IEEE

IUS 2023

International Ultrasonics Symposium

Palais des congrès de Montréal || September 3-8, 2023

IUS 2023 SYMPOSIUM PROGRAM

Please visit our website for more information!

2023.ieee-ius.org

SPONSORS AND ORGANIZERS

UFFC

IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society

IEEE

Table of Contents

Welcome Message from the General Chairs

Welcome to IEEE IUS 2023, Palais des congrès, Montréal, Québec, Canada

It is our great pleasure to host the IEEE IUS 2023 and allow attendees to participate and present their most recent innovations in the field of ultrasonics, in person or virtually. The success of this international annual meeting would not be possible without your participation and enthusiasm. You are building the foundation of the ultrasound future with impacts in medicine and industry. The Montréal location will bring you into a multicultural environment where French is the official language in the province of Québec. C'est donc un plaisir pour nous d'accueillir tous les congressistes dans une ville où la joie de vivre nous confère une signature particulière reconnue internationalement. We hope you will appreciate this French taste during your stay in Montréal. This meeting will allow you to build many bridges of productive exchange of your own. Whether that be with the leaders in the field of ultrasonics from academia and industry, or in sharing ideas among the generations, ranging from the most experienced emeriti to students starting out with a totally fresh perspective.

This year we innovated by giving additional exposure to the emerging field of artificial intelligence in ultrasonics. We are proud to have Professor Yoshua Bengio as plenary speaker. Dr. Bengio is recognized worldwide as one of the leading experts in artificial intelligence and was awarded the A.M. Turing award in 2018 ("Nobel prize in computing"). In 2022, he became the computer scientist with the highest number of citations, and the third most cited scientist in all fields combined. In addition to the recurrent short course on artificial intelligence in ultrasonic imaging and targeted scientific presentations on the topic, we organized a satellite symposium on artificial intelligence in ultrasonics, bringing together fundamental and clinician expert leaders presenting pedagogical reviews on their most recent discoveries.

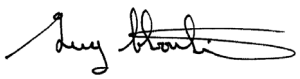
We also innovated this year by providing a double-blind peer-review process to favor diversities and reduce potential biases in the program content. We hope that you will also appreciate the decision of adding another day to the meeting to provide more time for discussion and scientific exchanges. This year we also provided the opportunity for senior graduate students and postdoctoral fellows to co-chair scientific sessions with senior mentors. The registration form allowed any participant to manifest their interest in chairing sessions. This is an initiative aiming to train the next generation of senior chairs.

For those who will be able to attend in person, we hope that you will appreciate the nice food and wine, and performances given by the "Grands Hurleurs" at the welcome reception, and "QW4RTZ" at the gala dinner. The "Grands Hurleurs" will bring you into the French Québec folk culture, whereas the acapella quartet "QW4RTZ" will allow revisiting international songs with a humoristic taste.

Thank you to the IEEE UFFC-S for the management and sponsorship of the IUS 2023. We are also very grateful to all the patrons and exhibitors who are supporting our conference. Their financial contributions could enrich technical and social events, while their availability at the meeting will provide a valuable source of information about state-of-the-art commercial technologies in our field. Special thanks are extended for the especially strong support provided by Verasonics as Platinum patron, Vermon as Gold patron, and Quanscient and u4us as Silver patrons. Please see the full list of sponsors here: https://2023.ieee-ius.org/patrons-and-exhibitors. We also thank the Quebec Bioimaging Network of the Fonds de Recherche Québec (https://rbiq-qbin.qc.ca/) to support the organization of our satellite symposium.

If you visit the IUS 2023 website, you can see the faces and names of all the members of the organizing committee who have worked with creativity and professionalism to pull together the countless elements behind a wonderful conference experience. We have been accompanied in this task by the outstanding members of the professional conference organizers of Conference Catalysts.

We very sincerely wish you an exciting and productive week together both in Montréal and from afar.



IUS General Co-Chair
Guy Cloutier, Centre hospitalier de l'Université de Montréal and University of Montreal (Canada)

IUS General Co-Chair
Elisa Konofagou, Columbia University (USA)

Welcome Message from the Technical Program Chairs

On behalf of the IUS Technical Program Committee, we are excited to welcome you to a vibrant four-day scientific program at IUS 2023 on September 4-7 that will showcase the latest research and technological advances in ultrasonics. IUS 2023 will feature a record number of 1,203 presentations (526 orals and 677 posters) in various branches of the field including medical ultrasonics, industrial ultrasonics, physical acoustics, microacoustics, and transducer design. There will also be 15 short courses on September 3 covering a range of special topics in ultrasonics.

In developing the IUS 2023 scientific program, we have implemented, for the first time in the history of IUS, a double-blind review protocol to select the 1,203 contributed presentations from a pool of 1,585 original submissions. This peer review strategy is intended to enhance the scientific inclusivity of IUS 2023 by substantially reducing confirmation bias attributed to the identity of authors and their institutional affiliations. As a result, the acceptance rate of papers submitted by different regions (Asia/Pacific, Europe, Latin America, Middle East/Africa, North America) is generally balanced with only a 3.3% margin between regions. With the double-blind review protocol in place, we are proud to assure authors that your contributed papers to IUS 2023 are selected based on the merit of scientific work you have done, not who you are or where you are based at.

IUS 2023 will be delivered in a hybrid format. In-person attendees will enjoy a premium on-site conference experience at the Palais des Congrès in Montreal. Through the CONFlux platform, virtual attendees will enjoy on-demand viewing of scientific presentations, and all attendees will be able to connect with each other online.

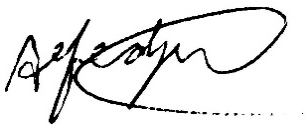
As already mentioned in the General Chairs' remarks, this year we are extremely honored to have invited Professor Yoshua Bengio from the Université de Montréal joining our conference as the plenary speaker. Professor Bengio is internationally recognized as a top pioneer in artificial intelligence (AI) and as one of the founding fathers of AI. He is the recipient of the 2018 A.M. Turing Award, widely recognized as the "Nobel Prize of Computing". He will be giving a keynote speech on Monday, September 4 at 11:15 on the topic of "Deep Learning and the Challenge of Out-of-Distribution Generalization". With the emerging use of AI in ultrasonics, Professor Bengio's presentation will be timely and will give us important perspectives on the hot issues, advances, and challenges in AI research.

One unique feature of the IUS 2023 scientific program is that we have designed three spotlight sessions to highlight emerging topics that are of high interest to multiple topical groups. The themes of the spotlight sessions include: 1) Metamaterials and GHz Ultrasonics (September 4, 8:00-9:30); 2) Wearable Ultrasound and Distributed Sensors (September 4, 13:45-15:15); 3) GHz and Integrated Acoustic Devices (September 5, 10:45-12:15). These spotlight sessions will comprise 8 invited talks from leading experts on these emerging topics. Moreover, IUS 2023 will feature a clinical special session with 3 invited talks on recent advances in clinical ultrasound (September 4, 16:30-18:00) and an industry special session that will feature research presentations from the ultrasound industry and from industry-academia collaborations (September 7, 13:45-15:15). There will also be 18 other invited speakers who will be speaking in the oral sessions of individual topical groups.

IUS 2023 will be ending with a Closing Session on September 7 at 15:15-16:30. At this final session, a few active researchers will come on stage to each make a 5-minute recap presentation on what they think are the scientific highlights and the most exciting ideas presented at this year's conference. As a satellite event of IUS 2023, the "AI in Ultrasound" Satellite Symposium will be held on September 8 at the same conference venue. We strongly encourage colleagues who are interested in AI research to join this satellite event.

In addition to its main scientific contents, the IUS 2023 program will include award presentations on September 4 to celebrate the excellence and achievements of top colleagues in the ultrasonics community. Also, the IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control will be hosting a Reviewer Training Workshop and a Meet-the-EIC Session to engage prospective reviewers and authors of the UFFC Society's flagship journal. Moreover, the UFFC Young Professionals Group will be hosting various professional development events throughout the conference.

IUS has long been considered the prime annual form for the global ultrasound community to share cutting-edge advances in the field. We sincerely hope you will enjoy your time at IUS 2023. We look forward to greeting you at the conference and discussing with you the latest R&D developments in ultrasonics!



IUS Technical Program Chair
Alfred C. H. Yu, University of Waterloo (Canada)

IUS Technical Program Chair
Marvin Doyley, University of Rochester (USA)

Conference Sponsors

IEEE

UFFC

IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society

Patrons and Exhibitors

Platinum Patron

Verasonics®
The leader in Research Ultrasound™

Verasonics designs and markets leading-edge Vantage™ Research Ultrasound Systems for academic and commercial investigators. These real-time, software-based, programmable ultrasound systems accelerate research by providing unsurpassed speed and control to simplify the data collection and analysis process. Researchers across the globe routinely use the unparalleled flexibility of the Vantage platform to advance the art and science of ultrasound through their own research efforts. In addition, every Vantage System can be upgraded to any configuration - protecting capital equipment investments and expanding research options. Verasonics' Vantage Systems are the ideal solution for ultrasound-driven research and development in biomedical, materials science, earth sciences, and the physics of acoustics.

Gold Patron

vermon

Vermon is leading the development and industrialization of state-of-the-art ultrasound solutions for medical and industrial applications.

Vermon's commitment is to innovate, design and manufacture advanced transducers and arrays with cutting-edge technology to support its customers' innovative ultrasound applications while strengthening their long-term market position with superior ultrasound imaging performances.

Silver Patrons

Quanscient's cloud simulation platform, Quanscient.allsolve is built to enable engineers to run hundreds of complex simulations daily. With .allsolve's distributed FEM algorithms, engineers can run single simulations over 100x faster or over 100x more complex ones. In addition, .allsolve enables engineers to run as many simulations in parallel as needed. For example, automated parallel parametric sweeps can save huge amounts of time and enable engineers to test more design variations in a short time.

The key use cases .allsolve is built for are MEMS simulations and advanced 3D magnetics simulations such as superconductor simulations. With MEMS design we can accelerate a wide range of different simulations such as piezoelectric devices, ultrasound transducers, microfluidics, comb drives, photonics, and RF filters.

us4us Ltd. delivers advanced ultrasound research systems and OEM components optimized for software-defined ultrasound applications and GPU processing. Our solutions feature raw RF/IQ acquisition and high-speed PCIe data streaming, enabling the end user to implement their own real-time CPU/GPU processing algorithms. An open-source SDK provides flexibility and easy integration with C++/Python/Matlab.

For 2D imaging we offer: us4R-lite™ (a low-cost, portable device with 256TX/64RX channels and Thunderbolt-3 or PCIe interface) and us4R™ (256TX/256RX channel system with real-time data transfer rate up to 24GB/s).

For 3D imaging we offer: us4R-lite-3D™ (a low-cost, portable system with Row-Column-Arrays support) and us4R-3D™ (1024TX/256RX channel system dedicated for Matrix-Arrays of 32x32).

For integration and serial production, we offer us4OEM™ (a credit-card sized ultrasound front-end module with 128TX/32RX channels).

In addition, we offer consulting and development services in the area of ultrasound methods, systems, and product development.

Bronze Patrons

Nestled in Central Pennsylvania is one of the world's largest producers of ultrasonic transducers.

At the heart of every ultrasonic transducer is a piezo crystal. Dr. Xuecang Geng, Blatek's owner and chief scientist, is renowned for his work in the field of piezocomposites. His intrinsic choice of piezocomposite materials differentiates Blatek products and makes them superior to others. His dedicated team constantly employs innovative solutions to build transducers optimized for broad bandwidth, maximum sensitivity, and low signal-to-noise-ratio.

Broadsound Corporation is a medical ultrasound equipment company focusing on medical diagnostic ultrasound transducers and ultrasound equipment. We research, develop, manufacture and market complete and bespoke solutions from conception to completion.

Our scope of services covers the entire spectrum of the diagnostic ultrasound transducer business, from the medical, veterinary and aesthetics fields, as well as industrial applications.

In addition, we offer a wideband pulser/receiver for ultrasonic application, and an ultrasound transducer analysis system, the ProCheck SC5 UTAS, which as a patented algorithm to measure the given ultrasound transducer's intrinsic characteristics and find its unique optimum driving waveform signal.

Furuya Metal Co., Ltd specializes in the rare metals of the platinum group and Al-Sc. With sophisticated technology developed through our engagement with Ir, Ru, and other metals that are difficult to work with and to recover, we develop high-purity, high-quality products, and recovers metals using our own exclusive technology.

IMASONIC is a leading, private and independent company that designs and manufactures ultrasonic transducers for Health and Safety applications. Since its creation in 1989, IMASONIC has been involved in the development of innovative solutions for the medical and industrial markets, with a particular contribution in the field of Photoacoustic imaging and therapeutic applications. The company has more than 140 employees to date.

Novosound specialise in the design and manufacturing of ultrasound sensors using a groundbreaking thin-film technique to address the limitations of traditional ultrasound. This includes products and customisable solutions for emerging applications in industrial, medical, dental and wearable markets.

Polytec provides testing services, rentals, and equipment sales & support to researchers and manufacturers. If your testing needs are in FBARs, SAWs, or any device that requires measurement in the DC - 8 GHz range, you must stop by our booth for a chat. Our innovative solutions in vibration analysis and surface metrology enable our customers to maintain technological leadership in their fields of ultrasonics. Measurements can be performed either in one of our state-of-the-art labs or on-site in your facility: design validation, troubleshooting, calibration and quality control, component and structure level, traveling wave analysis for improving NDT methods, and roughness & shape measurements on the device or wafer. Additionally, you will learn about the industry best non-intrusive characterization tool for encapsulated MEMs devices.

Sonic Concepts™ is a global leader in designing and delivering innovative therapeutic and focused ultrasound solutions, including the HIFUPlex™ and NeuroFUS™ systems. Every day, researchers and organizations around the world use our best-in-class customizable products and turnkey ultrasonic therapy and imaging solutions to make medical breakthroughs and solve complex problems.

Sumitomo Precision Products Co., Ltd. manufactures and supplies MEMS devices such as MEMS gyroscopes and inertial sensor systems. It is also developing piezoelectric thin film technology to support more diverse and multifunctional MEMS device designs. Especially, we would like to introduce our epitaxial PZT thin film with low permittivity for transducers application as pMUT.

TFT Corporation is a leading supplier of piezoelectric ceramics and single crystals PMN-PT / PIN-PMN-PT, which are manufactured by our group companies, Tayca Corporation in Japan and TRS technologies, Inc in the U.S. Our group also develops piezoelectric composite products achieving superior characteristics by combining resin and piezoelectric material. Our products are used in a variety of industries such as medical imaging, non-destructive testing, ultrasound sensor worldwide. We are also doing research for next-generation single crystal.

For many years, the team has been working together in a synergistic mode to come up with easy-to-use products, conventional technologies, as well as the most advanced innovations in terms of electronics and software for non-destructive testing applications.

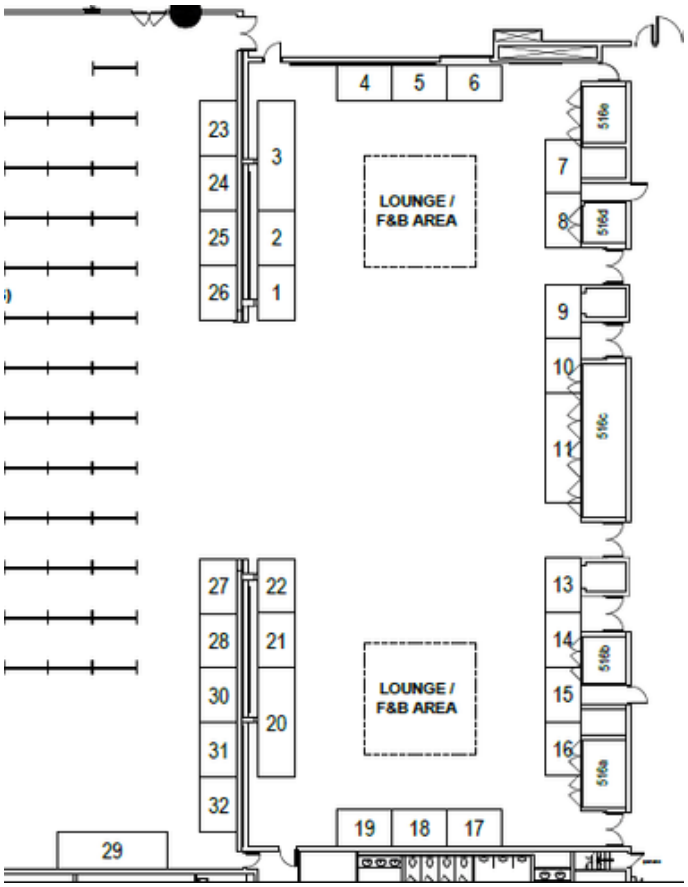
Our common technologies are Conventional multi-channel, Phased array and FMC/TFM family. We have further developed these with unique and numerous features. Ultra-Fast TFM is also available. We continuously keep developing to stay the most efficient in providing you all possible options.

Exhibitors

sonablate
CORP.

Exhibit Booth Layout

COMPANY	Booth Location
us4us Ltd.	1
Blatek Industries, Inc.	2
FUJIFILM VISUALSONICS, INC	3
Precision Acoustics Ltd	4
PI (Physik Instrumente)	5
Innovia Materials Co., Ltd.	6
Science Partner Journals	7
Furuya Metal Co., Ltd.	8
Sonic Concepts	9
Novosound Ltd	10
Vermon SA	11
Sumitomo Precision Products Co., Ltd.	13
S-Sharp / Scintica	14
Onda Corporation	15
GAMPT mbH	16
Focused Ultrasound Foundation	17
Sonablate Corp.	18
scia Systems GmbH	19
The Phased Array Company	20
SinapTec	21
Quanscient Oy	22
Polytec, Inc	23
UFFC-S, UFFC-S Journals	24
OmniSensing Photonics LLC	25
TFT Corporation	26
Broadsound Corporation	27
IMASONIC	28
Verasonics	29
Electronics & Innovation	30
CTS Corp	31
CliniSonix Inc.	32



Introducing

Vantage™ *NXT*

The *NXT* Level in Research Ultrasound

Visit us at Booth 29!

- Leading-edge transmit and receive fidelity
- Expanded frequency bandwidth
- Enhanced image quality
- Interactive help system
- Improved I/O capabilities

Vantage™ *NXT* Seminar

4 September at 3:30 PM
Room 725

Verasonics®
The leader in Research Ultrasound™

Verasonics Inc.
11335 NE 122nd Way, Suite 100, Kirkland, WA 98034
www.verasonics.com | 425.998.9836

Learn more or E-mail:
sales@verasonics.com

vermon

Global leader and ***trusted*** partner

Customized state-of-the-art ultrasound transducers for medical and industrial applications.

contact@vermon.com | www.vermon.com
67 rue fromentel, 37000 Tours FRANCE

SONELE

Sonele is a leading ultrasound transducer design and fabrication company, while supporting medical device companies with contract development and manufacturing services.

Made with quality.

FDA REGISTERED ISO13485 CERTIFIED

Delivered with success.

