bjørn. A.J. Angelsen[1] *[1]Department of circulation and medical imaging, Norwegian University of Science and Technology, Trondheim, Norway, [2]Norsvin SA, Hamar, Norway*

Wednesday, September 21, 2016
Poster Session
Hall Chinon



09:30 AM - 04:00 PM	POSTER --- WEDNESDAY, SEPTEMBER 21, 2016			CHINON

Session P1-C1.
MBB: Novel imaging methods
Chair: Jian-yu Lu

P1-C1-1 Beamforming of ultrasound images modelled as stable random variables
Teodora Szasz[1], Adrian Basarab[1], Denis Kouamé[1]
[1]IRIT, UMR CNRS, University of Toulouse, Université Paul Sabatier, France

P1-C1-3 Tensor-based off-axis noise suppression in pre-beamformed data to enhance the visualization of hyper echoic structures
Bo Zhuang[1], Robert Rohling[1], Purang Abolmaesumi[1]
[1]University of British Columbia, Vancouver, BRITISH COLUMBIA, Canada

P1-C1-5 Compressed sensing based synthetic transmit aperture imaging: A convex array validation
Jing Liu[1], Qiong He[1], Jianwen Luo[1]
[1]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of

P1-C1-7 3D multiline reconstruction by combining pre-beamformed RF datasets
Deep Bera[1], Hendrik J. Vos[1,2], Martin D. Verweij[1,2], Michiel A. P. Pertijs[3], Nico de Jong[1,2], Johan G. Bosch[1]
[1]Dept. of Biomedical Engineering, Thoraxcenter, Erasmus Medical Center, Rotterdam, Netherlands, [2]Lab. of Acoustic Wavefield Imaging, Delft University of Technology, Delft, Netherlands, [3]Electronic Instrumentation Laboratory, Delft University of Technology, Delft, Netherlands

P1-C1-9 Improving Micro-beamforming by Error Compensation
U-Wai Lok[1], Pai-Chi Li[2]
[1]National Taiwan University, Taiwan, [2]National Taiwan University, Taipei, Taiwan

P1-C1-11 Sound speed optimization for ultrasound beamforming using differential phase gradient between sub-apertures
Che-Chou Shen[1], Hsiao-Chi Yang[1]
[1]Electrical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan

P1-C1-13 Impact of beamforming on deformation imaging with phased arrays: a comparison of transverse oscillations and traditional focused beamforming
Brecht Heyde[1,2], Nick Bottenus[1], Jan D'hooge[2], Gregg Trahey[1]
[1]Biomedical Engineering, Duke University, Durham, NC, USA, [2]Cardiovascular Imaging and Dynamics, KU Leuven, Leuven, Belgium

P1-C1-15 The Matching algorithm for designing Multiplexed Ultrasound array transducers
Carolina Vallecilla[1], Alejandra Ortega[1], Jan D'hooge[1]
[1]KU Leuven, Belgium

P1-C1-17 Wave Equation based Transmission Tomography for circular or spherical detector geometries
Hartmut Gemmeke[1], Lea Althaus[2], Koen van Dongen[3], Herbert Egger[2], Torsten Hopp[1], Nicole Ruiter[1], Michael Zapf[1]
[1]KIT, Eggenstein-Leopoldshafen, Germany, [2]Mathematics, Darmstadt University of Technology, Germany, [3]Delft University of Technology, Netherlands

P1-C1-19 Co-Robotic Synthetic Tracked Aperture Ultrasound Imaging with Cross-Correlation Based Dynamic Error Compensation and Virtual Fixture Control
Haichong K. Zhang[1], Rodolfo Finocchi[2], Kalyna Apkarian[2], Emad M. Boctor[3]
[1]Department of Computer Science, The Johns Hopkins University, Baltimore, Maryland, USA, [2]Laboratory for Computational Sensing and Robotics, The Johns Hopkins University, Baltimore, Maryland, USA, [3]Department of Radiology, The Johns Hopkins Medical Institutions, Baltimore, Maryland, USA

P1-C1-21 Utilization of Wavelet Packet Analysis in Time-domain Compressive Beamforming
Guillaume David[1], Jean-luc Robert[2], Bo Zhang[3], Andrew Laine[1]
[1]Biomedical Engineering, Columbia University, New York City, New York, USA, [2]Philips Research North America, USA, [3]Medisys, Philips Research France, France