Ultrasound Division

*High-tech ultrasound transducers that solve your **unique challenges**, significantly **improve performance**, and ultimately **accelerate** your products to market.*

Diagnostic Imaging

Composite piezoelectric imaging transducers built for our customer's target specifications:

- Operating frequency
- Configuration (i.e., single-element, phased array)
- Specific requirements (i.e., housing, environmental)

Therapeutic

High-performance therapeutic transducers for various applications:

- High-Intensity Focused Ultrasound (HIFU)
- Low-Intensity Pulsed Ultrasound (LIPUS)
- High-Power Transducers

And more... Non-Destructive Testing (NDT), Marine / Sonar, special applications

MedTech Contract Development & Manufacturing

Product Development

- R&D + Proof of Concept
- Prototyping
- Mechanical & Electrical Engineering
- Software & Firmware Development
- Industrial Design
- Regulatory Support

Contract Manufacturing

- Component Fabrication
- Supply Chain Management
- Process Validation
- Device Assembly & Testing
- Packaging & Labelling
- Sterilization Management
- Stocking & Distribution

CONTACT US

Sonele Inc. | 46 Riviera Drive, Markham, ON L3R 5M1 Canada

Tel: +1-905-752-8886 | Email: info@sonele.com | www.sonele.com

IEEE IUS 2023

PROGRAM AT A GLANCE

SUNDAY, SEPTEMBER 3

8:30	Short Courses (AM)	
9:00		
9:30		
10:00		
10:30	Coffee Break	
11:00	Short Courses (AM) Continued	
11:30		
12:00		
12:30	Lunch On Your Own	
13:00		
13:30		
14:00	Short Courses (PM)	
14:30		
15:00		
15:30		T-UFFC Reviewer Training Workshop *(Room 512DH)*
16:00	Coffee Break	
16:30	Short Courses (PM)	
17:00		
17:30		T-UFFC Editor Training Session *(Room 512DH)*
18:00	Student Social *(Room 513DEF)*	
18:30		
19:00		
19:30		

IEEE IUS 2023

PROGRAM AT A GLANCE

MONDAY, SEPTEMBER 4

7:00	**Exhibitor Breakfast (Invite Only)** *(Room 515)*						
7:30							
8:00	A1L-01 MIS: Deep Learning for Image	A1L-02 MTC: Blood and Cardiac Tissue Characterization	A1L-03 MCA: Therapy and Drug Delivery	A1L-04 MSD: Wearable Systems and Devices	A1L-05 Spotlight Session: Metamaterials and GHz Ultrasonics	A1L-06 MPA: Image Formation and Processing	A1L-07 TMU: Piezoelectric Micromachined Ultrasonic Transducers
8:30							
9:00							
9:30	Poster Sessions (Including Student Paper Competition), Exhibits, & Coffee Break						
10:00							
10:30	**Official Opening and Awards** *(Room 710)*						
11:00							
11:30	**Plenary Session** *(Room 710)*						
12:00							
12:30	Lunch On Your Own		Mentorship Lunch *(Room 725)*			Awards Lunch (Invite Only) *(Room 515)*	
13:00							
13:30							
14:00	A3L-01 MIM: Multi-modal/Multi-modality Imaging	A3L-02 MSR: Super-Resolution on the Brain	A3L-03 MTN: Theranostic Treatment Monitoring	A3L-04 Spotlight Session: Wearable and Distributed Sensors	A3L-05 PGP: General Physical Acoustics I	A3L-06 ASD: SAW Devices	A3L-07 MPA: System Development
14:30							
15:00							
15:30	Poster Sessions (Including Student Paper Competition), Exhibits, & Coffee Break **Oral Sessions (Including Clinical Session)**				Verasonics Seminar *(Room 725)*		
16:00							
16:30	A5L-01 Invited Session: Advances in Clinical Ultrasound	A5L-02 MBF: New Blood Flow Imaging Techniques	A5L-03 MTH: Cavitation Based Therapy	A5L-04 NSH: Structural Health Monitoring	A5L-05 PAT: Acoustic Tweezers and Particle Manipulation I	A5L-06 ASM: SAW Modelling	A5L-07 TPF: Haptics and Gesture Recognition Systems
17:00							
17:30							
18:00	Ultrasonics Awards *(Room 710)*						
18:30							
19:00	**Welcome Reception** *(Room 517CD)*						
19:30							
20:00							
20:30							
21:00							

IEEE IUS 2023

PROGRAM AT A GLANCE

TUESDAY, SEPTEMBER 5

8:00 8:30 9:00	B1L-01 MIS: Aberration Correction	B1L-02 MSR: Super-Resolution on Cancer	B1L-03 MTH: Drug Delivery	B1L-04 MEL: New Elastography Methods	B1L-05 PGP: General Physical Acoustics II	B1L-06 ABD: BAW Devices	B1L-07 TPM: Piezoelectric Transducer Materials and Novel Applications
9:30 10:00 10:30	Poster Sessions, Exhibits, & Coffee Break						
11:00 11:30	B3L-01 MTC: Ultrasound Estimation of Sound Speed	B3L-02 MIS: Cardiovascular Imaging	B3L-03 MBE: Stimulatory and Therapeutic Bioeffects	B3L-04 NAF, NUA: Acoustic Microfluidics and Underwater Acoustics	B3L-05 Spotlight Session: GHz and Integrated Acoustic Devices	B3L-06 MTC: Cancer Tissue Characterization	B3L-07 TMU: Capacitive Micromachined Ultrasonic Transducers
12:00 12:30 13:00	Lunch On Your Own				Women in Engineering Lunch *(Room 725)*		
13:30 14:00 14:30	B4L-01 MBB: Speed of Sound Estimation and Correction	B4L-02 MBF: Vector Flow Imaging	B4L-03 MTH: Neuromodulation	B4L-04 NAS: Acoustic Sensors	B4L-05 POA: Laser Ultrasonics and Acousto-Optics	B4L-06 ABF: BAW Devices for High Frequencies	B4L-07 MSD: Ultrasound Array Systems and Applications
15:00 15:30 16:00	Poster Sessions, Exhibits, & Coffee Break						
16:30 17:00 17:30	B6L-01 MIM: 3D/4D Imaging	B6L-02 MCA: Contrast Agent Imaging and Quantification	B6L-03 MTN: Image Guided Theranostics	B6L-04 NPA, NWP, NEH: Photoacoustics, Wave Propagation, and Energy Harvesting	B6L-05 MEL: Wave Propagation in Soft Tissue	B6L-06 MTC: Tissue Characterization Methods and Applications I	B6L-07 TTT: Wireless Power Transfer and Communication for Implants
18:00 18:30 19:00	Transitions to Industry *(Room 515)*			T-UFFC Meet-the-EIC Open Session *(Room 725)*			
19:30							

IEEE IUS 2023

PROGRAM AT A GLANCE

WEDNESDAY, SEPTEMBER 6

8:00 8:30 9:00	C1L-01 MIM: Novel Applications of Ultrasound Imaging	C1L-02 MEL: Cardiovascular Elastography	C1L-03 MSR: Super-Resolution Techniques	C1L-04 NSP: Signal Processing	C1L-05 MBB: Core Beamforming for Improved Image Quality	C1L-06 AMR: Microacoustic Resonators	C1L-07 MSD: Systems for Imaging and Therapy Monitoring
9:30 10:00 10:30	Poster Sessions, Exhibits, & Coffee Break						
11:00 11:30	C3L-01 MIS: Deep Learning for Image Segmentation	C3L-02 MBF: Functional Ultrasound and Contrast-Free Microvascular Imaging	C3L-03 MPA: Imaging Therapy	C3L-04 MEL: Advances in Elastography Analsyis	C3L-05 PNL: Nonlinear Physical Acoustics	C3L-06 AMD: Microacoustic Novel Devices	C3L-07 TMI: Wearable and Flexible Transducers
12:00 12:30 13:00	Lunch On Your Own			Student Pitch Competition *(Room 515)*			
13:30 14:00 14:30	C4L-01 MBB: Novel Beamforming Approaches	C4L-02 MIM: Ultrafast Doppler/fUS Imaging	C4L-03 MTN: Novel Theranostic Agents	C4L-04 NTC: Transducers for NDE and Industrial Applications	C4L-05 PMI: Modelling and Inversion	C4L-06 MTC: Tissue Characterization Methods and Applications II	C4L-07 TMI: Diagnostic and Therapeutic Transducers
15:00 15:30 16:00	Poster Sessions, Exhibits, & Coffee Break						
16:30 17:00 17:30	C6L-01 MIS: Image Enhancement I	C6L-02 MBF: Cardiovascular and Cerebrovascular Flow Imaging	C6L-03 MCA: Bubble Technology	C6L-04 NPC, NFM: Process Control, Industrial Ultrasound, and Flow	C6L-05 MEL: Elastography of Liver and Prostate	C6L-06 ASS: Sensors and Delay Lines	C6L-07 TTT: Miniaturized Therapeutic and Interventional Ultrasound Transducers
18:00 18:30	President's Reception (Invite Only) *(Room 725)*						
19:00 19:30 20:00 20:30 21:00 21:30	Gala Dinner *(Room 517CD)*						
22:00							

IEEE IUS 2023

PROGRAM AT A GLANCE

THURSDAY, SEPTEMBER 7

8:00	D1L-01 MIM: Novel Imaging Techinques I	D1L-02 MIS: Microvascular and Flow Imaging	D1L-03 MSD: Systems for Imaging and Therapy Delivery	D1L-04 NMC: Material & Defect Characterization	D1L-05 PTF: Thin Films	D1L-06 MSR: Super-Resolution From The Neck Down	D1L-07 TMU: Optome-chanical and Electrostrictive Transducers
8:30							
9:00							
9:30	Coffee Break & Exhibits		Student/Professional Networking *(Room 515)*		YP Event: Industry Startup Talk *(Room 725)*		
10:00							
10:30							
11:00	D2L-01 MIM: Novel Imaging Techinques II	D2L-02 MPA: Functional and Molecular Imaging	D2L-03 MIS: Machine Learning for Image Analysis	D2L-04 NAI: Acoustic Imaging and Microscopy	D2L-05 PAT: Acoustic Tweezers and Particle Manipulation II	D2L-06 AMA: Materials for Acoustic Wave Devices	D2L-07 MTH: Therapy Devices
11:30							
12:00	Lunch On Your Own		Industry Demo Event *(Room 515)*		YP Event: Young Faculty Tips *(Room 725)*		
12:30							
13:00							
13:30	D4L-01 MIS: Imaging1	D4L-02 MIM: Cardiovascular Imaging	D4L-03 MBB: Sidelobe and Clutter Mitigation	D4L-04 NDE: General NDE Methods	D4L-05 Special Session: Industry Research and Industry-Academia Partnerships	D4L-06 MTC: Liver Tissue Characterization	D4L-07 TMI: Miniaturized Imaging and Therapeutic Transducers
14:00							
14:30							
15:00	Closing Session *(Vancouver Room)*						
15:30							
16:00							
16:30							

FRIDAY, SEPTEMBER 8

8:00 - 17:00	Satellite Symposium *(Halifax Room)*

Monday, September 4: Lectures

	Room 1 (Yellowknife) **A1L-01: MIS: Deep Learning for Image Enhancement** **Chair(s):** Hassan Rivaz (Concordia University), Duong Hung Pham (University of Toulouse)	**Room 2 (Vancouver)** **A1L-02: MTC: Blood and Cardiac Tissue Characterization** **Chair(s):** Francois Destrempes (University of Montreal)	**Room 3 (Calgary)** **A1L-03: MCA: Therapy and Drug Delivery** **Chair(s):** Klazina Kooiman (Erasmus)	**Room 4 (Winnipeg)** **A1L-04: MSD: Wearable Systems and Devices** **Chair(s):** Steven Freear (University of Leeds), Sheng Xu (University of California at San Diego)
8:00 AM	**Quality Enhancement of Ultrafast Ultrasound Images with Deep Networks and Transfer Learning** Roser Viñals, Samuel Beuret, Jean-Philippe Thiran *École polytechnique fédérale de Lausanne, Switzerland*	**Detection of Natural Mechanical Waves in the Heart Using Directional Clutter Filter Wave Imaging (DCFWI)** Stefano Fiorentini{1}, Mohammad Mohajery{1}, Lasse Løvstakken{1}, Sebastien Salles{2} *{1}NTNU, Norway; {2}Sorbonne Université, CNRS UMR 7371, INSERM UMR S 1146, NTNU, France*	**An Optical and Acoustic Investigation of Size Isolated Bubble Behavior in Small Channels Under Therapeutic Ultrasound Conditions** Xiaoxiao Zhao{2}, Amin Sojahrood{1}, Alex Wright{1}, David Goertz{2} *{1}Sunnybrook Research Institute, Canada; {2}University of Toronto, Canada*	**Wearable Ultrasound System for Controlling Upper-Limb Prosthetic Hand** Ahmed Bashatah, Zahra Taghizadeh, Ahbishek Aher, Laura De Marzi, Afsana Rima, Parag Chitnis, Siddhartha Sikdar *George Mason University, United States*
8:15 AM	**DeepCEUS: Interleaved Signals Estimation in Checkerboard Imaging for Contrast Media Imaging Using Context-Aware Deep Learning** Mariam Fouad, Thomas Lisson, Georg Schmitz *Ruhr University Bochum, Germany*	**Quantitative Ultrasound Inflammation Biomarker on a Covid-19 Cohort** Boris Chayer{2}, François Destrempes{2}, Marie-Hélène Roy Cardinal{2}, Louise Allard{2}, Hassan Rivaz{1}, Madeleine Durand{2}, William Beaubien-Souligny{2}, Martin Girard{2}, Guy Cloutier{2} *{1}Concordia University, Canada; {2}University of Montreal Hospital Research Center, Canada*	**Investigating the Fragment Species of drug-Loaded microbubbles Under Ultrasound Sonications** Chia-Wei Lin{2}, Ching-Hsiang Fan{1}, Chih-Kuang Yeh{2} *{1}National Cheng Kung University, Taiwan; {2}National Tsing Hua University, Taiwan*	**Complete Cardiorespiratory Monitoring via Wearable Ultra-Low Power Ultrasound** Sergei Vostrikov{1}, Luca Benini{2}, Andrea Cossettini{1} *{1}ETH Zurich, Switzerland; {2}ETH Zurich / University of Bologna, Switzerland*
8:30 AM	**Deep Learning Based Ultrafast Ultrasound Imaging for Motion Estimation: an in Vitro Validation** Jingfeng Lu{2}, Fabien Millioz{1}, Damien Garcia{1}, Denis Friboulet{1}, Yi Zhang{2} *{1}CREATIS, France; {2}Sichuan University, China*	**Assessment of Myocardial Stiffness in Mice Through Natural Shear Wave Velocity Estimation** Guoxuan Xu, Hsin Huang, Chih-Chung Huang *National Cheng Kung University, Taiwan*	**Microbubble-Mediated Modulation of Endothelial Surface Expression of ICAM-1** Elahe Memari{1}, Ryan Alkins{2}, Brandon Helfield{1} *{1}Concordia University, Canada; {2}Queen's University, Canada*	**A Wearable Device for Simultaneous Muscle Assessment with Real Time Ultrasound (SMART-US) During Dynamic Activity** Erica King, Ahmed Bashatah, Brian Guthrie, Margaret Jones, Qi Wei, Siddhartha Sikdar, Parag Chitnis *George Mason University, United States*
8:45 AM	**Dehazing Ultrasound with Diffusion Models** Tristan Stevens{1}, Jean-Luc Robert{2}, Faik Meral{2}, Jun Seob Shin{2}, Jason Yu{2}, Ruud van Sloun{1}	**Microstructure of Red Blood Cell Suspensions Probed by ultrasound: Effect of the Cell Deformability** Marie Poulain-Zarcos{1}, Francisco Rojas-Pérez{4}, Laurence	**The Effect of Consecutive Pulses on Cell sonoporation and ATP Release in vitro** Marie Amate{4}, Ju Jing Tan{1}, Francis Boudreault{1}, Ryszard	**A Wearable Ultra-Low Power sEMG-Triggered Ultrasound System for Long-Term Muscle Activity Monitoring** Sebastian Frey{1}, Victor Kartsch{1}, Christoph Leitner{1}, Andrea

	{1}Eindhoven University of Technology, Netherlands; {2}Philips Research, United States	Bergougnoux{2}, Simon Mendez{4}, Emilie Franceschini{3} *{1}Aix Marseille University, CNRS, France; {2}Aix Marseille University, CNRS, IUSTI, France; {3}Aix Marseille University, CNRS, LMA, France; {4}Institut Montpellierain Alexander Grothendieck, CNRS, Univ. Montpellier, France*	Grygorczyk{4}, Thomas Gervais{2}, François Yu{3} *{1}Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Canada; {2}Ecole Polytechnique Montréal, Canada; {3}Université de Montréal, Canada; {4}University of Montréal, Canada*	Cossettini{1}, Sergei Vostrikov{1}, Simone Benatti{3}, Luca Benini{2} *{1}ETH Zürich, Switzerland; {2}ETH Zürich, University of Bologna, Switzerland; {3}University of Bologna, University of Modena and Reggio Emilia, Italy*
9:00 AM	**Self-Supervised Learning-Based Parametric-Free Noise Suppression Technique for Fast Optical Resolution Photoacoustic Microscopy** Hyemin Yang{2}, Kyungeun Lee{2}, Dongkyu Jung{2}, Sangwoo Nam{2}, Nizar Guezzi{2}, Thanh Dat Le{1}, Changho Lee{1}, Jaesok Yu{2} *{1}Chonnam National University Medical School & Hwasun Hospital, Vietnam; {1}Chonnam National University Medical School & Hwasun Hospital, Korea; {2}DGIST, Tunisia; {2}DGIST, Korea*	**Complete 3D Anisotropy Measurement with Coherence Imaging** Raphael Dumas, Baptiste Pialot, Francois Varray *Creatis, France*	**The Role of F-Actin Cytoskeleton in microbubble-Mediated Endothelial cell-Cell Contact Opening** Bram Meijlink{2}, Rhodé van der Kooij{2}, Yuchen Wang{2}, Hongchen Li{2}, Stephan Huveneers{1}, Klazina Kooiman{2} *{1}Amsterdam UMC, Netherlands; {2}Erasmus MC, Netherlands*	**Hand Gesture Recognition via Wearable Ultra-Low Power Ultrasound and Gradient-Boosted Tree Classifiers** Sergei Vostrikov{1}, Matteo Anderegg{1}, Christoph Leitner{1}, Luca Benini{2}, Andrea Cossettini{1} *{1}ETH Zurich, Switzerland; {2}ETH Zurich / University of Bologna, Switzerland*
9:15 AM	**Deep Learning Based Single-Shot Focused Tissue Harmonic Imaging: an in-Vivo Study** Mariam Fouad, Georg Schmitz *Ruhr University Bochum, Germany*	**Validation of Ultrasound Detection of transmural myofiber Orientation in Excised Human Ventricular Myocardium** John Cormack{2}, Katherine Leclaire{2}, Marc Simon{1}, Kang Kim{2} *{1}University of California San Francisco, United States; {2}University of Pittsburgh, United States*	**Intravital Imaging of Focused ultrasound-Stimulated nanodroplets in Tumour Microvasculature** Carly Pellow{2}, Amin Jafari Sojahrood{2}, Xiaoxiao Zhao{2}, Michael Kolios{3}, Agata Exner{1}, David Goertz{2} *{1}Case Western Reserve University, United States; {2}Sunnybrook Research Institute, Canada; {3}Toronto Metropolitan University, Canada*	**Design of a Robust Lung Sound Acquisition System for Reliable Acoustic Lung Imaging** Chang Sheng Lee{3}, Minghui Li{2}, Yaolong Lou{1}, Ravinder Dahiya{2} *{1}Hillrom(Baxter), Singapore; {2}University of Glasgow, United Kingdom; {3}University of Glasgow/Hillrom(Baxter), Singapore*

Monday, September 4: Lectures

	Room 5 (Montreal) **A1L-05: Spotlight Session: Metamaterials and GHz Ultrasonics** **Chair(s):** Omer Oralkan (NC State University)	Room 6 (Halifax) **A1L-06: MPA: Image Formation and Processing** **Chair(s):** John Hossack (University of Virginia)	Room 7 (Toronto) **A1L-07: TMU: Piezoelectric Micromachined Ultrasonic Transducers** **Chair(s):** Levent Degertekin (Georgia Institute of Technology), Christine Démoré (University of Toronto)
8:00 AM	**(INVITED) How Does a Material Control Wave Dynamics in Polymer Elastic metamaterials: Case Studies and Experiments** Anastasiia O. Krushynska *Rijksuniversiteit Groningen, Netherlands*	**Photoacoustic Digital Brain and its Image Reconstruction** Fan Zhang{2}, Jiadong Zhang{2}, Yuting Shen{2}, Zijian Gao{2}, Changchun Yang{2}, Mingtao Liang{2}, Feng Gao{2}, Hulin Zhao{1}, Fei Gao{2} *{1}Chinese PLA General Hospital, China; {2}ShanghaiTech University, China*	**Real-Time B-Mode Imaging Using a Fully Flexible Ultrasound Array Transducer** Paul van Neer, Lars Horchens, Laurent Fillinger, Laurens Peters, Bart Peeters, Roy Verbeek, Thijs Schrama, Egon Merks-Swolfs, Arno Volker, Gerwin Gelinck *TNO, Netherlands*
8:15 AM		**Evaluation of Photoacoustic and Ultrasound Vector Flow Imaging for Slow Flow** Caitlin Smith{2}, Jami Shepherd{2}, Guillaume Renaud{1}, Kasper van Wijk{2} *{1}Department of Imaging Physics, Delft University of Technology, Netherlands; {2}Department of Physics, University of Auckland, New Zealand*	**Performance Analysis of Wideband PMUTs: a Comparative Study Between Sol-Gel PZT, PVD PZT, and 15% ScAlN-Based Arrays Through Experimental Evaluation** Alessandro Stuart Savoia{2}, Domenico Giusti{3}, Carlo Luigi Prelini{3}, Yul Koh{1}, Alberto Leotti{3}, Peter Chang{1}, Joshua Lee{1}, Marco Ferrera{3} *{1}Institute of Microelectronics, Agency for Science, Technology and Research, Singapore; {2}Roma Tre University, Italy; {3}STMicroelectronics, Singapore; {3}STMicroelectronics, Italy*
8:30 AM	**(INVITED) Surface Wave Imaging in Phononic Cavities** Oliver Wright *Hokkaido University, Japan*	**Intelligent Diagnosis of Osteoporosis Based on Wavelet Scattering Network** Wenyi Xu, Weiya Xie, Qian Cheng *Tongji University, China*	**Ultrasound Imaging with a 128 Channels Piezoelectric Micromachined Ultrasound Transducer (pMUT): Single-Line-Transmission vs. Plane-Wave** Sina Sadeghpour, Rui Amendoeira Esteves, Michael Kraft *KU Leuven, Belgium*
8:45 AM		**Improving Axial Resolution of Optical Resolution Photoacoustic Microscopy with Advanced Frequency Domain Eigenspace Based Minimum Variance Beamforming Method** Yu-Hsiang Yu, Meng-Lin Li *National Tsing Hua University, Taiwan*	**DC-Bias Effects on Sputtered PZT pMUTs with High Transmit and Receive Sensitivities in Immersion for Imaging Applications** Mantalena Sarafianou{1}, David Sze Wai Choong{1}, Duan Jian Goh{1}, Jihang Liu{1}, Srinivas Merugu{1}, Qing Xin Zhang{1}, Peter Hyun Kee Chang{1}, Domenico Giusti{2}, Laura Castoldi{2}, Filippo D'ercoli{2}, Riccardo Tacchini{2}, Alberto Leotti{2}, Dao Hao

Monday, September 4: Lectures

			{1}Institute of Microelectronics, Singapore; {2}ST Microelectronics, Singapore; {2}ST Microelectronics, Italy; {3}Università degli Studi Roma Tre, Italy
9:00 AM	**(INVITED) GHz Ultrasonics for the Masses** Amit Lal *Cornell University, United States*	**Deep-learning-Based Photoacoustic Image Segmentation and Oximetry with Uncertainty Quantification** Geoffrey Luke{1}, Ruibo Shang{2} *{1}Dartmouth College, United States; {2}University of Washington, United States*	**A 50x20 Row-Column Addressed PMUT Array on Silicon Substrate for Imaging** Sanjog Joshi, Sina Sadeghpour, Michael Kraft *KU Leuven, Belgium*
9:15 AM		**Frequency-Selected Adaptive Matched Filter De-Noising for Photoacoustic Imaging** Ziye Li, Peng Ge, Shangqing Tong, Yiyun Wang, Feng Gao, Fei Gao *ShanghaiTech University, China*	**Arbitrary High Voltage Biasing Electronics for Ultrasonic Synthetic Phase Alternating Row-Column (SPARC) Arrays** Randy Palamar{2}, Michael Caulfield{2}, Jeremy Brown{1}, Roger Zemp{2} *{1}Dalhousie University, Canada; {2}University of Alberta, Canada*

	Room 1 (Yellowknife) **A3L-01: MIM: Multi-modal/Multi-modality Imaging** **Chair(s):** Richard Lopata (Eindhoven University)	**Room 2 (Vancouver)** **A3L-02: MSR: Super-Resolution on the Brain** **Chair(s):** Matthew Bruce (University of Washington), Olivier Couture (CNRS, Sorbonne Universite, INSERM)	**Room 3 (Calgary)** **A3L-03: MTN: Theranostic Treatment Monitoring** **Chair(s):** Tali Ilovitsh (Tel-Aviv University), Raag Airan (Stanford University)	**Room 4 (Winnipeg)** **A3L-04: Spotlight Session: Wearable and Distributed Sensors** **Chair(s):** Alfred Yu (University of Waterloo)
1:45 PM	**Whole-Brain minimally-Invasive Perfusion Monitoring Using Multimodal Ultrasound** Anatole Jimenez{2}, Bruno Osmanski{1}, Denis Vivien{3}, Mickael Tanter{2}, Thomas Gaberel{4}, Thomas Deffieux{2} *{1}Iconeus, France; {2}Physics for Medicine Paris, INSERM U1273, ESPCI, CNRS, PSL University, France; {3}Physiopathology and Imaging of Neurological Disorders, GIP Cyceron, France; {4}Physiopathology and Imaging of Neurological Disorders, GIP Cyceron, Université de Caen, France*	**Imaging of the Macaque Brain Microvasculature Using 3D Ultrasound Localization Microscopy** Paul Xing{1}, Vincent Perrot{1}, Adan Ulises Dominguez-Vargas{2}, Stephan Quessy{2}, Numa Dancause{2}, Jean Provost{1} *{1}Polytechnique Montreal, Canada; {2}Université de Montréal, Canada*	**Assessment of the Focused Ultrasound Induced Thermal Lesion Size Using Multi-Frequency Single Transducer Harmonic Motion Imaging** Md Murad Hossain, Xiaoyue Li, Yueying Qiu, Elisa Konofagou *Columbia University, United States*	**(INVITED) Bioadhesive Ultrasound for Long-Term Continuous Simultaneous Imaging of Multiple Organs** Xuanhe Zhao *MIT, United States*
2:00 PM	**Development of a Probe Clip-on Device for Multimodal 3D Ultrasound Imaging with High Volume Rate**	**Transcranial Functional Ultrasound Localisation Microscopy in Mice**	**A Clinical Study of Echo decorrelation Imaging During Percutaneous Thermal Ablation of Hepatocellular Carcinoma**	

	Zhijie Dong{3}, Shuangliang Li{2}, Xiaoyu Duan{2}, Matthew Lowerison{3}, Chengwu Huang{1}, Qi You{3}, Shigao Chen{1}, Jun Zou{2}, Pengfei Song{3} *{1}Mayo Clinic College of Medicine and Science, United States; {2}Texas A&M University, United States; {3}University of Illinois Urbana-Champaign, United States*	**Reveals brain-Wide Phenotype of Small Vessel Diseases** Nicolas Zucker, Jeremy Thalgott, Thomas Deffieux, Franck Lebrin, Mickael Tanter *Physics for Medicine Paris, France*	Mohamed A. Abbass{2}, Sherif Hussein{2}, Ossama Zein El-Dein{1}, Mohamed Elwarraky{3}, Ashraf Bayoumi{3}, T. Douglas Mast{4} *{1}Maadi Armed Forces Medical Complex, Egypt; {2}Military Technical College, Egypt; {3}National Liver Institute, Egypt; {4}University of Cincinnati, United States*	
2:15 PM	**Ultrasound Fat Fraction Estimation Using multiparametric analysis: Comparison with MRI-PDFF** Jihye Baek{1}, Lokesh Basavarajappa{2}, Kenneth Hoyt{2}, Kevin Parker{1} *{1}University of Rochester, United States; {2}University of Texas at Dallas, United States*	**Volumetric Ultrasound Localization Microscopy for the Preclinical Detection and Analysis of Glioblastoma in Mice: a Longitudinal Study** Jacob McCall, Ryan Deruiter, Gianmarco Pinton, Paul Dayton *UNC Chapel HIll, United States*	**Active Cavitation Imaging Using Equivalent Time Sampling for Therapy Monitoring** Samuel Desmarais{2}, Jonathan Poree{2}, Gerardo Ramos-Palacios{1}, Stephen A. Lee{2}, Abbas F. Sadikot{1}, Jean Provost{2} *{1}McGill University, Canada; {2}Polytechnique Montreal, Canada*	**(INVITED) Frequency Steerable Transducers for Ultrasonic Structural Health Monitoring** Luca De Marchi, Masoud Mohammadgholiha, Marco Dibiase *University of Bologna, Italy*
2:30 PM	**Integrated US-OCT-NIRF Endoscopic Imaging System for Comprehensively Study of Morphological and Microvascular Progression of CRC** Ruiming Kong, Bing Wang, Zhuoquan Chen, Qi Zhang, Yuting Song, Hairong Zheng, Teng Ma *Shenzhen Institutes of Advanced Technology， Chinese Academy of Sciences, China*	**Correcting Skull-Induced Phase Aberrations in Transcranial Ultrasound Localization Microscopy** Victor Blanvillain, Dimitris Perdios, Nathalie Ialy-Radio, Justine Robin, Charlie Demene, Mickael Tanter *Physics for Medecine Paris, France*	**A Dual-Mode Spherically Focused Theranostic Phased Array for CNS Application** Chun Fu, Tzu-Tsen Hsieh, Hao-Li Liu *Department of Electrical Engineering, National Taiwan University, Taiwan*	
2:45 PM	**A multi-Center head-to-Head Comparison Study of Ultrasound Methods for Staging Hepatic Steatosis and Fibrosis in 1075 Chronic HIV Infected Patients** Gert Weijers{3}, Louise Eekeren{3}, Marc Blaauw{3}, Albert Groenendijk{1}, Willem Vos{2}, Eric Tjwa{3}, Andre van de Ven{3}, Chris de Korte{3} *{1}ErasmusMC, Netherlands; {2}OLVG, Netherlands; {3}Radboudumc, Netherlands*	**3D transcranial Dynamic Ultrasound Localization Microscopy in the Mouse Brain Using a High Frequency Row-Column Array** Alice Wu{2}, Jonathan Porée{2}, Gerardo Ramos-Palacios{1}, Chloé Bourquin{2}, Nin Ghigo{2}, Alexis Leconte{2}, Paul Xing{2}, Stephen Lee{2}, Abbas Sadikot{1}, Michaël Chassé{3}, Jean Provost{2} *{1}McGill University, Canada; {2}Polytechnique Montreal, Canada; {3}Universite de Montreal, Canada*	**Super-Resolved Extravascular Monitoring Technique Using Recondensation of theranostic nanodroplets** Anqi Huang, Shizhe An, Yuebo Wang, Mingxi Wan, Yujin Zong *School of Life Science and Technology, Xi'an Jiaotong University, China*	**(INVITED) Wearable Ultrasound Technologies for Continuous Deep Tissue Monitoring** Sheng Xu *University of California San Diego, United States*

Monday, September 4: Lectures

3:00 PM	**Hybrid Ultrasonic-Optics Tri-Modality Intravascular Imaging System for In-Vivo Assessment of in Stent Restenosis and Associated Inflammation** Zhuoquan Chen, Bing Wang, Qi Zhang, Ruiming Kong, Yuting Song, Hairong Zheng, Teng Ma *Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China*	**Functional Ultrasound Localization Microscopy (fULM) Reveals brain-Wide Neurovascular Activity on a Microscopic Scale** Noemi Renaudin, Charlie Demene, Alexandre Dizeux, Nathalie Ialy-Radio, Sophie Pezet, Mickael Tanter *Institute Physics for Medicine Paris, INSERM CNRS ESPCI PSL., France*	**Monitoring of Tissue Coagulation Treated by Continuous HIFU with Pulse Inversion Shear Wave Elastography** Wei-Cheng Hsiao, Bao-Yu Hsieh *Chang Gung University, Taiwan*	

	Room 5 (Montreal) **A3L-05: PGP: General Physical Acoustics I** **Chair(s):** Andreas Mayer (HS Offenburg - University of Applied Sciences, Gengenbach)	**Room 6 (Halifax)** **A3L-06: ASD: SAW Devices** **Chair(s):** Shogo Inoue (Qorvo, Inc.), Ryo Nakagawa (Murata Manufacturing Co., Ltd.)	**Room 7 (Toronto)** **A3L-07: MPA: System Development** **Chair(s):** Roger Zemp (University of Alberta), Hans-Martin Schwab (Eindhoven University of Technology)
1:45 PM	**Symmetry Considerations for the Existence of Secluded Supersonic Saws** Alexei Maznev *MIT, United States*	**Wideband Surface Acoustic Wave Resonator with Good Temperature Stability Using LiNbO3 and Glass with Low Coefficient of Thermal Expansion** Yong Guo, Michio Kadota, Yuji Ohashi, Shuji Tanaka *Tohoku University, Japan*	**A Translational Needle Photoacoustic Sensing Probe for Assessing Prostate Cancer Progression** Guan Xu, Linyu Ni, Wei-Kuan Lin, Aaron Udager, Jay Guo, Xueding Wang *University of Michigan, United States*
2:00 PM	**Limited-Diffraction Beams for Secure Fast Data Communications** Jian-Yu Lu *The University of Toledo, United States*	**SH-Mode Spurious Suppression Over a Wide Frequency Range Technique for TC-SAW with Inserting Middle Sin Layer** Yuya Hiramatsu, Tomoya Komatsu, Kyohei Kobayashi *Skyworks Solutions, Inc., Japan; Skyworks Solutions, Inc., United States*	**MRI-Compatible Transrectal Photoacoustic and Ultrasound Imaging System with Remote Mechanical Actuation** Ryo Murakami{4}, Yang Wang{4}, Ryosuke Tsumura{2}, Yichuan Tang{4}, Yasuyuki Tsunoi{1}, Christopher Nycz{4}, Wojciech Lesniak{3}, Martin Pomper{3}, Gregory Fischer{4}, Haichong Zhang{4} *{1}National Defence Medical College Research Institute, Japan; {2}National Institute of Advanced Industrial Science and Technology, Japan; {3}The Johns Hopkins University, United States; {4}Worcester Polytechnic Institute, United States*
2:15 PM	**Chiral Mode Switching in Acoustic Systems with Exceptional Points** Xiaoming Zhou, Youdong Duan, Linlin Geng *Beijing Institute of Technology, China*	**A Compact Band1-3 Quadplexer Using a Novel Surface Acoustic Wave Technology** Rich Ruby, Manjunath Swamy, Jalal Nilchi, Reed Parker, Lori Callaghan, Suresh Sridaran, Steve Gilbert *Broadcom Ltd, United States*	**Robot-Assisted Wide-Area Photoacoustic System** Shang Gao, Xihan Ma, Haichong Zhang *Worcester Polytechnic Institute, United States*

Monday, September 4: Lectures

2:30 PM	**Holographic Lenses for Generating Specific Acousto Thermal Fields in Volumes: Machine Learning Approach** Ceren Cengiz, Eric Hoffmann, Zekeriya Ender Eger, Eli Vlaisavljevich, Shima Shahab *Virginia Polytechnic Institute and State University, United States*	**The multi-Layered Super Low Loss SAW Device with High Heat Dissipation and ultra-Low Profile Using Sapphire Substrate** Takayuki Suzuki, Masayuki Kitajima, Motoi Yamauchi, Toshio Nishizawa *Taiyo Yuden mobile technology Co., Ltd., Japan*	**A photoacoustic-Ultrasound Balloon Catheter for Characterizing Intestinal Fibrosis** Guan Xu, Linyu Ni, Laura Johnson, Xiaorui Peng, Jonathan Rubin, Xueding Wang, Peter Higgins *University of Michigan, United States*
2:45 PM	**Time Dependent Structuring of Fluid Interfaces by Acoustic Radiation Pressure** Félix Sisombat{2}, Thibaut Devaux{2}, Samuel Callé{2}, Jere Hyvönen{1}, Axi Holmström{1}, Ari Salmi{1}, Lionel Haumesser{2} *{1}Electronics Research Laboratory, University of Helsinki, Finland; {2}GREMAN, UMR 7347, Université de Tours, France*	**Spurious-Free and Low-Loss Surface Acoustic Wave Filter Beyond 5 GHz** Liping Zhang, Shibin Zhang, Jinbo Wu, Pengcheng Zheng, Hulin Yao, Xiaoli Fang, Xin Ou *Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, China*	**Miniaturized Side-Firing Intracardiac Photoacoustic Imaging Catheter** Shang Gao{5}, Ryo Murakami{5}, Yang Wang{5}, Hiroshi Ashikaga{1}, Young-Ho Kim{3}, Mohammad Mehrmohammadi{4}, Henry Halperin{2}, Haichong Zhang{5} *{1}Hawaii Pacific Health Medical Group, United States; {2}Johns Hopkins University School of Medicine, United States; {3}Siemens Healthineers, United States; {4}University of Rochester, United States; {5}Worcester Polytechnic Institute, United States*
3:00 PM	**Novel Simulation of Ultrasonic Attenuation in Fourier Transform Analog Computing** Xing Haw Marvin Tan{2}, Daniel Ssu-Han Chen{3}, Viet Phuong Bui{2}, Zaifeng Yang{2}, Zibo Juan{4}, Amit Lal{1}, Ching Eng Png{2}, Kevin Tshun Chuan Chai{3} *{1}Cornell University, United States; {2}Institute of High Performance Computing (IHPC), Agency for Science, Technology & Research (ASTAR), Singapore; {3}Institute of Microelectronics (IME), Agency for Science, Technology & Research (ASTAR), Singapore; {4}National Junior College, Singapore*	**GHz Miniaturized Impedance Transformer Based on a Near-Spurious-Free Lithium Niobate-on-Insulator SAW Resonator** Tzu-Hsuan Hsu, Shao-Siang Tung, Chia-Hsien Tsai, Guan-Lin Wu, Ming-Huang Li *National Tsing Hua University, Taiwan*	**Volumetric tri-Modal Imaging with Combined photoacoustic, ultrasound, and Shear Wave elastography** Emily Zheng{1}, Huijuan Zhang{1}, Wentao Hu{2}, Marvin Doyley{2}, Jun Xia{1} *{1}University at buffalo, United States; {2}University of Rochester, United States*

Monday, September 4: Lectures

	Room 1 (Yellowknife) **A5L-01: Invited Session: Advances in Clinical Ultrasound** **Chair(s):** Elisa Konofagou (Columbia University)	Room 2 (Vancouver) **A5L-02: MBF: New Blood Flow Imaging Techniques** **Chair(s):** Damien Garcia (CREATIS), Anne Saris (Radboud University)	Room 3 (Calgary) **A5L-03: MTH: Cavitation Based Therapy** **Chair(s):** Zhen Xu (University of Michigan), Mathieu Pernot (INSERM)	Room 4 (Winnipeg) **A5L-04: NSH: Structural Health Monitoring** **Chair(s):** Lorenzo Capineri (Dipartimento ingegneria dell'informazione), Zehua Dou (Dresden University of Technology, Germany)
4:30 PM	**(INVITED) MR-Guided Focused Ultrasound in the Human Brain: Lessons Learned from Early Clinical Trials** Nir Lipsman *Sunnybrook Health Sciences Centre, Canada*	**Complex-Valued CNNs for Phase Shift Estimation in Color Doppler Imaging** Julia Puig, Fabien Millioz, Damien Garcia, Denis Friboulet *CREATIS, France*	**Degrading Blood Clots by histotripsy Within Millimeter Size Hollow Cylindrical Transducers for Use in Enhancing Aspiration thrombectomy** Li Gong{2}, Alex Wright{1}, Kullervo Hynynen{1}, David Goertz{1} *{1}Sunnybrook Research Institute, Canada; {2}Univeristy of Toronto, Canada*	**Defect Detection in Plate-Like Structures Using Piezoceramic Frequency Steerable Acoustic Transducers** Masoud Mohammadgholiha, Luca De Marchi *University of Bologna, Italy*
4:45 PM		**Spatial and Angular Coherence Factor Beamformer for Improved Ultrafast Power Doppler Imaging** Lijie Huang{2}, Yadan Wang{1}, Rui Wang{2}, Xingyue Wei{2}, Qiong He{2}, Chichao Zheng{1}, Hu Peng{1}, Jianwen Luo{2} *{1}Hefei University of Technology, China; {2}Tsinghua University, China*	**Volumetric nanodroplets-Enhanced Ultrasound Surgery Combined with Immunotherapy As a Cancer Therapy Platform** Bar Glickstein, Tali Ilovitsh *Tel Aviv University, Israel*	**Automated Structural Health Monitoring Using Piezoelectric Ultrasonic Transmitter and Laser Vibrometer** Voon-Kean Wong{1}, Qing Feng Tan{2}, Marilyne Philibert{1}, David Boon Kiang Lim{1}, Percis Teena Christopher Subhodayam{1}, Wai Tuck Chow{2}, Kui Yao{1} *{1}Institute of Materials Research and Engineering (IMRE), Singapore; {2}Nanyang Technological University, Singapore*
5:00 PM	**(INVITED) Ultrafast Echocardiography for Clinical Applications (Including SWE and Flow Imaging)** Olivier Villemain *The Hospital for Sick Children, Canada*	**WASHI: Wall Shear Imaging for Visualization of Hemodynamic Drag Force at the Vascular Wall** Adrian Chee, Chung Kit Ho, Billy Yiu, Alfred Yu *University of Waterloo, Canada*	**UTMC Effect on Cancer Cell apoptosis, proliferation, and Vascular Inflammation in Wild Type and CD39 Knock Out Mice Model of MC38 Colon Cancer** Sepideh Jahangiri, John Stagg, Francois Yu *University of Montreal, Canada*	**Dual Mode pMUT for Structural Health Monitoring of Piping System of Advanced Reactors** Taha Masood Khan{1}, John Sabino{2}, Chenxi Xu{1}, Javier Obregon{1}, Matthew Daly{1}, Alexander Heifetz{4}, Derek William Kultgen{3}, Didem Ozevin{1} *{1}Department of Civil, Materials, and Environmental Engineering, University of Illinois Chicago, United States;*