P1-C1-23 High-frame-rate steerable synthetic transmit aperture ultrasound imaging with a reduced number of receiving channels
Ying Li[1], Michael C. Kolios[1], Yuan Xu[1]
[1]Physics, Ryerson University, Toronto, ON, Canada

P1-C1-25 Efficient Coded Ultrasound Imaging Based on Frequency Domain Processing
Almog Lahav[1], **Tanya Chernyakova**[1], Yuval Ben-Shalom[1], Yonina Eldar[1]
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P1-C1-27 Amplitude tracing method for the precise delay calculation of 3D synthetic aperture ultrasound imaging
Misaki Hiroshima[1], Hiroshi Kuribara[1], Chizue Ishihara[1], Teiichiro Ikeda[1]
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Session P1-C2.
MCA: Microbubble physics and dynamics
Chair: Mingxi Wan

P1-C2-1 Vaporising phase change ultrasound contrast agent in microvascular confinement
Shengtao Lin[1], Ge Zhang[1], Chee Hau Leow[1], Terry O. Matsunaga[2], Meng-Xing Tang[1]
[1]Department of Bioengineering, Imperial College London, London, United Kingdom, [2]Department of Radiology Research, University of Arizona, USA

P1-C2-3 Effects of ultrasonic cavitation and heat deposition in aqueous suspensions of mesoporous silicon nanoparticles
Andrey Sviridov[1], Valery Andreev[1], Victor Timoshenko[1,2], Konstantin Tamarov[1,3]
[1]Department of Physics, Moscow State University, Moscow, Russian Federation, [2]Theoretical Physics and Appl. Math. Department, Ural Federal University, Ekaterinburg, Russian Federation, [3]Department of Applied Physics, University of Eastern Finland, Kuopio, Finland

P1-C2-5 Estimation of the shell parameters of functionalized lipid encapsulated microbubbles using flow cytometry
Yujin Zong[1,2], Camilo Perez[2], Chenghui Wang[3], Mingxi Wan[1], Tom Matula[2]
[1]The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an Jiaotong University, Xi'an, Shaanxi, China, People's Republic of, [2]Center of Industrial and Medical Ultrasound, University of Washington, Seattle, Washington, USA, [3]Shaanxi Key Laboratory of Ultrasonics, Shaanxi Normal University, Xi'an, Shaanxi, China, People's Republic of

P1-C2-7 Wave propagation in a novel microfluidics system for *in vitro* ultrasound-mediated drug delivery
Inés Beekers[1,2], Shreyas B. Raghunathan[3], Tom van Rooij[1], Verya Daelchin[1], Nico de Jong[1,3], Klazina Kooiman[1], Sebastiaan J. Trietsch[2]
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P1-C2-9 Synthesis and acoustic conversion of perfluorocarbon nanodroplets containing solid nanoparticles within their liquid cores
Adam Dixon[1], Edwin Lu[1], Veronica Chang[1], John Hossack[1]
[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA

P1-C2-11 SPIO-DOX-Microbubble Complex with Ultrasound for MRI Image-Guided Drug Delivery in a rat glioma model
Ching-Hsiang Fan[1], Yu-Hang Cheng[1], Chien-Yu Ting[1], Yi-Ju Ho[1], Po-Hung Hsu[2], Hao-Li Liu[2], Chih-Kuang Yeh[1]
[1]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan, [2]Department of Electrical Engineering, Chang-Gung University, Tao-Yuan, Taiwan

P1-C2-13 Influences of Frequency-dispersive Guided Waves on Contrast-enhanced Ultrasound Imaging
Diya Wang[1], Yu Zhang[1], Hong Hu[1], Hui Zhang[1], Mingxi Wan[1]
[1]Department of Biomedical Engineering, School of Life Science and Technology, Xi'an Jiaotong University, Xi'an, China, People's Republic of

Session P1-C3.
MEL: Cardiovascular elasticity imaging
Chair: Richard Lopata
Eindhoven University of Technology