Monday, September 4: Lectures

				{2}Department of Electrical and Computer Engineering, United States; {3}Mechanisms Engineering Test Loop (METL) at Argonne National Laboratory
5:15 PM		**Enhancement of Ultrasound Microbubble and Blood Flow Signal Using Similarity Measurement** Chengwu Huang, U-Wai Lok, Jingke Zhang, Ping Gong, Shigao Chen *Mayo Clinic College of Medicine and Science, United States*	**Ultrasonic Cavitation Enhanced Stem Cells Transplantation to Improve Prognosis of Ischemic Stroke** Wei Dong{2}, Guihu Wang{2}, Wenjuan Li{2}, Yingxue Liang{2}, Heyuan Liu{2}, Mingxi Wan{1}, Yujin Zong{1}, Zongfang Li{2} *{1}School of Life Science and Technology, Xi' an Jiaotong University, China; {2}The Second Affiliated Hospital, Xi'an Jiaotong University, China*	**Corrosion Monitoring with High-Order Lamb Wave Mode Enabled by Direct-Write Ultrasonic Transducers** Voon-Kean Wong, Shuting Chen, Jing Wu, Kui Yao *Institute of Materials Research & Engineering, ASTAR, Singapore*
5:30 PM	**(INVITED) Role of Ultrasound elastography in the Management of Abdominal Aortic Aneurysm** Gilles Soulez{1}, Marie Helene Roy Cardinal{2}, Guy Cloutier{2} *{1}CHUM Université de Montréal, Canada; {2}CRCHUM, Canada*	**Volumetric Flow Rate Estimation Using a CMUT Density Tapered Spiral Array** Rebekah Maffett, Billy Yiu, Alfred Yu *University of Waterloo, Canada*	**Grey and White Matter Focused Ultrasound-Mediated Blood-Brain Barrier Opening in a Porcine Model** Alessandro De Maio{2}, Yuexi Huang{1}, Fa-Hsuan Lin{2}, Greg Stanisz{2}, Meaghan O'Reilly{2} *{1}Sunnybrook Research Institute, Canada; {2}University of Toronto, Canada*	**A Novel Fabrication Process for thin, flexible, Backside Accessible Polymer Based CMUTs for Acoustic Emission Measurements** Jonas Welsch, Carlos Daniel Gerardo, Robert Rohling, Edmond Cretu *The University of British Columbia, Canada*
5:45 PM		**Estimation of Arterial Trans-Stenotic Pressure Loss Using Color Doppler Imaging** Samaneh Choupani{1}, François Varray{1}, Bruno Gilles{2}, Jean-Christophe Béra{2}, Damien Garcia{1} *{1}CREATIS, France; {2}LabTAU, France*	**TRANSCRIPTOMIC Investigation of BIOEFFECTS from MICROBUBBLE and Focused Ultrasound Assisted Blood Brain Barrier Disruption** Jane Song{2}, Payton Martinez{2}, Kangho Song{2}, Francis Garay{1}, Toni Mufford{1}, Adam Green{1}, Nataile Serkova{1}, Mark Borden{2} *{1}University of Colorado Anschutz Medical Campus, United States; {2}University of Colorado Boulder, United States*	**Unsupervised Damage Detection in Uncontrolled Structural Health Monitoring Under Dynamic and Noisy Conditions** Kang Yang, Joel B. Harley *University of Florida, United States*

Monday, September 4: Lectures

	Room 5 (Montreal) **A5L-05: PAT: Acoustic Tweezers and Particle Manipulation I** **Chair(s):** Jae Youn Hwang (Daegu Gyeongbuk Institute of Science & Technology)	Room 6 (Halifax) **A5L-06: ASM: SAW Modelling** **Chair(s):** Karl Wagner (Qualcomm / RF360 Europe GmbH), Ken-ya Hashimoto (Chiba University)	Room 7 (Toronto) **A5L-07: TPF: Haptics and Gesture Recognition Systems** **Chair(s):** Jessica Liu Strohmann (Qualcomm Inc.), Yipeng Lu (Peking University)
4:30 PM	**Visualized In-Vivo Acoustic Manipulation of Genetically Engineered Bacteria** Ye Yang, Yaozhang Yang, Dingyuan Liu, Yuanyuan Wang, Minqiao Lu, Qi Zhang, Jiqing Huang, Yongchuan Li, Fei Yan, Teng Ma, Hairong Zheng *Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China*	**Optimized Apodization to Suppress Transverse Modes in Guided SAW Resonators** Shogo Inoue{2}, Tsuyoshi Yokoyama{1}, Hao Dong{2}, Mark Gallagher{2}, Marc Solal{2} *{1}Qorvo Japan, Japan; {2}Qorvo, Inc., United States*	**Accurate and Robust Eye Tracking with Ultrasound: a Computational Study** Ning Lu{2}, Francesco Larocca{1}, Sachin Talathi{1} *{1}Meta, Reality Labs Research, United States; {2}University of Michigan, United States*
4:45 PM	**Tunable Nanorods Aggregation Using Acoustic Streaming Tweezers for Surface-Enhanced Raman Scattering** Siyuan Liu, Shuaihua Zhang, Ziyu Han, Xiaoyu Wu, Xuexin Duan *Tianjin University, China*	**Impact of Slowness Shape on Anti-Resonance Q of SAW Resonators** Yiwen He, Ting Wu, Zijiang Yang, Ying Yang, Jingfu Bao, Ken-Ya Hashimoto *University of Electronic Science and Technology of China, China*	**Single-Layer Corrugated Aluminum Nitride Membranes As Piezoelectric Micromachined Ultrasonic Transducer with Differential Readout and Actuation** Gabriele Bosetti{2}, Christian Bretthauer{1}, Michael Steinberger{1}, Karolina Gierl{1}, Michael Krenzer{1}, Gabriele Schrag{2} *{1}Infineon Technologies AG, Germany; {2}Technical University of Munich, Germany*
5:00 PM	**Smart Microfluidic System Enabled High-Throughput Nanoparticle Separation Based on GHz Acoustofluidic Tweezers Array Chip** Luyao Li, Shuying Wang, Yujie Wei, Shiyu Li, Weiwei Cui *Tianjin University, China*	**Optimization of Full 3D Hierarchical Cascading Technique for Surface Acoustic Wave Device Simulations** Dongchen Sui, Shibin Zhang, Hulin Yao, Pengcheng Zheng, Mijing Sun, Xiaoli Fang, Liping Zhang, Jinbo Wu, Xin Ou *Shanghai Institute of Microsystem and Information Technology, Shanghai, China, China*	**HIGH-Performance Ultrasonic Transducer Using Single Crystal PMN-PZT Integrated with Hologram Display for MID-Air Haptic Feedback System in Vehicle** Byung Chul Lee{3}, Seonghun Cho{3}, Soo Young Jeong{3}, Min-Seok Kim{3}, Donggu Kim{1}, Janghyeon Lee{1}, Seung-Hyub Baek{3}, Jae-Woong Jeong{2} *{1}Hyundai Motor Company, Korea; {2}Korea advanced Institute of Science and Technology (KAIST), Korea; {3}Korea Institute of Science and Technology (KIST), Korea*
5:15 PM	**Development of Acoustic Force Spectroscopy to Measure the Viscoelasticity of Suspended Cells** Alexandre Ortega{1}, Claire Valotteau{1}, Felix Rico{1}, Emilie Franceschini{2} *{1}Adhesion and Inflammation Lab (LAI)/ INSERM U1067 CNRS UMR 7333, France; {2}Laboratoire de Mécanique et d'Acoustique LMA - UMR 7031 AMU - CNRS - Centrale Marseille, France*	**Influence of Orientation Angle of IDT Electrode on Third-Order Harmonics of SAW Devices** Ryo Nakagawa, Haruki Kyoya, Hiroshi Shimizu *Murata Manufacturing Co., Ltd., Japan*	**PMUT Array for Mid-Air Thermal Display** Fan Xia{2}, Huicong Deng{2}, Wei Yue{2}, Yande Peng{2}, Ryuichi Arakawa{1}, Liwei Lin{2} *{1}NGK Spark Plug Co., JAPAN, Japan; {2}University of California, Berkeley, United States*

Monday, September 4: Lectures

5:30 PM	**Deformability Measurement of adipose-Derived Stem Cell 3D Spheroids by Acoustic Tweezers** Honghyeon Ha, Yuri Kang, Jinhee Yoo, Hyung Ham Kim *Pohang University of Science and Technology, Korea*	**Enhancement of Quality Factor Using Dummy Electrodes at Nonsymmetric In-Plane Rotation Angles in LiTaO3/SiO2/Sapphire SAW Resonators** Hulin Yao, Shibin Zhang, Jinbo Wu, Liping Zhang, Pengcheng Zheng, Xiaoli Fang, Dongchen Sui, Mijing Sun, Xin Ou *Shanghai Institute of Microsystem and Information Technology, Shanghai, China, China*	**Large Area Multi-Functional Under-Display Ultrasound Sensor: Fingerprint, Passive Stylus, Heart Rate, Force Sensing, Contact Gesture** Jessica Liu Strohmann, Gordon Thomas, Kohei Azumi, Changting Xu, Soon Joon Yoon, Hrishikesh Panchawagh, Jae Hyeong Seo, Kostadin Djordjev, Samir Gupta *Qualcomm, United States*
5:45 PM	**Efficient Concentration of Cells in Petri Dishes Using a Miniaturized Acoustic Vortex** Shifang Guo, Yan Li, Zhen Ya, Yi Feng, Mingxi Wan *Xi'an Jiaotong University, China*	**Study on Suppression of Higher-Order Modes in I.H.P. SAW Devices** Ryo Nakagawa, Motoki Ozasa, Akira Michigami, Hideki Iwamoto *Murata Manufacturing Co., Ltd., Japan*	**Overcoming In-Band Interference in Airborne Ultrasounds: a Robust System Design** Alessandra Fusco{1}, Andreas Froemel{1}, Martin Krueger{1}, Christian Bretthauer{1}, Lorenzo Servadei{2}, Robert Wille{2} *{1}Infineon Technologies AG, Germany; {2}Technical University of Munich, Germany*

Monday, September 4: Posters (9:30 – 10:30 AM, 3:15 – 4:30 PM)

Student Paper Competition

Group 1

SPC-1: Imaging Human Brain Vasculature Using Ultrafast 4D Ultrasound
Luuk Verhoef

SPC-2: Electromechanical Wave Imaging for Mitral Valve Disease Characterization in the Clinic
Melina Tourni

SPC-3: Spatiotemporal Localization of microbubble Trajectories for Highly Resolved Hemodynamics in Ultrasound Localization Microscopy
Alexis Leconte

SPC-4: Sonogenetics-Based neuromodulation to Suppress Epilepsy Seizures
Thi-Nhan Phan

SPC-5: 3D Microvascular Monitoring with a cMUT RCA Ultrasound sensor: Towards Wearable Applications
Cyprien Blanquart

SPC-6: Combined Shear Wave elastography and Ultrafast Doppler Imaging Enable the Mapping of Cortical Layers in the Rat Brain
Solène Ruinet

Group 2

SPC-7: A New Generation of Piezoceramic Frequency Steerable Acoustic Transducers for the Rapid Inspection of Large Areas of Metallic Plate Structures
Masoud Mohammadgholiha

SPC-8: Advanced Ultrasonic Diagnostic Technology Towards Green Hydrogen Energy Systems
Zehua Dou

SPC-9: Silicon Photonic MEMS Platform-Based Air-Coupled Opto-Mechanical Ultrasound Sensor with Tunable Sensitivity and Dynamic Range for Non-Destructive Test
Sangwoo Nam

Group 3

SPC-10: Deciphering Metabolic Heterogeneity of Acoustically-Constructed Pancreatic Microenvironment Model by Mass Spectrometry Imaging
Zeping Gao

SPC-11: Hysteresis Curves of Ferroelectric ScAlN Films for Fabricating Periodically Polarization Inverted Structure
Satoshi Matsumura

SPC-12: Full-Waveform Inversion with Resolution Proxies for in-Vivo transmission-Reflection Ultrasound Computed Tomography
Ines Elisa Ulrich

Group 4

SPC-13: Spurious-Free and Low-Loss Surface Acoustic Wave Filter Beyond 5 GHz
Liping Zhang

SPC-14: A Solidly Mounted 55 GHz Overmoded Bulk Acoustic Resonator
Zachary Schaffer

SPC-15: A High Q 6.203 GHz Laterally-Excited Bulk Acoustic Resonator with Reflective Grids
Wenjuan Liu

Group 5

SPC-16: 2D Array Needle Transducer for 4D Ultrasound Imaging Guided Spinal Puncture
Xingying Wang

SPC-17: The Acoustic Lightsaber: an 8 mm Endoscope with High-Resolution Imaging and Electronically Rasterized Histotripsy
Matthew Mallay

SPC-18: A Handheld Bias-Sensitive 128×128 Electrostrictive Tobe Array and Comparison with Commercial Linear and Matrix Probes
Mohammad Rahim Sobhani

A2P-08: MBB-P: Artificial Intelligence and Beamforming Tools
Chair(s): Rehman Ali (University of Rochester)

(A2P-08-MBB-1): The Generalized Beamformer in the Ultrasound Toolbox
Ole Marius Hoel Rindal{3}, Stefano Fiorentini{2}, Jørgen Avdal{2}, Andreas Austeng{3}, Alfonso Rodriguez-Molares{1}
{1}Freelance Senior Consultant, Spain; {2}Norwegian University of Science and Technology, Norway; {3}University of Oslo, Norway

(A2P-08-MBB-2): Learnable Wiener Postfilter Based Beamformer for Improved Ultrafast Power Doppler Imaging
Hengrong Lan{2}, Lijie Huang{2}, Yadan Wang{1}, Rui Wang{2}, Jianwen Luo{2}
{1}Hefei University of Technology, China; {2}Tsinghua University, China

(A2P-08-MBB-3): Improving Image Quality Degradation Due to Blocked Array in Cardiac Ultrasound Imaging
Ole Marius Hoel Rindal{3}, Tore Grüner Bjåstad{1}, Anders Emil Vrålstad{2}, Anders Sørnes{1}, Svein-Erik Måsøy{2}
{1}GE HealthCare, Norway; {2}Norwegian University of Science and Technology, Norway; {3}University of Oslo, Norway

(A2P-08-MBB-4): Enhancing Needle Tracking in Ultrasound Guided Interventions Using Unsupervised Reinforcement Learning Based Accelerated Adaptive Minimum Variance Beamforming
Gayathri Malamal, Mahesh Raveendranatha Panicker
Indian Institute of Technology Palakkad, India

(A2P-08-MBB-5): vbeam: a Fast and Differentiable Beamformer for Optimizing Ultrasound Imaging
Magnus Dalen Kvalevåg{3}, Anders Emil Vrålstad{3}, Ole Marius Hoel Rindal{4}, Tore Bjåstad{2}, Bastien Denarie{2}, Kjell Kristoffersen{2}, Svein-Erik Måsøy{1}, Lasse Løvstakken{3}
{1}Centre for Innovative Ultrasound Solutions, Norway; {2}GE Vingmed Ultrasound, Norway; {3}Norwegian University of Science and Technology, Norway; {4}University of Oslo, Norway

(A2P-08-MBB-6): Robustness of Ultrasound Deep BEAMFORMERS Using LOW-Energy Adversarial Perturbations
Itamar Salazar-Reque, Andres Coila, Roberto Lavarello
Pontificia Universidad Católica del Perú, Peru

(A2P-08-MBB-7): Improving Cardiac Ultrasound with a Semi-Supervised Deep Learning Beamformer
Ying-Chun Pan{1}, Ryan Lefevre{2}, Susan Eagle{2}, Matthew Berger{1}, Brett Byram{1}
{1}Vanderbilt University, United States; {2}Vanderbilt University Medical Center, United States

(A2P-08-MBB-8): Bent Ray vs. Straight Ray Approximations in Differential Beamforming for Sound Speed Estimation
Louise Zhuang, Sergio Sanabria, Walter Simson, Jeremy Dahl, Dongwoon Hyun
Stanford University, United States

(A2P-08-MBB-9): Ultrafast 3D Synthetic Aperture Imaging with Hadamard-Encoded Aperiodic Interval Codes and Costas Sparse Arrays with Separate Transmitters and Receivers
Tarek Kaddoura, Roger Zemp
University of Alberta, Canada

(A2P-08-MBB-10): Convolutional Neural Network Based Decomposition Method for Synthetic Aperture Transmit Imaging
Po-Yang Lee, Chih-Chung Huang
National Cheng Kung University, Taiwan

A2P-09: MBE-P: LIPUS and Neuro
Chair(s): Julianna Simon (Penn State University)

(A2P-09-MBE-1): Non-Invasive Hybrid Ultrasound Stimulation on Visual Cortex in Vivo
Chen Gong
university of southern california, United States

(A2P-09-MBE-2): Low-Intensity Low-Frequency Pulse Ultrasound Reduced Endoplasmic Reticulum Stress in Motor Neuron Cells
Thi-Thuyet Truong, Wen-Tai Chiu, Chih-Chung Huang
National Cheng Kung University, Taiwan

(A2P-09-MBE-3): Low-Intensity Pulsed Ultrasound Improves Cognitive Performance in Ad Mice
Wanzhao Wang{2}, Liang Tang{2}, Lijun Sun{2}, Chenghui Wang{3}, Dean Ta{1}, Jianzhong Guo{3}
{1}Department of Electronic Engineering,Fudan University, China; {2}Institute of Sports Biology, Shaanxi Normal University, China; {3}Shaanxi Key Laboratory of Ultrasonics, Shaanxi Normal University, China

(A2P-09-MBE-4): LIPUS Alleviates Muscle Atrophy Caused by Microgravity by Improving Intestinal Microorganisms
Yanan Yu{2}, Liang Tang{2}, Lijun Sun{2}, Jianzhong Guo{3}, Dean Ta{1}, Chenghui Wang{3}
{1}Department of Electronic Engineering, Fudan University, China; {2}Institute of Sports Biology, Shaanxi Normal University, China; {3}Shaanxi Key Laboratory of Ultrasonics, Shaanxi Normal University, China

(A2P-09-MBE-5): Focused-Ultrasound blood-Brain Barrier Opening Alters Murine microbiome
Alina Kline-Schoder, Daniella Jimenez, Samantha Gorman, Elisa Konofagou
Columbia University, United States

A2P-10: MBF-P: 3D Blood Flow Imaging
Chair(s): Hassan Nahas (University of Waterloo)

(A2P-10-MBF-1): Steered Transverse Oscillations for Improved 3D Velocity Estimation
Raphael Dumas, Baptiste Pialot, Francois Varray
Creatis, France

(A2P-10-MBF-2): An angle-Independent three-Dimensional Ultrasound Velocimetry Using a one-Dimensional Transducer Array
Yongchao Wang, Jianbo Tang
Southern University of Science and Technology, China

(A2P-10-MBF-3): Bi-Plane Imaging for Pulsatile Blood Flow Volume Estimation
Claudio Giangrossi{2}, Alessandro Ramalli{2}, Francesco Guidi{2}, Emile Noothout{4}, Luxi Wei{1}, Hendrik J. Vos{3}, Piero Tortoli{2}
{1}Department of Cardiology, Erasmus MC University Medical Center, Rotterdam, Netherlands; {2}Dept. of Information Engineering, University of Florence, Florence, Italy; {3}Erasmus MC University Medical Center, Rotterdam, Delft University of Technology, Delft, Netherlands; {4}Medical Imaging, dept. of Imaging Physics, Applied Sciences, Delft University of Technology, Delft, Netherlands

(A2P-10-MBF-4): Comparison of broad-Beam Image Sequences for 3D echoPIV Analysis
Jason Voorneveld{1}, Antonius van der Steen{1}, Johan Bosch{1}, Nikola Radeljic{2}
{1}Erasmus MC, Netherlands; {2}Oldelft Ultrasound, Netherlands

(A2P-10-MBF-5): Microbubble-Free 3D Coded Flow Imaging Using a 2D Row Column Addressed Array
Nizar Guezzi, Dongkyu Jung, Jaesok Yu
Daegu Gyeongbuk Institute of Science and Technology, Korea

(A2P-10-MBF-6): IIM2FieldII: a Framework for Validating Ultrasound Measurements of Volumetric Flow and WSS in Complex Carotid Plaque Geometries
Keerthi Anand{3}, Ebrahim Kolahdouz{2}, Boyce Griffith{1}, Caterina Gallippi{3}
{1}Department of Mathematics, UNC, United States; {2}Flatiron Institute, United States; {3}Joint Department of Biomedical Engineering, UNC & NCSU, United States

(A2P-10-MBF-7): Anthropomorphic Atherosclerotic Carotid Artery Tissue-Mimicking Phantoms
Caleb Darr, Keerthi Anand, Caterina Gallippi
Joint Department of Biomedical Engineering, UNC & NCSU, United States

(A2P-10-MBF-8): 2D Ultrasound Volumetric Flow Estimation on a Portable Ultrasound Scanner for Cerebral Blood Flow Measurement
Matthew Tung, Billy Yiu, Alfred Yu
University of Waterloo, Canada

(A2P-10-MBF-9): Ultrafast 3D Hadamard-Encoded X-Power Doppler Using a Handheld Bias-Sensitive Row-Column Array
Darren Dahunsi, Roger Zemp, Mohammad Rahim Sobhani
University of Alberta, Canada

(A2P-10-MBF-10): 3D Rotation Scan of Rat Retinal Vessels Using 30MHz Ultrahigh Frequency Ultrafast Doppler
Jinyu Yang, Daichao Chen, Yunlong Bao, Shuo Huang, Wenyu Guo, Jingyi Yin, Feng Feng, Feihong Dong, Jiabin Zhang, Jue Zhang
Peking University, China

(A2P-10-MBF-11): Ultrafast 3D Power Doppler Imaging with Costas + Tobe Arrays
Mohammad Hadi Masoumi, Tarek Kaddoura, Darren Dahunsi, Roger Zemp
University of Alberta, ECE Department, Canada

(A2P-10-MBF-12): High-frame-Rate Volumetric Porcine Cardiac Imaging
Luxi Wei{1}, Geraldi Wahyulaksana{1}, Maaike Te Linktel Hekkert{1}, Daniel Bowen{1}, Robert Beurskens{1}, Enrico Boni{3}, Alessandro Ramalli{3}, Emile Noothout{2}, Dirk Duncker{1}, Piero Tortoli{3}, Antonius van der Steen{1}, Nico de Jong{2}, Martin Verwe
{1}Erasmus university medical center, Netherlands; {2}TU Delft, Netherlands; {3}University of Florence, Italy

A2P-11: MCA-P: Bubble Dynamics
Chair(s): David Maresca (Technical University of Delft)

(A2P-11-MCA-1): Jetting Behaviour of ultrasound-Driven microbubbles in Contact with a Soft Substrate
Marco Cattaneo, Outi Supponen
ETH Zurich, Switzerland

(A2P-11-MCA-2): Pressure Sensitivity of the Subharmonic Response of Individual Contrast microbubbles
Sander Spiekhout{1}, Jason Voorneveld{1}, Benjamin van Elburg{2}, Tim Segers{2}, Michel Versluis{2}, Nico de Jong{1}, Johannes Bosch{1}
{1}Erasmus MC, Netherlands; {2}University of Twente, Netherlands

(A2P-11-MCA-3): Subharmonic Aided Precision Pressure Measurement Based on Monodisperse Microbubbles
Pengcheng Wang, Chunjie Tan, Chang Lu, Tao Han, Peng Qin
Shanghai Jiao Tong University, China

(A2P-11-MCA-4): Cross Amplitude Modulation Imaging of Monodisperse microbubbles: a Simulation Study
Agisilaos Matalliotakis, Martin D. Verweij, David Maresca
Delft University of Technology, Netherlands

(A2P-11-MCA-5): The Effect of Nanobubble Ultrasound Contrast Agent Shell Stiffness and Temperature on Stability and Interactions with Red Blood Cells
Michaela Cooley{1}, Eric Pieper{1}, Eric Abenojar{2}, Dana Wegierak{1}, Agata Exner{1}
{1}Case Western Reserve University, United States; {2}Northwestern University, United States

(A2P-11-MCA-6): Characterization of microbubble Activity Under ultra-Short Focused Pulses Delivered by an Imaging Phased Array
Fotios Tsitsos, Alec Batts, Robin Ji, Chunqi Li, Sua Bae, Daniella Jimenez, Elisa Konofagou
Columbia University, United States

(A2P-11-MCA-7): Validation of Normalized Singular Spectrum Area Measurement by Optical Observation of Adherent Microbubble Displacements and Numerical Simulation
Yi Huang, Yanjun Xie, John Hossack
University of Virginia, United States

(A2P-11-MCA-8): Acoustic Response of pH-Responsive self-Eliminating microbubbles for Dynamic Pressure Sensing
Nathan McDannold{2}, John Kheir{1}, Ruihan Li{1}, Saffron Dominguez{1}, Michelle Balcarcel-Monzon{1}, Yifeng Peng{1}
{1}Boston Children's Hospital, United States; {2}Brigham and Women's Hospital, United States

A2P-12: MEL-P: Viscoelasticity
Chair(s): Mostafa Fatemi (Mayo Clinic)

(A2P-12-MEL-1): Low and High Cutoff Frequencies in Viscoelastic Liquids Elastography
Jorge Torres{2}, Gabrielle Laloy-Borgna{1}, Guillermo Rus{2}, Stefan Catheline{1}
{1}LabTau (Univ Lyon), France; {2}University of Granada (Ultrasonics Lab), Spain

(A2P-12-MEL-2): Viscoelasticity of Standardized Polyacrylamide microbeads Using Optical micro-elastography
Sajad Ghazavi{2}, Elijah Van Houten{3}, Guillaume Flé{2}, Hari Nair{2}, Boris Chayer{2}, Ruchi Goswami{1}, Salvatore Girardo{1}, Jochen Guck{1}, Guy Cloutier{2}
{1}Max Planck Institute, Germany; {2}University of Montreal Hospital Research Center, Canada; {3}University of Sherbrooke, Canada

(A2P-12-MEL-3): Guided wave-Based Viscoelasticity Imaging with a High Frequency Ultrasound System
Yahua Wang, Alireza Ashofteh, Corentin Alix, Jean-Pierre Remenieras, Ayache Bouakaz
UMR Inserm U 1253 - iBrain, France

(A2P-12-MEL-4): Viscoelastic Characterization Using Longitudinal Shear Waves
Hsiao-Chuan Liu{2}, Piotr Kijanka{1}
{1}AGH University of Science and Technology, Poland; {2}University of Southern California, United States

(A2P-12-MEL-5): Measurement of frequency-Dispersion Characteristic of Shear Wave Speed in Viscoelastic Phantom Using Mechanical Burst Excitation Shear Wave elastography
Shinichiro Saito{2}, Kaname Kurokawa{3}, Mikio Suga{1}, Kenji Yoshida{1}, Tadashi Yamaguchi{1}, Hiroyuki Hachiya{4}, Shinnosuke Hirata{1}
{1}Center for Frontier Medical Engineering, Chiba University, Japan; {2}Faculty of Engineering, Chiba University, Japan; {3}Graduate School of Science and Engineering, Chiba University, Japan; {4}School of Engineering, Tokyo Institute of Technology, Japan

(A2P-12-MEL-6): Parametric Evaluation of Kelvin-Voigt Dispersion Curve Fitting
Luiz Vasconcelos{2}, Piotr Kijanka{1}, Matthew Urban{2}
{1}AGH University of Science and Technology, Poland; {2}Mayo Clinic, United States

(A2P-12-MEL-7): Broadband Measurement of Shear Wave Dispersion with Focused Shear Wave Beams
John Cormack, Yu-Hsuan Chao, Kang Kim
University of Pittsburgh, United States

(A2P-12-MEL-8): Parametric Estimation of Shear Viscosity Estimated with a Nonlinear Least-Squares Approach in Viscoelastic Media
Nicholas Bannon{2}, Matthew Urban{1}, Robert McGough{2}
{1}Mayo Clinic, United States; {2}Michigan State University, United States

(A2P-12-MEL-9): Multi-Resolution Shear Wave Imaging of Soft Tissue Viscoelasticity
Murthy Guddati, Abdelrahman Elmeliegy
NC State University, United States

(A2P-12-MEL-10): Benchmarking Linear and Viscoelastic Shear Wave elastography Against rheometry: a Phantom Study
Sapna Bisht, Panchami Patel, Prachi Thareja, Karla Patricia Mercado-Shekhar
Indian Institute of Technology Gandhinagar, India

(A2P-12-MEL-11): Shear Wave viscoelastography of Phantoms with Tunable Viscoelastic Properties Fabricated Using a Combination of Low and High Viscosity Polyvinyl Alcohol
Bhanu Marri, Jayashree Karmakar, Sapna Bisht, Karla Patricia Mercado-Shekhar
Indian Institute of Technology Gandhinagar, India

A2P-13: MEL-P: Signal Processing for Elastography I
Chair(s): Piotr Kijanka (AGH University of Science and Technology)

(A2P-13-MEL-1): A Fourier-Based Method for Shear Wave Group Velocity Estimation
Xi Zhang, Jinping Dong, Wei-Ning Lee
The University of Hong Kong, Hong Kong

(A2P-13-MEL-2): Virtual fields-Based Method for Mechanical Parameter Reconstruction in quasi-Static Ultrasound elastography
Elisabeth Brusseau, Anne-Lise Duroy, Olivier Basset
CREATIS, France

(A2P-13-MEL-3): State-Space Estimation Framework for Acoustic Radiation Force Sequence Optimization
Joey Richardson{1}, Caterina Gallippi{2}
{1}North Carolina State University, United States; {2}University of North Carolina at Chapel Hill, United States

(A2P-13-MEL-4): A Time-Shifted Fractional Calculus Model for Shear Wave Parameter Estimation in Soft Tissue
Robert McGough{2}, Matthew Urban{1}
{1}Mayo Clinic, United States; {2}Michigan State University, United States

(A2P-13-MEL-5): Improved Performance of Autocorrelation Estimators for Measurements of Reverberant Shear Wave Fields
Hamidreza Asemani, Gary Ge, Gilmer Flores, Jannick Rolland, Kevin Parker
University of Rochester, United States

(A2P-13-MEL-6): Enhancing 3D Speckle Tracking with High-Speed Phase-Sensitive Randomized Search
Li-Fu Lee, Po-Syun Chen, Geng-Shi Jeng
National Yang Ming Chiao Tung University, Taiwan

A2P-14: MIM-P: Advanced Acquisition & Signal Processing Techniques
Chair(s): Kailiang Xu (Fudan University), Jingke Zhang (Mayo Clinic)

(A2P-14-MIM-1): Multichannel Reconstruction of Current Source Density Based on Scalar Potential for Acoustoelectric Imaging
Jinbum Kang{2}, Russell Witte{1}, Matthew O'Donnell{2}, Leonid Kunyansky{1}
{1}University of Arizona, United States; {2}University of Washington, United States

(A2P-14-MIM-2): Improving the signal-to-Noise Ratio via unipolar-Coded Pulse Compression for contrast-Enhanced Ultrasound
Shinnosuke Hirata, Yuki Hagihara, Kenji Yoshida, Tadashi Yamaguchi
Chiba University, Japan

(A2P-14-MIM-3): Hadamard-Encoded Diverging Wave Transmissions with Pulse Inversion for Enhanced Tissue Harmonic Imaging
Xiaochuan Wu, Wei-Ning Lee
The University of Hong Kong, Hong Kong

(A2P-14-MIM-4): Ray theory-Based Compounded Plane Wave Ultrasound Imaging for Aberration Corrected transcranial imaging: a Phantom Study
Chen Jiang{3}, Shaoyuan Yan{2}, Chengcheng Liu{1}, Kailiang Xu{2}, Dean Ta{2}
{1}Academy for Engineering and Technology, Fudan University, China; {2}Center for Biomedical Engineering, School of Information Science and Technology, Fudan University, China; {3}Micro-nano System Center, School of Information Science and Technology, Fudan University, China

(A2P-14-MIM-5): An Angular Framework for the Separation of Single and Multiple Scattering
Baptiste Heriard-Dubreuil{3}, Adrien Besson{1}, Claude Cohen-Bacrie{1}, Jean-Philippe Thiran{2}
{1}E-Scopics, France; {2}EPFL (LTS5) / University Hospital Center (Departement of Radiology) and University of Lausanne, Switzerland; {3}EPFL / E-Scopics, France

(A2P-14-MIM-6): Sound-Speed Reconstruction with Learned Kernels Based on a Convolutional Formulation of Sound-Speed and Speckle-Shift Relation
Can Deniz Bezek, Orcun Goksel
Uppsala University, Sweden

(A2P-14-MIM-7): Validating Us Targeting Accuracy Using MRI-Based Neuronavigation with Transcranial Acoustoelectric Imaging
Margaret Allard, Teodoro Trujillo, Chet Preston, Nadia Abu Farha, Ying-Hui Chou, Nan-Kuei Chen, Martin Weinand, Paul Larson, Russell Witte
University of Arizona, United States

(A2P-14-MIM-8): A Competitive Swarm Optimized SVD-Based Clutter Filter
Baohui Fang{2}, Fengling Meng{2}, Jianwen Luo{1}, Yinran Chen{2}, Xiongbiao Luo{2}
{1}Tsinghua University, China; {2}Xiamen University, China

A2P-15: MIS-P: Image Segmentation
Chair(s): Haichong Zhang (Worcester Polytechnic Institute)

(A2P-15-MIS-1): Automated Segmentation and Quantification of the Right Ventricle in 2D Echocardiography
Artem Chernyshov{1}, Jahn Frederik Grue{1}, John Nyberg{1}, Andreas Østvik{2}, Gilles van de Vyver{1}, Erik Smistad{2}, Lasse Løvstakken{1}
{1}Norwegian University of Science and Technology, Norway; {2}Norwegian University of Science and Technology, SINTEF, Norway

(A2P-15-MIS-2): Innovative Temporal Loss Function for Segmentation of Fine Structures in Ultrasound Images
Francesco Marzola, Kristen Meiburger, Massimo Salvi

Politecnico di Torino, Italy

(A2P-15-MIS-3): Deep Snake Attention Model for Automatic Carotid Plaque Segmentation in Ultrasound Images
Weihao Sun, Yanshu Jing, Jie Deng, Mingzhu Lu, Juntao Chang, Xuan Liu, Rongzheng Yang, Quan Zhang, Tingting Qi, Mingxi Wan
Xi'an Jiaotong University, China

(A2P-15-MIS-4): BIS-Net Boundary Interactive Segmentation Network: Enhancing Automatic Segmentation with Precise Boundary Identification
Florian Ramakers{2}, Muhammad Asad{1}, Tom Vercauteren{1}, Jan Deprest{2}, Helena Williams{2}
{1}King's College London, United Kingdom; {2}KU Leuven, Belgium

(A2P-15-MIS-5): Investigation of Interactive Segmentation for Bifurcation of Carotid Artery on 3D Ultrasound Image Volume
Fayi Zhang{3}, Jiawen Li{3}, Yunqiang Huang{1}, Man Chen{2}, Rui Zheng{3}
{1}Shanghai Jiao Tong University School of Medicine, China; {2}Shanghai Jiao Tong University School of Medicine,, China; {3}ShanghaiTech University, China

(A2P-15-MIS-6): Robust RF Data Normalization for Deep Learning
Mostafa Sharifzadeh, Habib Benali, Hassan Rivaz
Concordia University, Canada

A2P-16: MIS-P: Tracking
Chair(s): Kevin Haworth (University of Cincinnati)

(A2P-16-MIS-1): Towards real-Time Tracking of Fetal Head in 3D During Childbirth
Sandra Marcadent{2}, Johann Hêches{1}, Julien Favre{1}, David Desseauve{1}, Jean-Philippe Thiran{2}
{1}Lausanne University Hospital, Switzerland; {2}Swiss Federal Institute of Technology of Lausanne, Switzerland

(A2P-16-MIS-2): Inertial Measurement Unit-Based Tracking of Transducer Orientation
Sean Flannery, Leila Kalantari, Shyam Bharat, Jonathan Sutton
Philips, United States

(A2P-16-MIS-3): Automated Detection and Tracking of a Twinkling Tissue Marker from a Color Doppler Video Stream
Luiz Vasconcelos, Christine Lee, Matthew Urban
Mayo Clinic, United States

(A2P-16-MIS-4): High-Speed Measurement of two-Dimensional Displacement of Heart Wall Without Transmitted Beam Scanning and Received Beamforming
Shohei Mori, Kaisei Hara, Mototaka Arakawa, Hiroshi Kanai
Tohoku University, Japan

(A2P-16-MIS-5): Ultrasonic Measurement of Luminal Surface Roughness of Carotid Artery with Spatial high-Pass Filter for Removal of Radial Displacement Caused by Pulsation
Ryota Yamane{2}, Shohei Mori{2}, Mototaka Arakawa{2}, Jens E. Wilhjelm{1}, Hiroshi Kanai{2}
{1}Technical university of Denmark, Denmark; {2}Tohoku University, Japan

A2P-17: MPA-P: Clinical Applications of Photoacoustic Imaging
Chair(s): Xiran Cai (ShanghaiTech University)

(A2P-17-MPA-1): Dual-Angle Photoacoustic Depth Sensing of Congenital melanocytic Nevi
Luyao Zhu{2}, Kaiyuan Xu{2}, Yun Zou{1}, Yiyun Wang{2}, Yifei Zhao{1}, Hanru Ying{1}, Hui Chen{1}, Biao Wang{2}, Feng Gao{2}, Xiaoxi Lin{1}, Fei Gao{2}
{1}Shanghai Ninth People's Hospital, China; {2}ShanghaiTech University, China

(A2P-17-MPA-2): Photoacoustic Venous Blood Pressure sensing: a Feasibility Study
Biao Wang{1}, Luyao Zhu{1}, Yiyun Wang{1}, Lili Ma{2}, Wen Zhang{2}, Feng Gao{1}, Ningping Zhang{2}, Fei Gao{1}
{1}ShanghaiTech University, China; {2}Zhongshan Hospital, Fudan University, China

(A2P-17-MPA-3): Arc-Shape light-Rotatable Photoacoustic Probe for Peripheral Vessel Imaging
Biao Wang{2}, Xiyu Chen{2}, Xinxian Meng{1}, Daohuai Jiang{2}, Feng Gao{2}, Yixin Zhang{1}, Fei Gao{2}
{1}Shanghai Ninth People's Hospital, China; {2}ShanghaiTech University, China

(A2P-17-MPA-4): Photoacoustic Microscopic Evaluation of Sub-Surface Trabeculae in Cancellous Bone
Tianhua Zhou, Boyi Li, Jingxian Wang, Xin Liu, Dean Ta
Fudan University, China

(A2P-17-MPA-5): Photoacoustic Digital Tooth and Image Reconstruction of Tooth Root
Yuting Shen{3}, Yiyun Wang{3}, Chengxiao Liu{2}, Niansong Ye{1}, Feng Gao{3}, Lunguo Xia{2}, Bing Fang{2}, Fei Gao{3}
{1}Shanghai Huaguang Dental Clinic, China; {2}Shanghai Ninth People's Hospital, China; {3}ShanghaiTech University, China

(A2P-17-MPA-6): Photoacoustic Imaging of Vascular hyperpermeability
Khalid Ashi{2}, Mrigendra Karmacharya{2}, Laith Sultan{2}, David Guerrero{1}, Michael Chorny{1}, Chandra Sehgal{2}
{1}Children's Hospital of Philadelphia, United States; {2}University of Pennsylvania, United States

(A2P-17-MPA-7): Ultrasound and Photoacoustic Guided Gastrostomy to Prevent Colonic Injury
Yan Yan{3}, Samuel John{1}, Yeidi Yuja Vaquiz{3}, Anoop Nilam{2}, Jonathan Lovell{2}, Nicole Wilson{3}, Mohammad Mehrmohammadi{3}
{1}Medtronic, United States; {2}University at Buffalo, United States; {3}University of Rochester Medical Center, United States

(A2P-17-MPA-8): The Effects of Delay Between nanobubble Injection and Ultrasound Treatment on Changes in sO2 and Total Hemoglobin in radiation-Treated Tumours
Elizabeth Berndl{4}, Anoja Giles{2}, Wenyi Yang{2}, Martin Stanisz{2}, Kai Leong{3}, Deepa Sharma{2}, Pinuta Nittayacharn{1}, Agata Exner{1}, Gregory Czarnota{2}, Michael Kolios{4}
{1}Case Western Reserve University, United States; {2}Sunnybrook Research Institute, Canada; {3}Sunybrook Research Institute, Canada; {4}Toronto Metropolitan University, Canada

(A2P-17-MPA-9): Demonstrating the Impact of Wavelength and Skin Tone on Photoacoustic Breast Imaging
Guilherme Fernandes{1}, Theo Pavan{2}, Muyinatu Bell{1}
{1}Johns Hopkins University, United States; {2}University of Sao Paulo, Brazil

A2P-18: MSD-P: Medical Systems and Devices
Chair(s): Kendall Waters (Siemens Healthineers)

(A2P-18-MSD-1): Concurrent Optical Ultrasound and CT Imaging
Fraser Watt, Edward Zhang, Paul Beard, Erwin Alles
University College London, United Kingdom

(A2P-18-MSD-2): Dual-Frequency Impedance Matching of Catheter-Based Ultrasound Transducers for Thermal Ablation
Wenchang Huang{2}, Jiaqi Li{1}, Yan He{2}, Weiwei Shao{1}, Yaoyao Cui{1}
{1}Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China; {2}University of Science and Technology of China, China