P1-C3-1 Influence of Wall Thickness and Diameter in Arterial Shear Wave Elastography – an in vitro and in silico study
Elira Maksuti[1,2], Fabiano Bini[3], Stefano Fiorentini[3], Giulia Blasi[3], Matthew W. Urban[4], Franco Marinozzi[3], Matilda Larsson[1]
[1]Department of Medical Engineering, School for Technology and Health, KTH Royal Institute of Technology, Stockholm, Sweden, [2]Department of Molecular Medicine and Surgery, Karolinska Institutet, Solna, Sweden, [3]Department of Aerospace and Mechanical Engineering, Sapienza University of Rome, Rome, Italy, [4]Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA

P1-C3-3 A Novel Method for Vessel Cross-Sectional Shear Wave Imaging
Qiong He[1], Guoyang Li[2], Yanping Cao[2], Jianwen Luo[1]
[1]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of, [2]Department of Engineering Mechanics, Tsinghua University, Beijing, China, People's Republic of

P1-C3-5 The Impact of Geometry, Pressure and Friction on the Longitudinal Movement of the Arterial Wall: A Finite Element and Phantom Study
Alice Widerström[1,2], Sandra Sjöstrand[1,2], Abigail Swillens[2], Ingrid Svensson[1], Hans W Persson[1], Åsa Rydén Ahlgren[3], Magnus Cinthio[1]
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P1-C3-7 Coronary Plaque ARFI: Intravascular vs. Intracardiac Approach
Carl Herickhoff[1], Kevin Looby[2], Joshua Doherty[3], Jeremy Dahl[1]
[1]Radiology, Stanford University, Palo Alto, California, USA, [2]Electrical Engineering, Stanford University, Palo Alto, California, USA, [3]Kona Medical, Inc., Bellevue, Washington, USA

P1-C3-9 An ex vivo setup for characterization of atherosclerotic plaque using shear wave elastography and micro-computed
David Larsson[1], Jay Roy[2], Matthew W Urban[3], Massimiliano Colarieti-Tosti[1], Matilda Larsson[1]
[1]Medical Engineering, KTH Royal Institute of Technology, Huddinge, Sweden, [2]Department of Molecular Medicine and Surgery, Karolinska Institutet, Solna, Sweden, [3]Department of Radiology, Mayo Clinic College of Medicine, Rochester, MN, USA

PI-C3-11 2D RF-based non-rigid image registration for cardiac motion estimation: comparison against block matching

Bidisha Chakraborty[1], Zhi Liu[2], Brecht Heyde[1], Jianwen Luo[2], Jan D'hooge[1]

[1]Cardiovascular Imaging and Dynamics, KU Leuven, Leuven, Belgium, [2]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of

PI-C3-13 High frame rate cardiac strain estimation tested in a model of cardiac mechanics and in vivo

Maartje Nillesen[1], Anne Saris[1], Hendrik Hansen[1], Stein Fekkes[1], Frebus van Slochteren[2], Peter Bovendeerd[3], Chris de Korte[1]

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PI-C3-15 Characterization of Catheter Motion in Intracardiac Echocardiography (ICE) Elastography Imaging

Jenna Osborn[1], Young-Joong Kim[1], Stephanie Eyerly[1], Patrick Wolf[1]

[1]Biomedical Engineering, Duke University, USA

PI-C3-17 Investigation of 3D ultrasound data properties influencing the accuracy of block matching in echocardiography

Szymon Cygan[1], Brecht Heyde[2], Martino Alessandrini[2,3], Jan D'hooge[2]

[1]Institute of Metrology and Biomedical Engineering, Warsaw University of Technology, Warsaw, Poland, [2]Dept. of Cardiovascular Sciences, KU Leuven, Leuven, Belgium, [3]Computational Physiopathology Unit, Department of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy

Session PI-C4.
MIM: Medical imaging II
Chair: **Charles Sennoga**
INSERM U930

PI-C4-1 A measure of confidence for phase-based motion estimator applied to 2D US-TO images

Emilia Badescu[1], Sébastien Salles[2], Denis Friboulet[1], Hervé Liebgott[1]

[1]Université de Lyon, CREATIS; CNRS UMR5220 ; Inserm U1044; INSA-Lyon ; Université Lyon I, France, [2]Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Norway

PI-C4-3 Comparison of regional longitudinal strain among nine commercial speckle tracking tools using realistic simulations

Martino Alessandrini[1,2], Assami Rossner[3], Brecht Heyde[1], Jan D'hooge[1]