(A2P-18-MSD-3): Noncontact Laser Ultrasound (NCLUS) Medical Imaging System
Robert Haupt{2}, Rajan Gurjar{2}, Jamie Shaw{2}, Bert Green{2}, Brian Boitnott{2}, Marko Jakovljevic{1}, Kai Thomenius{1}, Anthony Samir{1}
{1}Massachusetts General Hospital, United States; {2}MIT Lincoln Laboratory, United States

(A2P-18-MSD-4): Real-Time Cloud-Based Ultrasound Platform for Advanced Image Formation
Beatrice Federici{1}, Ben Luijten{1}, Andre Immink{2}, Ruud van Sloun{1}, Massimo Mischi{1}
{1}Eindhoven University of Technology, Netherlands; {2}Philips Engineering Solutions, Netherlands

(A2P-18-MSD-5): 3D High Frequency Ultrasound Imaging Using a Miniature Spiral Scanner
Zhiyi Wen{2}, Boquan Wang{1}, Dawei Wu{1}
{1}Nanjing University of Aeronautics and Astronautics, China; {2}Nanjing University of Aeronautics and Astronautics & Tokyo Institute of Technology, China

(A2P-18-MSD-6): Flexible Ultrasound Array Shape Estimation in the Presence of Coherent Reflectors
Marcus Ingram, Jan D'Hooge
KU Leuven, Belgium

(A2P-18-MSD-7): Neural Transform Coding for Delay-Constrained Communication of Ultrasound Channel Data
Beatrice Federici{1}, Andre Immink{2}, Ruud van Sloun{1}, Massimo Mischi{1}
{1}Eindhoven University of Technology, Netherlands; {2}Philips Engineering Solutions, Netherlands

(A2P-18-MSD-8): A Wireless Capsule Ultrasound Endoscopy Using Electrowetting Liquid Lens Scanning Device
Yu-Chen Hsiao{1}, Yushun Zeng{2}, Hsiao-Chuan Liu{2}, k. Kirk Shung{2}, Qifa Zhou{2}, Jian-Xing Wu{1}
{1}National Chin-Yi University of Technology, Taiwan; {2}University of Southern California, United States

(A2P-18-MSD-9): Real-Time Shear Wave Elastography Implementation on a Portable Research Ultrasound System with GPU-Accelerated Processing
Damian Cacko, Piotr Jarosik, Marcin Lewandowski
us4us Ltd., Poland

(A2P-18-MSD-10): Protocol for Fabrication of a Thin-Wall Patient-Specific Venous Flow Phantom Using a Single-Part Mold
Jonathas Haniel, Adrian Chee, Billy Yiu, Alfred Yu
University of Waterloo, Canada

(A2P-18-MSD-11): Toward a Modular Open scanner: Design of the front-End Unit
Enrico Boni, Francesco Lagonigro, Valentino Meacci, Alessandro Ramalli, Stefano Ricci, Piero Tortoli
University of Florence, Italy

(A2P-18-MSD-12): A Wall-Less Microvascular Phantom Fabrication Framework Using Metal Additive Manufactured Casting Core
Hanyue Shangguan, Billy Yiu, Adrian Chee, Alfred Yu
University of Waterloo, Canada

(A2P-18-MSD-13): Impact of Transmit Pulser Quantization for 2-D array-Based Ultrasound Imaging and Therapeutic Systems
Donghun Han, Woojin Oh, Heechul Yoon
dankook university, Korea

A2P-19: MTC-P: Tissue Characterization of Liver II
Chair(s): Roberto Lavarello (Pontificia Universidad Catolica del Peru)

(A2P-19-MTC-1): Automated Liver Segmentation and Steatosis Grading Using Deep Learning Applied on B-Mode Ultrasound Images
Pedro Vianna{5}, Merve Kulbay{3}, Pamela Boustros{5}, Sava-Ivana Calce{3}, Cassandra Laroque-Rigney{3}, Laurent Patry-Beaudoin{3}, Yi Hui Luo{3}, Muawiz Chaudhary{3}, Samuel Kadoury{2}, Bich Ngoc Nguyen{4}, Emmanuel Montagnon{5}, Eugene Belilowsky{1}, Guy
{1}Concordia University, Canada; {2}École Polytechnique of Montreal, Canada; {3}University of Montreal, Canada; {4}University of Montreal Hospital, Canada; {5}University of Montreal Hospital Research Center, Canada

(A2P-19-MTC-2): Quantitative Ultrasound Imaging of the Backscatter Coefficient for Detection of Liver Lesions Using an Analysis of the contrast-to-Noise Ratio of Parametric Maps
Arnaud Héroux{2}, François Destrempes{2}, Maxime Barat{2}, Elige Karam{1}, Sathiyamoorthy Selladurai{2}, An Tang{2}, Guy Cloutier{2}
{1}University of Montreal Hospital, Canada; {2}University of Montreal Hospital Research Center, Canada

(A2P-19-MTC-3): Speed of Sound Evaluation of cryosectioned Fatty Liver Specimens Using Quantitative Acoustic Microscopy
Kazuki Tamura{3}, Suguru Seto{2}, Genta Hongo{2}, Kazuyo Ito{4}, Shinnosuke Hirata{1}, Kenji Yoshida{1}, Tadashi Yamaguchi{1}
{1}Center for Frontier Medical Engineering, Chiba University, Japan; {2}Graduate School of Science and Engineering, Chiba University, Japan; {3}Hamamatsu University School of Medicine, Japan; {4}Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

(A2P-19-MTC-4): QUS mini-radiomics: a dimensionality-Reduced radiomics for Classifying Benign and Malignant Liver Tumors
Yen Heng Lai{2}, Shin-Han Huang{2}, Ya-Chun Tang{1}, Chien-Ming Chen{1}, Po-Hsiang Tsui{2}
{1}Chang Gung Memorial Hospital, Taiwan; {2}Chang Gung University, Taiwan

(A2P-19-MTC-5): Disease Specific Imaging Utilizing Support Vector machine: Assessment of Steatosis
Jihye Baek{1}, Lokesh Basavarajappa{2}, Kenneth Hoyt{2}, Kevin Parker{1}
{1}University of Rochester, United States; {2}University of Texas at Dallas, United States

(A2P-19-MTC-6): Improved Ultrasound Attenuation Coefficient Estimation Using Spectral Normalization on Local Interference-Free Single-Scatterer Power Spectrum
Kun-Lin Liu{2}, Yu-Heng Chen{2}, Chiao-Yin Wang{1}, Po-Hsiang Tsui{1}, Meng-Lin Li{2}
{1}Chang Gung University, Taiwan; {2}National Tsing Hua University, Taiwan

(A2P-19-MTC-7): Diagnostic Performance of Multimodal Ultrasound Features Based Classifier in Non-Alcoholic Fatty Liver Disease
Gangqiao Xie{3}, Yongsheng Xia{2}, Shunping Chen{2}, Rui Wang{3}, Xingyue Wei{3}, Lijie Huang{3}, Qiong He{3}, Lai Wei{3}, Minghua Zheng{1}, Jianwen Luo{3}
{1}Department of Hepatology, The First Affiliated Hospital of Wenzhou Medical University, China; {2}Department of Ultrasonography, The First Affiliated Hospital of Wenzhou Medical University, China; {3}Tsinghua University, China

A2P-20: MTC-P: Tissue Characterization Methods
Chair(s): Theo Pavan (Universidade de Sao Paulo)

(A2P-20-MTC-1): Characterization of multi-Component Media Using Amplitude Envelope Statistics Optimized by Application of Complex Plane Wave Imaging
Tadashi Yamaguchi{1}, Yuki Ujihara{1}, Kazuki Tamura{2}, Shohei Mori{3}, Shinnosuke Hirata{1}, Kenji Yoshida{1}
{1}Chiba University, Japan; {2}Hamamatsu University School of Medicine, Japan; {3}Tohoku Univertsity, Japan

(A2P-20-MTC-2): Ultrasound System Independence of Ultrasound-Based Quantification of Vitreous Echodensities
Cameron Hoerig{3}, Justin Nguyen{2}, Jonathan Mamou{3}, Cedric Venuat{1}, Jerry Sebag{2}, Jeffrey Ketterling{3}
{1}Quantel Medical, France; {2}VMR Institute for Vitreous Macula Retine, United States; {3}Weill Cornell Medicine, United States

(A2P-20-MTC-3): Learnt Correction for regularization-Related Biases in pulse-Echo speed-of-Sound Imaging
Michael Jaeger, Urs Richard Gerber, Parisa Salemi Yolgunlu, Martin Frenz, Naiara Korta Martiartu
University of Bern, Switzerland

(A2P-20-MTC-4): Backscattering Differential Cross Section Measurement to Measure the Cell Compressibility and Density
Regine Guillermin{1}, Eric Debieu{1}, Antoine Weber{1}, Alexandre Ortega{1}, Ruchi Goswami{2}, Salvatore Girardo{2}, Jochen Guck{2}, Emilie Franceschini{1}
{1}LMA, CNRS, Aix-Marseille Univ, Centrale Marseille, France; {2}Max Planck Institute for the Science of Light & Max-Planck-Zentrum für Physik und Medizin, Germany

(A2P-20-MTC-5): Quantitative Assessment of the Wound Healing Process Using Ultrasound Imaging
David Lemonnier{2}, Brandon Sumpio{3}, Ikram Mezghani{3}, Maxwell Crouse{4}, Georgios Theocharidis{3}, Tengfei Ma{4}, Aristidis Veves{3}, Samuel Sia{1}, Parag Chitnis{2}

{1}Columbia University, United States; {2}George Mason University, United States; {3}Joslin-Beth Israel Deaconess Foot Center and The Rongxiang Xu, United States; {4}Thomas J. Watson Research Center, United States

(A2P-20-MTC-6): Interpolation-Based Regularization for Speed of Sound Estimation in Layered Media
Baptiste Heriard-Dubreuil{3}, Adrien Besson{1}, Claude Cohen-Bacrie{1}, Jean-Philippe Thiran{2}
{1}E-Scopics, France; {2}EPFL (LTS5) / University Hospital Center (Departement of Radiology) and University of Lausanne, Switzerland; {3}EPFL / E-Scopics, France

(A2P-20-MTC-7): Novel tissue-Mimicking Material for Phantoms Fabricated from Swollen Segmented Polyurethane Gel with Low Ultrasonic Propagation Loss
Kazuishi Sato{2}, Toshio Kondo{2}, Isao Matsumoto{2}, Kazuhiro Miyamoto{2}, Yusuke Ueta{2}, Masahiko Taniguchi{1}, Kohei Hamachi{3}, Chika Nishitani{3}, Takuya Kubo{3}
{1}Taniguchi Laboratory for General Research, Japan; {2}Tokushima Bunri University, Japan; {3}Yasojima Proceed Co., Ltd., Japan

A2P-21: MTH-P: Therapy I
Chair(s): Jon Sukovich (University of Michigan)

(A2P-21-MTH-1): A Mechanism Limiting Bubble Density in Cavitation Clouds Generated During histotripsy
Adam Maxwell{1}, Eli Vlaisavljevich{2}
{1}University of Washington, United States; {2}Virginia Polytechnic Institute and State University, United States

(A2P-21-MTH-2): Multi-Modal Confirmation of Thermosensitive Liposome Delivery to the Brain After FUS-Induced Blood-Brain Barrier Opening for the Treatment of Diffuse Midline Glioma
Chris Payne, Paul Cressey, Maya Thanou, Antonios Pouliopoulos
Kings College London, United Kingdom

(A2P-21-MTH-3): Enhancing bleomycin Delivery Using microbubble-Assisted Ultrasound in Colorectal Cancer Spheroid
Marie Roy{1}, Corentin Alix{1}, Ayache Bouakaz{1}, Sophie Serrière{2}, Jean-Michel Escoffre{1}
{1}iBrain INSERM 1253, France; {2}iBrain INSERM 1253, Département d'Imagerie Préclinique, Plateforme Scientifique et Technique Analys, France

(A2P-21-MTH-4): Development of Optically transparent, tendon-Mimicking histotripsy Phantoms
Jake Elliott, Julianna Simon
Penn State University, United States

(A2P-21-MTH-5): Shockwave Evolutions During Volumetric histotripsy Treatment in ex-Vivo Tissues
Scott Haskell, Jonathan Sukovich, Zhen Xu
University of Michigan, United States

(A2P-21-MTH-7): Time-Resolved Passive Acoustic Mapping in Transcranial Histotripsy
Ning Lu, Jonathan Sukovich, Timothy Hall, Zhen Xu
University of Michigan, United States

(A2P-21-MTH-8): Histotripsy Induced Fractionation in Collagenous tissues: a Tendon Model
Grace Wood, Molly Smallcomb, Julianna Simon
The Pennsylvania State University, United States

(A2P-21-MTH-9): Assessment of histotripsy and Thrombolytic in a Porcine Model of Venous Thrombosis
Kenneth Bader, Connor Centner, Kai Flores, Allison Ostdiek, Ethan Ungchusri, Mikin Patel, Osman Ahmed, Jonathan Paul
University of Chicago, United States

(A2P-21-MTH-10): MRI-Guided Focused Ultrasound Blood-Brain Barrier Opening Increases Drug Delivery and Efficacy in a Diffuse Midline Glioma Mouse Model
Payton Martinez{3}, Genna Nault{2}, Jenna Steiner{2}, Micheal Wempe{2}, Angela Pierce{2}, Breauna Brunt{2}, Mathew Slade{2}, Jane Song{3}, Kang-Ho Song{3}, Nicholas Ellens{1}, Nataile Serkova{2}, Adam Green{2}, Mark Borden{3}
{1}Acertera Labs, United States; {2}University of Colorado, United States; {3}University of Colorado Boulder, United States

A2P-22: MTH-P: Therapy II
Chair(s): Costas Arvanitis (Georgia Institute of Technology)

(A2P-22-MTH-1): Focused Ultrasound-Mediated Brain Drug Delivery Through Different Routes
Dezhuang Ye, Si Chen, Yajie Liu, Charlotte Weixel, Hu Zhongtao, Hong Chen
Washington University in Saint Louis, United States

(A2P-22-MTH-2): Ultrasound-Activated Eradication of Root Canal biofilm with Drug-Loaded Phase Change Nanodroplets
Jie Dang{1}, Xiaoyu Qian{1}, Feihong Dong{1}, Jie Pan{2}, Jue Zhang{1}
{1}Peking university, China; {2}Peking University School and Hospital of Stomatology, China

(A2P-22-MTH-3): Process Optimization of in vitro sonoporation Protocol for Clinically Relevant ultrasound-Mediated Gene Delivery
Nisi Zhang{1}, Yutong Guo{1}, Josquin Foiret{1}, Spencer Tumbale{1}, Ramasamy Paulmurugan{1}, Gadi Pelled{2}, Katherine W. Ferrara{1}
{1}Department of Radiology, Stanford University, United States; {2}Sonostem Technologies Inc., United States

(A2P-22-MTH-4): Evaluation of the Kinetics of BBB Permeability Induced by Focused Ultrasound Using Pet Imaging
Sarah Leterrier{1}, Sebastien Goutal{1}, Laurene Jourdain{1}, Maud Goislard{1}, Benoit Hosten{1}, Benoit Larrat{2}, Charles Truillet{1}, Nicolas Tournier{1}, Anthony Novell{1}
{1}BioMaps, Université Paris-Saclay, CEA, CNRS, Inserm, France; {2}Neurospin, Université Paris-Saclay, CEA, CNRS, Inserm, France

(A2P-22-MTH-5): Focused Ultrasound-Mediated Blood Brain Barrier Opening for the Delivery of Lipid Nanoparticles in a Glioblastoma Model
Maya Elbaz{3}, Lea Peko{1}, Nitay Ad-El{2}, Ramona Aronovich{1}, Meir Goldsmith{2}, Inbal Halevy{2}, Dan Peer{2}, Tali Ilovitsh{3}
{1}Department of Biomedical Engineering, Israel; {2}Dept. of Cell Research & Immunology, the Center for Nanoscience and Nanotechnology, Israel; {3}Sagol School of Neuroscience and Department of Biomedical Engineering, Israel

(A2P-22-MTH-6): Evaluation of Ultrasound-Triggered Vancomycin Release from a Novel Prophylactic Spinal Device in an in Vivo Sheep Model
Lauren Delaney{4}, Rachel Hilliard{2}, Priscilla Machado{4}, Rachel Evans{3}, Selin Isguven{3}, Steven Kurtz{1}, Noreen Hickok{3}, Thomas Schaer{2}, Flemming Forsberg{4}
{1}Drexel University, Implant Research Core, United States; {2}New Bolton Center University of Pennsylvania School of Veterinary Medicine, Dept of Clinical Studies, United States; {3}Thomas Jefferson University, Department of Orthopaedic Surgery, United States; {4}Thomas Jefferson University, Department of Radiology, United States

(A2P-22-MTH-7): Double Emulsion Perfluorocarbon nanodroplets for US/Pa Guided Drug Delivery via high-Intensity Focused Ultrasound
Euisuk Chung, Andrew Zhao, Stanislav Emeilanov
Georgia institute of technology, United States

(A2P-22-MTH-8): Focused ultrasound-Mediated Delivery of anti-Programmed Cell death-Ligand 1 Antibody to the Brain of a Porcine Model
Siaka Fadera, Chinwendu Chukwu, Andrew Stark, Yimei Yue, Lu Xu, Chih-Yen Chien, Jinyun Yuan, Dezhuang Ye, Hong Chen
Washington University in St Louis, United States

(A2P-22-MTH-9): Enhanced Ultrasound neurostimulation Using Piezoelectric Molybdenum Disulfide nanosheets
Min-Hwa Chou{3}, Pei-Hua Chiang{2}, Ching-Hsiang Fan{1}, Chih-Kuang Yeh{2}
{1}National Cheng Kung University, Taiwan; {2}National Tsing Hua University, Taiwan; {3}National Tsing Hua Universityv, Taiwan

A2P-23: MTN-P: Treatment Monitoring
Chair(s): Piotr Kijanka (AGH University of Science and Technology)

(A2P-23-MTN-1): Ultrasound-Stimulated Microbubbles and Radiation Therapy Response Monitoring of Brain Tumors
Deepa Sharma, Evan McNabb, Benjamin Geraghty, Colleen Bailey, Murtuza Saifuddin, Wenyi Yang, Anoja Giles, Gregory J Czarnota
Physical Sciences, Sunnybrook Research Institute, Canada

(A2P-23-MTN-2): Ultrasonic Nakagami Imaging for Monitoring histotripsy Inducing Tissue Erosion
Meng Han, Weidong Song, Fengshou Zhang, Bianyun Cai
Henan University of Science and Technology, China

(A2P-23-MTN-3): Monitoring of Continuous HIFU Therapy Using Nakagami Imaging Combined with Pulse Inversion Subtraction
Hsien-Jung Chan, Wei-Cheng Hsiao, Po-Hsiang Tsui, Bao-Yu Hsieh
Chang Gung University, Taiwan

(A2P-23-MTN-4): Super-Resolution Passive Acoustic Mapping Based on Single-Source Separation and Localization
Shukuan Lu, Ruibo Su, Mingxi Wan
Xi'an Jiaotong University, China

(A2P-23-MTN-5): Phase Modulation-Based Harmonic Suppression in CMUT Transmitters for Transcranial Microbubble Monitoring
Sait Kilinc, Reza Zangabad, Hohyun Lee, Costas Arvanitis, Levent Degertekin
Georgia Institute of Technology, United States

(A2P-23-MTN-6): Doppler-Based Assessment of Boiling Histotripsy Progression in Vivo
Minho Song{2}, Gilles Thomas{2}, Vera Khokhlova{1}, Yak-Nam Wang{2}, Stephanie Totten{2}, Oleg Sapozhnikov{1}, George Schade{2}, Tatiana Khokhlova{2}
{1}M.V. Lomonosov Moscow State University, Russia; {2}University of Washington, United States

(A2P-23-MTN-7): Ultrasound and microbubble Mediated Provascular Therapy Characterized Using Ultrasound Localization Microscopy
Samuel Bourdages{3}, Samuel Desmarais{1}, Alexis Leconte{1}, Jonathan Porée{1}, Jean Provost{2}, Francois Yu{3}
{1}Polytechnique Montréal, Canada; {2}Polytechnique Montréal and Montreal Heart Institute, Canada; {3}Université de Montréal and Institut du Cancer de Montréal, Canada

(A2P-23-MTN-8): Small-Window Parametric Imaging Based on Fuzzy Entropy for Thermal Ablation Monitoring
Xinyu Zhang, Wenchang Huang, Yang Jiao, Yaoyao Cui
Suzhou Institute of Biomedical Engineering and Technology, China

A2P-24: MSR-P: Deep Learning for Super-Resolution Imaging
Chair(s): Jaesok Yu (DGIST)

(A2P-24-MSR-1): Super-Resolution ULM Using Deep Unrolling of Half-Quadratic Splitting
Yhonatan Kvich{2}, Ruud Jg van Sloun{1}, Yonina Eldar{2}
{1}Eindhoven University of Technology, Netherlands; {2}Weizmann Institute of Science, Israel

(A2P-24-MSR-2): Exploiting Temporal Features in Model-Based Deep Networks for Ultrafast CEUS
Yhonatan Kvich{2}, Ruud Jg van Sloun{1}, Yonina Eldar{2}
{1}Eindhoven University of Technology, Netherlands; {2}Weizmann Institute of Science, Israel

(A2P-24-MSR-3): Localization with Deep Learning of Spatiotemporal Data for super-Resolution Ultrasound Imaging
Katherine Brown{1}, Arthur Redfern{2}
{1}University of Texas at Dallas, United States; {2}University of Virginia, United States

(A2P-24-MSR-4): Convolutional Neural Networks for Sub-Second in Vivo Microvasculature Imaging
Andre Ráth, Jørgen Jensen
Technical University of Denmark, Denmark

(A2P-24-MSR-5): A Novel Method for Ultrasound Localization Microscopy Based on Temporal Correlation Through Deep Learning
Gaobo Zhang, Boyi Li, Xin Liu, Dean Ta
Fudan University, China

(A2P-24-MSR-6): 3D U-Net3+ Based Microbubble Filtering for Ultrasound Localization Microscopy
Wenzhao Han{3}, Yuting Zhang{3}, Yachuan Zhao{2}, Jianwen Luo{1}, Bo Peng{2}
{1}Department of Biomedical Engineering School of Medicine Tsinghua University, Beijing, China, China; {2}School of Computer Science Southwest Petroleum University, China; {3}School of Computer Science, Southwest Petroleum University, China

(A2P-24-MSR-8): Deformable-Detection Transformer for Microbubble Localization in Ultrasound Localization Microscopy
Sepideh K. Gharamaleki, Brandon Helfield, Hassan Rivaz
Concordia University, Canada

(A2P-24-MSR-9): Blind Deconvolved Robust Principal Component Analysis (BD-RPCA) for Enhancing Ultrasound Localization Microscopy (UML) Performance
Duong Hung Pham, Vassili Pustovalov, Denis Kouame
IRIT Laboratory, France

A2P-25: MSR-P: Super-Resolution Beamforming and Post-Processing
Chair(s): Md Ashikuzzaman (Johns Hopkins University)

(A2P-25-MSR-1): Learning Super-Resolution Ultrasound Localization Microscopy from Radio-Frequency Data
Christopher Hahne{2}, Raphael Sznitman{2}, Georges Chabouh{1}, Olivier Couture{1}
{1}Sorbonne Université, France; {2}University of Bern, Switzerland

(A2P-25-MSR-2): High-Resolution Power Doppler Using Null Subtraction Imaging
Zhengchang Kou, Matthew Lowerison, Qi You, Yike Wang, Pengfei Song, Michael Oelze
University of Illinois Urbana Champaign, United States

(A2P-25-MSR-3): Influence of Image discretization and Patch Size on ULM Localization Precision
Julia Sobolewski, Stefanie Dencks, Georg Schmitz
Ruhr University Bochum, Germany

(A2P-25-MSR-4): Recursive Ultrasound Imaging for Tracking high-Density Scatterers
Mostafa Amin Naji{2}, Iman Taghavi{2}, Mikkel Schou{1}, Borislav Gueorguiev Tomov{2}, Stinne Byrholdt Søgaard{3}, Kitty Steenberg{2}, Niels Bent Larsen{2}, Erik Vilain Thomsen{2}, Charlotte Mehlin Sørensen{3}, Jørgen Arendt Jensen{2}
{1}BK Medical, Denmark; {2}Technical University of Denmark, Denmark; {3}University of Copenhagen, Denmark

(A2P-25-MSR-5): Towards real-Time Imaging for Ultrasound Localization Microscopy Using non-Sparse Acquisitions
Anton Odarenko{2}, Jennifer Harmon{2}, Tobias Prasse{2}, Lindsay Cates{2}, Zin Khaing{2}, Charles Tremblay-Darveau{1}, Matthew Bruce{2}
{1}Philips Medical Systems, United States; {2}University of Washington, United States

(A2P-25-MSR-6): Elevation Direction Deconvolution in 3D Super-Resolution Ultrasound Imaging
Yanjun Xie, Yi Huang, John Hossack
University of Virginia, United States

(A2P-25-MSR-7): Microbubble Detection Using Spatially Patterned Ultrasound Beam
Naohiro Sugita, Junseok An, Tadahiko Shinshi
Tokyo Institute of Technology, Japan

A2P-26: NDE-P: Acoustic Sensors; Structural Health Monitoring; Acoustic Microfluidics; Photoacoustics; Wave Propagation
Chair(s): Erdal Oruklu (Illinois Institute of Technology), John Vetelino (University of Maine)

(A2P-26-NDE-1): Experiment on Small Step Identification with Airborne Ultrasound Using Thermophone

Takaaki Asada, Yuma Watabe, Shinichi Sasaki
Murata Manufacturing Co., Ltd., Japan

(A2P-26-NDE-2): Estimation of Physical Properties of Liquids Using Shear Horizontal Surface Acoustic Wave Sensor and Machine Learning
Takaki Aoyama, Jun Kondoh
Shizuoka University, Japan

(A2P-26-NDE-3): Remotely and on-Demand Control Local Liquid Velocity and Direction by Acoustic Vortex Technology
Chih-Hsien Li, Ching-Hsiang Fan
National Cheng Kung University, Taiwan

(A2P-26-NDE-4): Nondestructive Evaluation Using Surface Acoustic Wave Device with a Vibration Sensor
Shinji Baba, Jun Kondoh
Shizuoka University, Japan

(A2P-26-NDE-5): Safeguarding Underwater Pipes with Flexible torsional-Mode Ultrasonic Transducers
Yasmin Mohamed Yousry, Voon-Kean Wong, David Boon Kiang Lim, Kui Yao
Institute of Materials Research and Engineering (IMRE), Singapore

(A2P-26-NDE-6): Monitoring the Progression of a Cylindrical Flaw in a Reinforced Aluminum Panel Using Piezopolymer Interdigitated Lamb Wave Transducers
Lorenzo Capineri, Luca Bergamaschi, Lorenzo Taddei
Università degli Studi di Firenze, Italy

(A2P-26-NDE-7): Optical Resolution Photoacoustic Endoscopy on Rat Rectal Tumor in Vivo
Riqiang Lin{2}, Kwok Ho Lam{2}, Xiaojing Gong{1}
{1}Shenzhen Institute of Advanced Technology, China; {2}The Hong Kong Polytechnic University, China

(A2P-26-NDE-8): Numerical Study of the Effects of Acoustic Streaming with Different IDTs Structures on microfluid/Particles in microchannel Flow
Chuanjun Zhang{2}, Changjian Zhou{2}, Chuanhong Zhang{1}
{1}Nanjing University of Aeronautics and Astronautics, China; {2}South China University of Technology, China

(A2P-26-NDE-9): Contactless Respiration Measurement System Using 25-Khz Spatial Ultrasound Doppler Sensor
Kousei Kawai, Ryotaro Ohara, Shun Sato, Toru Ishii, Shintaro Izumi, Hiroshi Kawaguchi
Kobe University, Japan

(A2P-26-NDE-10): Temperature Cycle with Surface Acoustic Wave Devices for Fast PCR Purposes
Laurine Meistersheim, Cécile Floer, Denis Beyssen, Frédéric Sarry, Omar Elmazria
Institut Jean Lamour, UMR 7198 - CNRS - Université de Lorraine, France

(A2P-26-NDE-11): Hybrid Deep Neural Network with CNN and RNN Alongside 1st Order B-Spline Differential Based Methodology for Real Time Fatigue Crack Growth Rate Monitoring Using Only AE Sensors
Deepak Kumar Joshi{1}, Sudarshan Yadao{1}, Pabitra Das{1}, Prasannata Bhange{1}, Sunil Kumar Pandu{1}, Kamal Mankari{1}, Sridhar K{2}, Swati Ghosh Acharyya{3}, Amit Acharyya{1}
{1}Indian Institute of Technology Hyderabad, India; {2}Naval Material Research Laboratory, India; {3}University of Hyderabad, India

(A2P-26-NDE-12): Cell Shear Stress Stimulation by Surface Acoustic Wave for Early Diagnosis
Doll Spencerh Bidouba Sanvany, Denis Beyssen, Francis Kosior, Omar Elmazria, Frederic Sarry
Institut Jean Lamour, CNRS UMR7198, Universite de Lorraine, France

(A2P-26-NDE-13): Research on the Ice Porosity Based on Ultrasonic Technology
Yan Wang, Yuan Wang, Yang Zhang, Chunling Zhu
Nanjing University of Aeronautics & Astronautics, China

(A2P-26-NDE-14): Annular Transducer for Faster Acoustic Droplet Ejection
Youta Huang{2}, Yang Zhang{3}, Weichang Wu{1}, Hairong Zheng{1}, Weibao Qiu{1}, Zhiqiang Zhang{1}, Yanyan Yu{2}
{1}Paul C.Lauterbur Research Center for biomedical Imaging, Shenzhen Institute of Advanced Technology, China; {2}School of Biomedical Engineering, Health Science Center, Shenzhen University, China; {3}School of Electrical Engineering, University of South China, China

(A2P-26-NDE-15): The Feasibility of Using Center Frequency Spectrum in Photoacoustic Imaging for Tissue Characterization
Azin Khodaverdi{1}, Malin Larsson{1}, Klara Wahldén{1}, John Albinsson{2}, Nina Reistad{3}, Malin Malmsjö{2}, Tobias Erlöv{1}, Magnus Cinthio{1}
{1}Department of Biomedical Engineering, Lund University, Sweden; {2}Department of Clinical Sciences, Skåne University Hospital, Lund, Sweden; {3}Department of Physics, Lund University, Sweden

(A2P-26-NDE-16): An Annular Array Based System for Dynamic Acoustic Droplet Ejection
Yang Zhang{3}, Youta Huang{2}, Zhiqiang Zhang{1}, Xudong Shi{1}, Hairong Zheng{1}, Yan Wang{3}, Weibao Qiu{1}
{1}Paul C.Lauterbur Research Center for biomedical Imaging, Shenzhen Institute of Advanced Technology, China; {2}School of Biomedical Engineering, Health Science Center, Shenzhen University, China; {3}Univers School of Electrical Engineering, University of South China, China

(A2P-26-NDE-17): Dual-Mode Photoacoustic and Ultrasound Imaging of Northern Atlantic Shrimps

Abhishek Ranjan, Frank Melandsø
UiT(The Arctic University of Norway), Norway

(A2P-26-NDE-18): The Low-Loss Ultrasound Transducer with Double Anti-Matching Layers
Yiqi Cai, Lijun Xu, Jianguo Ma
Beihang University, China

(A2P-26-NDE-19): A Temperature-Compensated Lithium Tantalate Sensor Platform
Yuri Trusty{1}, Ekaterina Khmeleva{2}, Jason McGann{1}, Jequil Hartz{1}, Nuri Emanetoglu{1}, John Vetelino{1}
{1}University of Maine, United States; {2}University of Washington Bothell, United States

(A2P-26-NDE-20): Customized Recurrent Neural Network Based Accurate Co-Planar Source Localization Methodology with Reduced Number of AE Sensors
Anusha Pinisetty{1}, Deepak Joshi{1}, Prasannata Bhange{1}, Pandu Sunil Kumar{1}, Kamal Mankari{1}, Swati Ghosh Acharyya{2}, Amit Acharyya{1}
{1}IIT Hyderabad, India; {2}University of Hyderabad, India

(A2P-26-NDE-21): SwinIR for Photoacoustic Computed Tomography Artifact Reduction
Varun Shijo{2}, Tri Vu{1}, Junjie Yao{1}, Wenyao Xu{2}, Jun Xia{2}
{1}Duke University, United States; {2}University at Buffalo, United States

(A2P-26-NDE-22): Wearable Photoacoustic/Ultrasound Imaging with a Curved Linear Array
Robert Bing, Varun Shijo, Emily Zheng, Wenhan Zheng, Chuqin Huang, Jun Xia
University at Buffalo, United States

(A2P-26-NDE-23): Blood Clotting Time Measurement Using a Miniaturized High-Frequency Ultrasound Sensor
Mohammad Rahim Sobhani, Negar Majidi, Goksen G. Yaralioglu
Ozyegin University, Turkey

(A2P-26-NDE-24): Modeling a Multi-Element Ultrasound Transducer via Component-Focused Physics-Informed Neural Networks
Shaikhah Alkhadhr, Mohamed Almekkawy
Pennsylvania State University, United States

(A2P-26-NDE-25): Ultrasonic Monitoring Technology for Wind Turbine Spindle Bearing Contact Load
Zeqi Bian, Bin Wu, Yan Lyu, Cunfu He
Beijing University of Technology, China

A2P-27: PMI-P: Modelling and Inversion II
Chair(s): Koen van Dongen (Delft University of Technology)

(A2P-27-PMI-1): Neural Network for Quantitative Medical Imaging Using Radar or Ultrasound
Tom Sharon, Hila Naaman, Yonathan Eder, Yonina C. Eldar
Weizmann Institute of Science, Israel

(A2P-27-PMI-2): Determining Damping Loss in Modeling GHz Acoustic Block Through Inverse Analysis for Accurate Ultrasonic Wavefront Computation Apparatus
Zaifeng Yang{2}, Xing Haw Marvin Tan{2}, Daniel Ssu-Han Chen{3}, Zibo Juan{4}, Viet Phuong Bui{2}, Kevin Tshun Chuan Chai{3}, Ching Eng Png{2}, Amit Lal{1}
{1}Cornell University, United States; {2}Institute of High Performance Computing (IHPC), Agency for Science, Technology & Research (ASTAR), Singapore; {3}Institute of Microelectronics (IME), Agency for Science, Technology & Research (ASTAR), Singapore; {4}National Junior College, Singapore

(A2P-27-PMI-3): Modeling Elastic Wave Propagation in Cylindrical Coordinates
Tom van Lieshout{1}, David Espindola{3}, Eric Verschuur{1}, Colin Commandeur{2}, Gerard Louwerse{2}, Koen W.A. van Dongen{1}
{1}Delft University of Technology, Netherlands; {2}TATA Steel Nederland, Netherlands; {3}Universidad de O'Higgins, Chile

(A2P-27-PMI-4): Ultrasound Speed of Sound Reconstruction Based on Local Event Slopes of Synthetic Aperture Data
Yonghao Wang, Wenkai Lu, Yuxuan Li
Tsinghua University, China

(A2P-27-PMI-5): A Dynamic Mechanism of ultrasound-Targeted phase-Change nanodroplets Destruction in biofilm Infections
Xiaoyu Qian{1}, Jie Dang{1}, Feihong Dong{1}, Jie Pan{2}, Jue Zhang{1}
{1}Peking university, China; {2}Peking University School and Hospital of Stomatology, China

(A2P-27-PMI-6): Transcranial Ultrasound Forward Modeling in Frequency Domain Based on Physics-Constrained UNet
Linfeng Wang, Jian Li, Shili Chen, Zhoumo Zeng, Yang Liu
State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, China

(A2P-27-PMI-8): The Metrological Challenge of Monitoring Froth Processes – a Numerical Approach to Model Sound Propagation in Foam
Hannes Emmerich{2}, Leon Knüpfer{1}, Sascha Heitkam{1}, Kerstin Eckert{1}, David Weik{2}, Jürgen Czarske{2}
{1}HZDR, Germany; {2}TU-Dresden, Germany

A2P-28: PPN-P, PTE-P: Phononics, High Power and Temperature Effects
Chair(s): Ji Wang (Ningbo University)

(A2P-28-PPN-1): Second Order Topological Hinge Modes in a 3-Dimensional Phononic Crystal
Yusuke Hata, Masaaki Misawa, Kenji Tsuruta

Okayama University, Japan

(A2P-28-PPN-2): Highly Sensitive GHz surface-Wave phononic-Crystal Biosensor Using Transmission Near the Bandgap Edge
Wenlou Yuan{2}, Akira Nagakubo{2}, Oliver B. Wright{1}, Hirotsugu Ogi{2}
{1}Hokkaido University and Osaka University, Japan; {2}Osaka University, Japan

(A2P-28-PPN-3): Desktop Direct Sound 3D Printing
Martin Weber, Jere Hyvönen, Ari Salmi, Edward Hæggström
Electronics Research Lab., Dept. of Physics, University of Helsinki, Finland

(A2P-28-PPN-4): Investigation of the Effect of Self-Heating on Through-Metal Ultrasonic Power Transmission Efficiency
Allen Zhou{1}, Kevin Dix{1}, Prabhakaran Manogharan{1}, Alper Erturk{1}, Ihab El-Kady{2}
{1}Georgia Institute of Technology, United States; {2}Sandia National Laboratories, United States

(A2P-28-PPN-5): Graded-Index Phononic Crystal Based Self-Focusing Interdigitated Transducers
Udit Rawat{2}, Vicki Lu{3}, Vikrant Palan{3}, Dana Weinstein{1}
{1}Elmore Family School of Electrical and Computer Engineering, Purdue University, United States; {2}Kilby Labs Texas Instruments, United States; {3}Polytec Inc., United States

(A2P-28-PPN-6): Ultrasonic Waves in Time-Varying Nonlinear Phononic Crystals
Pravinkumar Ghodake
Indian Institute of Technology Bombay, India

A2P-29: ASD-P: SAW Devices II
Chair(s): Shogo Inoue (Qorvo, Inc.)