[1]Cardiovascular Sciences, KU Leuven, Leuven, Belgium, [2]Department of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy, [3]Hospital North Norway, Norway

PI-C4-5 Fast Cardiac Imaging Using Diverging Wave Imaging With Coded Excitation

Feifei Zhao[1], Ling Tong[1], Qiong He[1], Jianwen Luo[1]

[1]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of

PI-C4-7 An Eigen-Based Framework for Robust, High-Frame-Rate Arterial Pulse Wave Estimation and Visualization

Adrian J. Y. Chee[1], Billy Y. S. Yiu[1], Alfred C. H. Yu[1,2]

[1]Department of Electrical and Electronic Engineering, University of Hong Kong, Pokfulam, Hong Kong, [2]Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, ON, Canada

PI-C4-9 Vascular haemodynamic simulations with and without flow diverting stents: experimental validation using ultrasound imaging

Ana Paula NARATA[1,2], Fernando SILVA de MOURA[3], Alberto MARZO[4], Cecile PERRAULT[4], Ignacio LARRABIDE[5], Ayache BOUAKAZ[1], **Charles SENNOGA**[1]

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PI-C4-11 Muscle blood volume assessment during exercise with Power Doppler Ultrasound

H.M. Heres[1], B.C.Y. Tchang[1], T. Schoots[2], M.C.M. Rutten[1], F.N. Van de Vosse[1], R.G.P. Lopata[1]

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PI-C4-13 Detecting the 3D Kinetic Trajectory of the Median Nerve from Wrist Ultrasound Images Using Adaptive Bayesian Speckle Tracking

Yi-Hsun Lin[1], Li-Kai Kuo[1], Yu-Chen Chung[1], Shyh-Hau Wang[1]

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PI-C4-15 New Arterial Wall Motion Tracking Using an Adaptive Reference Frame Selection Method in Ultrafast Compound Imaging

Hyunah Seo[1], Jinbum Kang[1], Maria Zontak[2], Matthew O'Donnell[2], Yangmo Yoo[1,3]

[1]Electronic engineering, Sogang university, Seoul, Korea, Republic of, [2]Bioengineering, University of washington, Seattle, USA, [3]Interdisciplinary Program of Integrated Biotechnology, Sogang university, Seoul, Korea, Republic of

PI-C4-17 Management of respiration-induced motion with an ultrasound image tracking technique

Ho-Chiao Chuang[1], Kuan-Ting Teng[1], Ai-Ho Liao[2]

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Session PI-C5.
MPA: Photoacoustic cell and tissue imaging
Chair: **Jean-Luc Gennisson**
Institut Langevin, ESPCI ParisTech

PI-C5-1 Combined dynamic contrast enhanced ultrasound and multispectral optoacoustic tomography for imaging tumour hypoxia

Anant Shah[1], Nigel Bush[1], Gary Box[2], Sue Eccles[2], Jeffrey Bamber[1]

[1]Joint Department of Physics and CRUK Cancer Imaging Centre, The Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, London, United Kingdom, [2]Division of Cancer Therapeutics, The Institute of Cancer Research, Sutton, London, United Kingdom

PI-C5-3 High frequency photoacoustic spectral analysis of erythrocyte programmed cell death (eryptosis)

Muhannad Fadhel[1], Eric Strohm[2], **Michael Kolios**[3]

[1]Ryerson University, Richmond Hill, Ontario, Canada, [2]Physics, Ryerson University, Toronto, Ontario, Canada, [3]Ryerson University, Toronto, Ontario, Canada

PI-C5-5 Ex Vivo Investigation of Photoacoustic Imaging in Human Prostate Cancer

Johann Le Floc'h[1], Aaron Boyes[1], Masoom Haider[1], Brian C. Wilson[2], Robert Weersink[2], F. Stuart Foster[1]

[1]Physical Sciences, Sunnybrook Research Institute, TORONTO, Ontario, Canada, [2]Princess Margaret Cancer Centre, Canada

PI-C5-7 Functional photoacoustic imaging of human inflammatory arthritis

Xueding Wang[1,2], Janggun Ja[2], Guan Xu[3], April Marquardt[4], Gandikota Girish[3]

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PI-C5-9 Diagnosis of Chrohn's Disease with photoacoustic imaging

Guan Xu[1], Hao Lei[1], Shengchun Liu[2], Laura Johnson[1], David Moons[1], Peter Higgins[1], Jun Ni[1], Xueding Wang[1]

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PI-C5-11 Characterizing intraocular tumors with photoacoustic imaging

Guan Xu[1], Yafang Xue[2], Zeynep Gursel[2], Naziha Sliman[2], Xueding Wang[2], Hakan Demirci[2]

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PI-C5-13 Photoacoustic spectroscopy of cell pellets

Lauren A. Wirtzfeld[1,2], Eric M. Strohm[1,2], Michael C. Kolios[1,2]

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PI-C5-15 Photoacoustic imaging of superficial vasculature: Towards skin disease diagnosis.

H.M. Heres[1], M.Ü. Arabul[1], M.C.M. Rutten[1], F.N. Van de Vosse[1], R.G.P. Lopata[1]

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PI-C5-17 Microvascular Pressure Estimation using Compression-Based Photoacoustic and Micro-Ultrasound

Min Choi[1], Roger Zemp[1]

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PI-C5-19 Needle Visualization with Laser Generated Leaky Acoustic Waves

Kai-Wen Wu[1], Pai-Chi Li[2]

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Session PI-C6.
MSD: Novel medical systems and devices
Chair: **Magnus Cinthio**
Lund University

PI-C6-2 A Smartphone-based Portable Ultrasound System for Point-of-Care Diagnosis

Woojin Jung[1], Pilsu Kim[1], Minsuk Park[1], Sua Bae[1], Youngbae Lee[1], Sangbum Kye[2], Tai-kyong Song[1]

[1]Electronic Engineering, Sogang University, Korea, Republic of, [2]HANSONO Co.,Ltd., Korea, Republic of

PI-C6-4 A Low-cost Ultrasound Research Platform: Implementation and Feasibility Study

Jiwon Park[1], Pilsu Kim[1], Sua Bae[1], Tai-kyong Song[1]

[1]Electronic engineering, Sogang university, Seoul, Korea, Republic of

PI-C6-6 Implementation of an Augmented Reality Ultrasound Simulator System using Apple Pencil

Po-Hsun Huang[1], Kai-Sheng Heish[2], Chih-Chung Huang[1]

[1]Department of Biomedical Engineering, National Cheng Kung University, Taiwan, [2]Kaoshiung Chang Geng Memorial Hopital, Taiwan

PI-C6-8 High Channel Count Ultrasound Beamformer System with External Multiplexer Support for Ultrafast 3D/4D Ultrasound

Christoph Risser[1], Hans-Joachim Welsch[1], Heinrich Fonfara[1], Holger Hewener[1], **Steffen Tretbar**[1]

[1]Ultrasound, Fraunhofer IBMT, Sankt Ingbert, Saarland, Germany

PI-C6-10 Smartphone-based portable ultrasound automatic segmentation of the left Ventricle.

Sebastien Salles[1], Sigurd Storve[1], Sigmund Frigstad[2], Hans Torp[1]

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PI-C6-12 A Positron Emission Tomography registered Ultrafast Sonography prototype for preclinical in-vivo studies

Anikitos Garofalakis[1], Jean Provost[2], Thomas Viel[1,3], Damien Bouda[1], Prashanth Kumar Vaddeboina[1], Geert Leenders[1], Mickael Tanter[2], Bertrand Tavitian[1,4]

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PI-C6-14 A Head-mounted Ultrasound Device for Noninvasive Brain Stimulation on Free Moving Mouse

Guofeng Li[1,2], Min Su[1], Huixia Zhao[1], Yongchuan Li[1], Juan Zhou[1], Yanming Wang[1], Ming Qian[1], Weibao Qiu[1], Hairong Zheng[1]

[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, [2]Guangdong Medical University, China, People's Republic of

PI-C6-16 Active induction of bubble liposome at the bifurcation of in vivo blood vessel with optical measurement and robotic positioning

Kohji Masuda[1], Shinya Miyazawa[1], Hikaru Wada[1], Tomohiro Kurokawa[1], Kaoru Natsume[1], Yoshihisa Wada[1], Takashi Mochizuki[1]

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PI-C6-18 Temperature model for 3D ultrasound computer tomography

Michael Zapf[1], Alexander Menshikov[1], Nicole Ruiter[1]

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PI-C6-20 Manipulation of Myoblasts in Cell Cultivation Dish Using Resonance Vibration of Disk with a Single Nodal Circle

Chikahiro Imashiro[1], Yuta Kurashina[1], Kenjiro Takemura[2]

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Session P1-C7.
MTC: High frequency tissue characterization
Chair: Michael Kolios

P1-C7-2 Quantitative Ultrasound Imaging of Bacterial Infection on Skin Ulcers by Envelope Statistics Analysis
Masaaki OMURA[1], Kenji YOSHIDA[2], Alain CORON[3], S. Lori BRIDAL[3], Tadashi YAMAGUCHI[2]
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P1-C7-4 Quantitative Ultrasound in Heterogeneous Tumor Structure
Jérôme Griffon[1], Delphine Le Guillou-Buffello[1], Dizeux Alexandre[1], Michele Lamuraglia[1,2], Micheal Oelze[3], Lori Bridal[1]
[1]Laboratoire d'Imagerie Biomedicale, France, [2]Medical Oncology, AP-HP, Louis Maurier Hospital, France, [3]Bioacoustics Research Laboratory, University of Illinois at Urbana-Champaign, USA

P1-C7-6 Automated classification of common skin lesions using bioinspired features
Domonkos Csabai[1], Klára Szalai[2], **Miklós Gyöngy**[1]
[1]Faculty of Information Technology and Bionics, Pázmány Péter Catholic University, Budapest, Budapest, Hungary, [2]Semmelweis University, Budapest, Hungary

P1-C7-8 The acoustical properties of IEC agar-based tissue mimicking material at high ultrasound frequency – a longitudinal study.
Adela Rabell[1], Jacinta Browne[2], Stephen Pye[3], Tom Anderson[1], Carmel Moran[1]
[1]Cardiovascular Science, University of Edinburgh, Edinburgh, United Kingdom, [2]School of Physics, Dublin Institute of Technology, Dublin, Ireland, [3]Medical Physics, NHS Lothian, Edinburgh, United Kingdom

P1-C7-10 Correction of Nakagami shape parameter estimated from saturated high-frequency ultrasound signals acquired from cancerous human lymph nodes
Kazuki Tamura[1], Jonathan Mamou[2], Alain Coron[3], Kenji Yoshida[4], Ernest J. Feleppa[2], Tadasi Yamaguchi[4]
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P1-C7-12 500-MHz quantitative acoustic microscopy imaging of unstained fixed 6-µm thin sections from cancerous human lymph nodes
Daniel Rohrbach[1], Emi Saegusa-Beecroft[2], Junji Machi[2], Ernest J. Feleppa[1], **Jonathan Mamou**[1]
[1]Lizzi Center for Biomedical Engineering, Riverside Research, New York, NY, USA, [2]General Surgery, University of Hawaii and Kuakini Medical Center, Honolulu, HI, USA

P1-C7-14 Coherent and incoherent ultrasound backscatter from cells in aggregated conformation
Romain de Monchy[1], François Destrempes[2], Ratan K. Saha[3], Guy Cloutier[2,4], Emilie Franceschini[1]
[1]Laboratoire de Mécanique et d'Acoustique, LMA - CNRS UPR 7051, Marseille, France, [2]Laboratory of Biorheology and Medical Ultrasonography, University of Montreal Hospital Research Center (CRCHUM), Montreal, Quebec, Canada, [3]Department of Applied Sciences, Indian Institute of Information Technology Allahabad Jhalwa, Allahabad, India, [4]Department of Radiology, Radio-Oncology and Nuclear Medecine, Institute of Biomedical Engineering, University of Montreal, Montreal, Quebec, Canada

Session P1-C8.
MTH: Ultrasound therapy
Chair: Zhen Xu
University of Michigan

P1-C8-2 Ultrasound Mediated Tattooing of Gastrointestinal Tissue with Fluorescent Material
Benjamin F Cox[1], Fraser Stewart[1], Zhihong Huang[2], Inke Näthke[3], Sandy Cochran[4]
[1]School of Medicine, University of Dundee, Dundee, United Kingdom, [2]School of Science and Engineering, University of Dundee, Dundee, United Kingdom, [3]School of Life Sciences, University of Dundee, Dundee, United Kingdom, [4]School of Engineering, University of Glasgow, Glasgow, United Kingdom

P1-C8-4 Neurorestoration of the Nigrostriatal Pathway through Focused Ultrasound Facilitated Drug Delivery
Maria Eleni Karakatsani[1], Gesthimani Samiotaki[1], Shutao Wang[1], Tara Kugelman[1], Camilo Acosta[1], Elisa Konofagou[1,2]
[1]Biomedical Engineering, Columbia University, Manhattan, New York, USA, [2]Radiology, Columbia University, Manhattan, New York, USA

P1-C8-6 Localized delivery of curcumin-loaded nanoparticles to the brain for treatment of Parkinson's disease using focused ultrasound
Nisi Zhang[1], Xiuxian Huang[1], Zhifei Dai[2], Hairong Zheng[1], Fei Yan[1]
[1]Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, People's Republic of, [2]Department of Biomedical Engineering, College of Engineering, Peking University, China, People's Republic of

P1-C8-8 Active control of nanobubble-surrounded cells propelled by acoustic radiation force with verification of frequency dependence
Kohji Masuda[1], Toi Sawaguchi[1], Hikaru Wada[1], Riki Oitate[1], Tomohiro Kurokawa[1], Takashi Machizuki[1], Shin Enosawa[2], Yusuke Oda[3], Ryo Suzuki[3], Kazuo Maruyama[3]
[1]Graduate School of BASE, Tokyo Univ. A&T, Koganei, Japan, [2]National Center for Child Health and Developmen, Japan, [3]Teikyo Univ., Japan

P1-C8-10 Ultrasonic Transmittance of Rat Skull as a Function of Frequency
Mehmet Akif AYDIN[1], Mehmet Sait KILINC[1], Ayhan BOZKURT[2], Erdem DEVECI[3], Arif Sanli ERGUN[1]
[1]TOBB University of Economy and Technology, Turkey, [2]Sabanci University, Turkey, [3]Bezmialem University Medical Shcool, Turkey

P1-C8-12 Nonlinear 3-D simulation of high-intensity focused ultrasound therapy in the kidney
Visa Suomi[1], Jiri Jaros[2], Bradley Treeby[3], Robin Cleveland[1]
[1]Department of Engineering Science, University of Oxford, Oxford, United Kingdom, [2]Faculty of Information Technology, Brno University of Technology, Brno, Czech Republic, [3]Department of Medical Physics and Biomedical Engineering, University College London, London, United Kingdom

P1-C8-14 Effects of pulse repetition frequency on vaporization of lipid-coated droplets in vivo
Robinson Seda[1], Jonah Harmon[1,2], Joseph Bull[1]
[1]Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, [2]Cell and Developmental Biology, University of Michigan, Ann Arbor, Michigan, USA

P1-C8-16 Volumetric quantification of in vitro thrombolysis with high frequency ultrasound
Laurent Auboire[1], Damien Fouan[1], Jean-Marc Grégoire[1], Fréderic Ossant[1,2], Ayache Bouakaz[1]
[1]Université François-Rabelais de Tours, Inserm, Imagerie et Cerveau UMR U930, Tours, France, [2]CIC-IT, CHU de Tours, Tours, France

Session P4-C1.
Microacoustic Resonators and Filters
Chair: Ventsislav Yantchev
Chalmers University

P4-C1-2 Achieving ultimate Q-factors in SAW resonators on commercial LiNb and LiTa substrates
Sergei Zhgoon[1], Alexander Shvetsov[1], Ivan Antcev[2], Seregei Bogoslovsky[2], Gennadiy Sapozhnikov[2], Mikhail Derkach[2]
[1]National Research University «MPEI», Moscow, Russian Federation, [2]JSC "Radar mms", St Petersburg, Russian Federation

P4-C1-4 Solidty Mounted Ladder Filter using Shear Horizontal Mode Plate Wave in LiNbO3
Michio Kadota[1], Shuji Tanaka[1]
[1]Tohoku university, Japan

P4-C1-6 Hybrid BAW/SAW AlN and AlScN Thin Film Resonator. First Experimental data
Vladimir Pashchenko[1], Ramin Matloub[1], Paul Muralt[1], Sylvain Ballandras[2]
[1]Ceramics Laboratory, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, [2]Frec|n|sys, Besançon, France

P4-C1-8 AlN based-Solidly Mounted Resonators at High Temperatures: In-situ Characterization
Teona Mirea[1], Jimena Olivares[1], Marta Clement[1], Bárbara Díaz-Durán[1], Jesús Sangrador[1], Enrique Iborra[1]
[1]ETSIT, Universidad Politécnica de Madrid, Madrid, Spain

P4-C1-10 AlN Film Stress and Uniformity for BAW filters on 200mm wafers
Sergey Mishin[1], Yury Oshmyansky[2]
[1]AMS, Inc, USA, [2]AMS, Inc., USA

Session P2-C3.
Transducers
Chair: Jiromaru Tsujino
Kanagawa Unversity

P2-C3-2 Torsion ultrasonic sensor for tissue mechanical characterization
Guillermo Rus Carlborg[1], Rafael Muñoz Beltrán[1], Juan Manuel Melchor Rodríguez[1], Rubén Molina[1], Antonio Manuel Callejas Zafra[1], Miguel Riveiro[1], Jorge Torres[1], Juan Manuel Sato Rueda[1]
[1]NDE Lab. Dept. of Structural Mechanics, University of Granada, Granada, Spain

P2-C3-4 A Power Ultrasonic Transducer for Sub-sea Exploration
Andrew Feeney[1], Sakalima Sikaneta[2], Margaret Lucas[1]
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P2-C3-6 High Temperature Performance of PbTiO BaTiO Ultrasonic Transducers
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Chair: **Pierre Khuri-Yakub**
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Andrey Medvedev[1], Aleksey Zabelin[1], Vladimir Alenkov[1], Svetlana Bazalevskaya[1], Oleg Buzanov[1], Sergei Zhgoon[2], Sergey Sakharov[1]
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Nicola Lamberti[1], **Monica La Mura**[1], Valerio Apuzzo[1], Nicola Greco[1], Pasquale D'Uva[1], Alessandro Savoia[2], Giosuè Caliano[2]
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P2-C1-6 The meter of micro-displacements based on piezoelectric lateral electric field excited resonator

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P2-C1-12 Detection of Sleeping and Rising in Care Environment Using Sound-Wave Distance Measurement Method at Upper Vocal Register of 18-20 kHz

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Norihisa Tsujita[1], Kazuhiro Shimizu[1], **Shigeaki Aoki**[1]
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Chair: **Donald Yuhas**
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Jung-Soon KIM[1], **Ji-Yeong YEOM**[2], Ji-Hyong KIM[2], Moo-Joon KIM[2], Kang-Lyeol HA[2]
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Aryaz Baradarani[1,2], Alex Denisov[2], Roman Maev[1,2]
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Doug Stephens[1], Jasquin Foiret[1], Steven Lucero[1], Katherine Ferrara[1], Kalyanam Shivkumar[2], Pierre Khuri-Yakub[3]
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Pascal Ramaekers[1], **Mario Ries**[1], Chrit Moonen[1], Martijn de Greef[1]
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Haoyu Fang[1], Anthony Mulholland[2], Qiu Zhen[1], Richard O'Leary[1], Anthony Gachagan[1]
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Danhua Zhao[1], Steve Zhuang[1], Lee Weng[1]
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Chair: Charles Courtney
University of Bath

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Valeriy Andreev[1], Zakhar Karalkov[1], Andrey Shanin[1], Igor Demin[2]
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Eetu Lampsijärvi[1], Kalle Hanhijärvi[1], Ari Salmi[1], Edward Hæggström[1]
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Viacheslav Prokhorov[1], Alexander Korobov[2], Alex Kokshaiskii[2], Sergey Perfilov[3], Ivan Evdokimov[3]
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Alexey Kokshayskiy[1], **Natalia Shirgina**[1], Alexander Korobov[1]
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Session P3-C2.
PA Phononics
Chair: Charles Courtney
University of Bath

P3-C2-1 Bounded acoustic beams in piezoelectric 1D PCs with metal patches
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Pyung Sik Ma[1], Kiyean Kim[2], Yoon Young Kim[2]
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Mahmoud Addouche[1], Kim-Ngoc Nguyen[2], Sarah Benchabane[1], Roland Salut[1], Abdelkrim Khelif[1]
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