(A2P-29-ASD-1): Application of Periodically Slotted SiO2 to Layered SAW Structure for Manipulation of SAW Slowness Curve
Ying Yang, Yiwen He, Zijiang Yang, Jingfu Bao, Ken-Ya Hashimoto
University of Electronic Science and Technology of China, China

(A2P-29-ASD-2): Study of Sh Type Love Modes in TC-SAW Resonators on LiNbO3
Zijiang Yang, Yiwen He, Ying Yang, Jingfu Bao, Ken-Ya Hashimoto
University of Electronic Science and Technology of China, China

(A2P-29-ASD-3): A Thin Film multi-Layered SAW Resonator on Sapphire Substrate with High Acoustic Velocity Stability for Film Thickness Variations
Ryohei Komiyama, Takashi Gonoi, Toshio Nishizawa
TAIYO YUDEN Mobile Techology Co., Ltd., Japan

(A2P-29-ASD-4): Exploring Transverse Mode Suppression with Tilted IDTs in TF-SAW Resonators
Xiandong Liu, Xiaoming Lu, Wei Jiang, Anming Gao
Zhejiang Starshine Semiconductor Corporation, China

(A2P-29-ASD-5): Relation Between Electrode Thickness and Optimal Tilted Angle for Suppressing Transverse Modes in TF-SAW Resonators
Yueyang Sun{1}, Yidan Yin{2}, Xiaoming Lu{2}, Wei Jiang{2}, Anming Gao{2}
{1}Hefei University of Technology, China; {2}Zhejiang Starshine Semiconductor Corporation, China

(A2P-29-ASD-6): A Novel SAW Resonator with anti-Groove Structure Based on Heterogeneous Substrate
Binghui Lin, Yan Liu, Tiancheng Luo, Yaxin Wang, Chao Gao, Yang Zou, Wenjuan Liu, Yao Cai, Chengliang Sun
Wuhan university, China

(A2P-29-ASD-7): Measurement of Nonlinear Harmonic Signals Generated in SAW Resonators on 42º YX-LiTaO3 Substrate Using Spectrum Analyzer
Baichuan Li{2}, Qiaozhen Zhang{2}, Sulei Fu{3}, Wei Luo{1}, Weibiao Wang{3}
{1}Huazhong University of Science and Technology, China; {2}Shanghai Normal University, China; {3}Shoulder Electronics Limited, China

(A2P-29-ASD-8): Impact of Transducer Aspect Ratio on the Performance of AlN Hybrid SAW/BAW Resonators
Saher Barsoum{1}, Antoine Schembri{1}, Mathieu Bernard{1}, Aude Lefevre{1}, Marie Bousquet{1}, Alexandre Reinhardt{1}, Thierry Laroche{3}, Sylvain Ballandras{3}, Bertrand Dubus{2}
{1}CEA-LETI, France; {2}Junia, IEMN, France; {3}Soitec, France

(A2P-29-ASD-9): Resonance Properties of Leaky SAW Higher Harmonics on LiTaO3 Thin Plate Bonded to Quartz Substrate
Hibiki Morita{1}, Masashi Suzuki{1}, Shoji Kakio{1}, Jun Mizuno{2}
{1}University of Yamanashi, Japan; {2}Waseda University, Japan

(A2P-29-ASD-10): Suppression of Spurious Propagation Modes on Plate Waves and Saws Using Divided Piezoelectric Thin Plates
Naoto Hara{1}, Masashi Suzuki{1}, Shoji Kakio{1}, Yasushi Yamamoto{2}
{1}University of Yamanashi, Japan; {2}Yamamoto-ADEC LLC, Japan

(A2P-29-ASD-11): Analysis of SAW Propagation Properties on Piezoelectric Substrate with Periodic Voids
Takashi Suzuki, Masashi Suzuki, Shoji Kakio

University of Yamanashi, Japan

(A2P-29-ASD-12): Modelling of Self-Heating Effect of SAW Devices on LiTaO3/SiO2/Si Substrates
Hulin Yao, Shibin Zhang, Jinbo Wu, Liping Zhang, Pengcheng Zheng, Xiaoli Fang, Dongchen Sui, Mijing Sun, Xin Ou
Shanghai Institute of Microsystem and Information Technology, Shanghai, China, China

(A2P-29-ASD-13): High-Performance SAW Resonators Based on Single-Crystalline a-Plane AlN Thin Films on Sapphire Substrates
Xiaoli Fang{3}, Ye Yuan{4}, Shibing Zhang{3}, Pengcheng Zheng{3}, Yanda Ji{2}, Liping Zhang{3}, Jinbo Wu{1}, Xuedi Tian{3}, Hulin Yao{3}, Xinqiang Wang{4}, Xin Ou{3}
{1}hanghai Institute of Microsystem and Information Technology, China; {2}Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu 211106, China; {3}Shanghai Institute of Microsystem and Information Technology, China; {4}Songshan Lake Materials Laboratory, China

(A2P-29-ASD-14): A Novel Modified AlN/Sapphire Layered Structure for Surface Acoustic Wave Resonator with High Coupling Coefficient and Spurious-Free
Huiling Liu{2}, Qiaozhen Zhang{1}, Yuandong Gu{2}, Nan Wang{2}
{1}Shanghai Normal University, China; {2}Shanghai University, China

(A2P-29-ASD-15): Avoidance of Spurious Spikes Arisen by the Cascading of Filters Through Controlling Filters Input Phases
Lluis Acosta, Santi Cano, Jordi Verdú, Pedro de Paco
Universitat Autònoma de Barcelona, Spain

(A2P-29-ASD-16): Equivalent Circuit Model for the second-Order Harmonic Simulation in Leaky-SAW Devices
Marta González-Rodríguez{2}, Carlos Collado{3}, J.M. González-Arbesú{3}, Jordi Mateu{3}, Sebastian Huebner{2}, Robert Aigner{1}
{1}Qorvo Apopka, Florida, United States; {2}Qorvo Munich GmbH, Germany; {3}Universitat Politecnica de Catalunya (UPC), Spain

A2P-30: TPM-P: Piezoelectric Transducer Materials and Applications
Chair(s): Franck Levassort (Francois Rabelais University of Tours)

(A2P-30-TPM-1): Improved d33 and Ultrasound Response Correlated with Porosity in ZnO Thin Films
Manuel Pelayo Garcia{2}, David Allan Hughes{1}, Kevin McAughey{1}, Des Gibson{2}, Carlos Garcia Nuñez{2}
{1}Novosound Ltd, United Kingdom; {2}University of the West of Scotland, United Kingdom

(A2P-30-TPM-2): Fabrication and Characterisation of a Nitinol Langevin Transducer
Yuchen Liu, Mahshid Hafezi, Andrew Feeney
Centre for Medical and Industrial Ultrasonics, James Watt School of Engineering, United Kingdom

(A2P-30-TPM-3): Evaluation of Corrosion Detection Performance of Directly Mounted Sol-Gel Composite Piezoelectric Ultrasonic Transducer
Mako Nakamura{2}, Makoto Kumon{1}, Makiko Kobayashi{1}, Kei Nakatsuma{1}
{1}Faculty of Advanced Science and Technology, Kumamoto University, Japan; {2}Graduate School of Science and Technology Kumamoto University, Japan

(A2P-30-TPM-4): Accelerated Search for KNN-Based Ceramics with Large Piezoelectric Constants Using Machine Learning Methods
Heng Hu{2}, Junchen Yang{2}, Kang Yan{2}, Tao Tan{1}, Dawei Wu{2}
{1}Macao Polytechnic University, Macau; {2}Nanjing University of Aeronautics and Astronautics, China

(A2P-30-TPM-5): Transparent Electrode Deposition on PMN-PT Substrate by room-Temperature RF Sputtering
Heesoo Kim, Minsu Kim, Chulhong Kim, Hyung Ham Kim
Pohang University of Science and Technology, Korea

(A2P-30-TPM-6): Metal Composite Backing with High Acoustic Attenuation and Impedance for P(VDF-TrFE)-Based Transducer
Sean Toffessi Siewe{2}, Samuel Callé{2}, François Vander Meulen{2}, Damien Valente{2}, Jean-Marc Grégoire{3}, Aline Banquart{1}, Stéphanie Chevalliot{1}, Arnaud Capri{1}, Franck Levassort{2}
{1}Carestream Dental, France; {2}GREMAN, UMR 7347, University of Tours, CNRS, INSA Centre Val de Loire, France; {3}iBRAIN, UMR 1253, University of Tours, INSERM, France

(A2P-30-TPM-7): Attenuation of Thick piezoceramic Flexural Modes Through Laser micro-Machining
Koussila Kassou, Maxime Bilodeau, Patrice Masson, Nicolas Quaegebeur
Université de Sherbrooke, Canada

(A2P-30-TPM-8): Substrates As Acoustic Modulators in Fully Printed Polymer Ultrasound Transducers
Christoph Leitner{1}, Kirill Keller{2}, Francesco Greco{3}
{1}ETH Zurich, Switzerland; {2}Graz University of Technology, Austria; {3}University Sant'Anna Pisa, Italy

(A2P-30-TPM-9): A Precise Real-Time Monitoring System for the Amplitude of an Ultrasonic Transducer Based on Passive Piezoelectric Sensors
Zhirui Chen, Shibo Zhang, Zhixuan Zhu, Jiang Zeng, Yongbo Wu
Southern University of Science and Technology, China

(A2P-30-TPM-10): A Thin Film Cantilever-Based Magnetoelectric Magnetic Field Sensor and Energy Harvester Utilizing the Delta-E Effect
Yuxi Wang, Mingye Du, Tao Wu
ShanghaiTech University, China

(A2P-30-TPM-11): Study of voltage-Induced Ferroelectric Domain Inversion on Poi Based SAW Resonators
Frederic Allibert, Alexis Drouin, Sebastien Ledrappier, Emilie Emilie Courjon, Saly N'Diaye, Florent Bernard, Sylvain Ballandras
Soitec, France

(A2P-30-TPM-12): Extraction of Material Properties of a Thin Silicon Membrane Embedded in a Piezoelectric Stack
Sagnik Ghosh, Prakasha Chigahalli Ramegowda, Duan Jian Goh, Jaibir Sharma, Yul Koh, Joshua E.-Y. Lee
Institute of Microelectronics, A-STAR, Singapore

A2P-31: TMU-P: Piezoelectric Micromachined Ultrasonic Transducers
Chair(s): Yipeng Lu (Peking University)

(A2P-31-TMU-1): A Feasibility Study on Underwater 2D Localization Using PZT pMUTs
Mantalena Sarafianou{1}, Daniel Ssu Han Chen{1}, David Sze Wai Choong{1}, Duan Jian Goh{1}, Jihang Liu{1}, Joshua En-Yuan Lee{1}, Srinivas Merugu{1}, Qing Xin Zhang{1}, Peter Hyun Kee Chang{1}, Domenico Giusti{2}, Laura Castoldi{2}, Claudia Pedrini{2}, Lu
{1}Institute of Microelectronics, Singapore; {2}ST Microelectronics, Singapore; {2}ST Microelectronics, Italy

(A2P-31-TMU-2): Piezoelectric Micromachined Ultrasound Transducers As a Materials Characterization Probe
Hamad Raheem{2}, Ashwin Seshia{2}, Bernadette Craster{1}
{1}TWI Ltd., United Kingdom; {2}University of Cambridge, United Kingdom

(A2P-31-TMU-3): Evaluating the Influence of PMUT Mechanical Support Properties on Power Conversion Efficiency in Ultrasonically Powered Implants
Alessandro Stuart Savoia{2}, Domenico Giusti{3}, Carlo Luigi Prelini{3}, Alberto Leotti{3}, Marta Saccher{1}, Amin Rashidi{1}, Vasiliki Giagka{1}, Marco Ferrera{3}
{1}Delft University of Technology, Netherlands; {2}Roma Tre University, Italy; {3}STMicroelectronics, Singapore; {3}STMicroelectronics, Italy

(A2P-31-TMU-4): Air-Coupled Piezoelectric Micromachining Ultrasonic Transducer Based on low-Cost and Large Remnant Polarization PZT Thin Film
Chien-Lun Koa, Chih-Hsien Huang, Han-Jen Hsu, Hsiao-Chi Lin, Ju-Hsuan Hung, Shao-Wei Wu, Chih-Ying Li, Ya-Han Liu, Jia-Ling Lin, Pu-Chun Liu, Ying-Hsien Chen, Yu Wen Huang, Han-Wei Lian
National Cheng Kung University, Taiwan

(A2P-31-TMU-5): Application of Multi-Resonance Oval-Shaped Piezoelectric Micromachined Ultrasonic Transducer (PMUT) for Industrial Ultrasonic Tomography System
Javad Abbaszadeh, Hossein Heidari, Zohreh Ebrahimpour, Alexander Shatalov, Tingzhong Xu, Mohssen Moridi
Silicon Austria Labs GmbH, Austria

(A2P-31-TMU-6): Dynamic Beamforming Strategy for Sidelobe Level Suppression in Piezoelectric Micromachined Ultrasonic Transducer (PMUT) Sparse Arrays
Zhou Da{2}, Tingzhong Xu{2}, Mohssen Moridi{2}, Alessandro Stuart Savoia{1}
{1}Roma Tre University, Italy; {2}Silicon Austria Labs, Austria

(A2P-31-TMU-7): Optimization of AlN Deposition Parameters for a High Frequency 1D pMUT Array
Atheeth Shivalingaprasad, Manish Arora
Indian Institute of Science, India

(A2P-31-TMU-8): The Influence of Two DC Voltage on Bandwidth and Sensitivity of the Dual-Electrode Type of Pizoelectric Micromachined Ultrasonic Transducer for Air-Coupled Application
Zohrehsadat Ebrahimpour, Hossein Heidari, Mohssen Moridi, Javad Abbaszadeh
Silicon Austria Lab, Austria

Tuesday, September 5: Lectures

	Room 1 (Yellowknife) **B1L-01: MIS: Aberration Correction** **Chair(s):** Georg Schmitz (Ruhr University Bochum)	Room 2 (Vancouver) **B1L-02: MSR: Super-Resolution on Cancer** **Chair(s):** Matthew Lowerison (University of Illinois Urbana-Champaign), Jonathan Poree (Polytechnique Montreal)	Room 3 (Calgary) **B1L-03: MTH: Drug Delivery** **Chair(s):** Kullervo Hynynen (University of Toronto)	Room 4 (Winnipeg) **B1L-04: MEL: New Elastography Methods** **Chair(s):** Caterina Gallippi (University of North Carolina)
8:00 AM	**Fast Marching Phase-Aberration Correction in Plane-Wave Transcranial Imaging** Yuming Yang, Huilong Duan, Yinfei Zheng *Zhejiang University, China*	**Super-Resolution Ultrasound Imaging Reveals 3D Radial Heterogeneity Associated with Tumor Infiltration Degree** Jingyi Yin, Feihong Dong, Jian An, Jiabin Zhang, Jue Zhang *Peking university, China*	**Ultrasound-Enhanced Delivery of Urolithin a Alleviated Motor Dysfunction in a Transgenic Mouse Model of Amyotrophic Lateral Sclerosis** Kaili Chen, Yiluo Xu, Ji Zhang, Xin Chen, Siping Chen, Yanyan Yu, Yuanyuan Shen *Shenzhen University, China*	**Three-Dimensional Shear Wave Elastography Using Acoustic Radiation Force and a 2D Row-Column Addressing (RCA) Array** Zhijie Dong{2}, U-Wai Lok{1}, Matthew Lowerison{2}, Chengwu Huang{1}, Shigao Chen{1}, Pengfei Song{2} *{1}Mayo Clinic College of Medicine and Science, United States; {2}University of Illinois Urbana-Champaign, United States*
8:15 AM	**Fast and Accurate Detection of Hematoma Boundaries in Transcranial Ultrasound Brain Imaging Using Non-Convex Total Variation Regularization and Frequency Component Layer Separation** Aryaz Baradarani, Kiyanoosh Shapoori, Jeff Sadler, Eugene Malyarenko, Juri G. Gelovani, Roman Gr. Maev *Tessonics Medical Systems, United States*	**Volumetric Ultrasound Localization Microscopy for the Preclinical Detection and Monitoring of Solid Tumors: a Longitudinal Study** Jacob McCall, Hatim Belgharbi, Gianmarco Pinton, Paul Dayton *UNC Chapel Hill, United States*	**Impact of Sonoporation-Assisted Lox Inhibition on Radiosensitivity Using 3D Liver Cancer Cell Culture and Shear Wave Elasticity Imaging** Shao-Lun Lu, Yu Pei, Wei-Wen Liu, Kun Han, Jason Chia-Hsien Cheng, Pai-Chi Li *National Taiwan University, Taiwan*	**2DTE: a Novel Real-Time Transient Elastography Method for Ultraportable Ultrasound** Adrien Besson{2}, Baptiste Hériard-Dubreuil{2}, Joel Gay{2}, Dan Cohen-Dutartre{3}, Victor De Ledinghen{1}, Claude Cohen-Bacrie{2} *{1}Bordeaux University Hospital, France; {2}E-Scopics, France; {3}Inria Bordeaux Sud-Ouest, France*
8:30 AM	**Estimating Transducer Lens Properties for Higher Resolution Imaging and Accurate Medium Sound Speed Retrieval** Rick Waasdorp, David Maresca, Guillaume Renaud *Delft University of Technology, Netherlands*	**(INVITED) Super Resolution Ultrasound Imaging Using Erythrocytes – Sure** Jorgen Arendt Jensen *Department of Health Technology, Denmark*	**Focused Acoustic Vortex-Mediated Sonochemotherapy for the Amplification of Immunogenic Cell Death Combined with Checkpoint Blockade to Potentiate Cancer Immunotherapy** Zhen Ya, Shifang Guo, Yan Li, Mingting Zhu, Yujin Zong, Mingxi Wan	**Bessel Function-Apodized Beams Improve Axial Range for Pointwise Shear Elasticity Estimation with Double-Profile Intersection (DoPIo) Elastography** Keita Yokoyama, Caterina Gallippi *Joint Department of Biomedical Engineering at Univ of NC at Chapel Hill and NC State Univ, United States*

Tuesday, September 5: Lectures

			School of Life Science and Technology, Xi'an Jiaotong University, China	
8:45 AM	**Comparison of Aberration Correction Methods in a multi-Array Configuration** Josquin Foiret, Eun-Yeong Park, Katherine Ferrara *Stanford University, United States*		**Evaluation of Immune Activation of Drug-Loaded Oxygen Microbubbles Induced Vascular Normalization in Pancreatic Cancer** Yi Jia Zhou, Yi Ju Ho *National Yang Ming Chiao Tung University, Taiwan*	**Vortex-Push Ultrasound Shear Wave Elastography: a Novel Method for Volumetric Shear Elasticity Imaging** Wei Chen Lo, Xuyang Gao, Chih Kuang Yeh *National Tsing Hua University, China; National Tsing Hua University, Taiwan*
9:00 AM	**Aberration Correction of Ultrasound B-Mode Images Using Deep Learning-Based Speed-of-Sound Reconstructions** Marvin Heller, Georg Schmitz *Ruhr University Bochum, Germany*	**The Combination of Ultrasound Super-Resolution Imaging and Shear-Wave Elastography for Differential Diagnosis of Breast Masses** Yu-Meng Lei{2}, Nan Li{3}, Hai-Man Hu{1}, Jing Yu{2}, Jun-Rui Hu{5}, Bin Xie{4}, Hua-Rong Ye{2}, Ge Zhang{2} *{1}Department of Electrical and Electronic Engineering, Hubei University of Technology,, China; {2}Department of Medical Ultrasound, China Resources & Wisco General Hospital, China; {3}Department of Medical Ultrasound, China Resources & Wisco General Hospital,, China; {4}Department of Medical Ultrasound, Huanggang Central Hospital, China; {5}Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China*	**LIPUS Promotes Chitosan and Prussian Blue Nanoparticle Absorption for Tissue Elasticity Recovery in Rats with Acute Tendon Injury** Qian Zheng{1}, Mengyao Liu{2}, Lixin Jiang{2}, Dean Ta{1} *{1}Fudan University, China; {2}Shanghai Jiao Tong University, China*	**Reflected Shear Wave Computed Tomography (R-SWCT) for Elasticity Imaging of 3D Cell Cultures Using a Single-Element Transducer** You-Chuan Chen{2}, Ting-Wei Chen{2}, Pai-Chi Li{1} *{1}Dept. of EE, National Taiwan University, Taiwan; {2}National Taiwan University, Taiwan*
9:15 AM	**Frequency-Space Prediction Filtering for Phase Aberration Correction in Plane-Wave Imaging** Mostafa Sharifzadeh, Habib Benali, Hassan Rivaz *Concordia University, Canada*	**Quantifying 3D Tumor Microvascular Heterogeneity via Super-Resolution Ultrasound Imaging to Categorize and Characterize Microvascular Subgroups in U87 Glioblastoma** Jingyi Yin, Feihong Dong, Jian An, Jiabin Zhang, Jue Zhang *Peking university, China*	**Noninvasive Pulsed Ultrasound Enhanced Exogenous Nucleic Acid Delivery Using Cationic nanodroplets for Ischemic Stroke Therapy** Wei Dong{2}, Guihu Wang{2}, Yingxue Liang{2}, Wenjuan Li{2}, Heyuan Liu{2}, Zongfang Li{2}, Mingxi Wan{1}, Yujin Zong{1} *{1}School of Life Science and Technology, Xi' an Jiaotong University, China; {2}The Second Affiliated Hospital, Xi'an Jiaotong University, China*	**Shear Wave Attenuation Computed Using Plane Wave Single Tracking Location Shear Wave Elastography-Based Frequency Shift** Reem Mislati, Katia Iliza, Marvin Doyley *University of Rochester, United States*

Tuesday, September 5: Lectures

	Room 5 (Montreal) **B1L-05: PGP: General Physical Acoustics II** **Chair(s):** Ji Wang (Ningbo University)	Room 6 (Halifax) **B1L-06: ABD: BAW Devices** **Chair(s):** Amelie Hagelauer (Fraunhofer EMFT, TUM), Marc Solal (Qorvo, Inc.)	Room 7 (Toronto) **B1L-07: TPM: Piezoelectric Transducer Materials and Novel Applications** **Chair(s):** Stefan Rupitsch (Friedrich-Alexander University), Valsala Kurusingal (Thales Australia)
8:00 AM	**Numerical Assessments of time-Domain Green's Functions and Lossy Spatial Impulse Responses for the Van Wijngaarden Wave Equation** Vaughn Holmes, Robert McGough *Michigan State University, United States*	**Giant Piezoelectricity in Sodium Niobate FBAR Achieving Coupling Coefficient of 21.6% at 3 GHz** Xing Haw Marvin Tan{1}, Khuong Phuong Ong{1}, Zaifeng Yang{1}, Zibo Juan{3}, Viet Phuong Bui{1}, Ching Eng Png{1}, Hong Son Chu{1}, Huajun Liu{2} *{1}Institute of High Performance Computing (IHPC), Agency for Science, Technology & Research (ASTAR), Singapore; {2}Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology & Research (A, Singapore; {3}National Junior College*	**Revisiting Rochelle Salt for eco-Designed Disposable Ultrasonic Transducers** Etienne Lemaire{2}, Atilla Atli{1}, Dominique Certon{2} *{1}Université de Lyon, ECAM LaSalle, LabECAM, F-69005 Lyon, France, France; {2}Université de Tours, GREMAN UMR-CNRS 7347, Tours, France, France*
8:15 AM	**Influence of the Ion Density of the Medium on the Shell Elasticity and Viscosity of lipid-Coated microbubbles** Amin Jafarisojahrood{2}, Celina Yang{3}, Claire Counil{1}, Pinuta Nittayacharn{1}, David Goertz{2}, Agata Exner{1}, Michael C. Kolios{3} *{1}Case Western University, United States; {1}Case Western University, Canada; {2}Sunnybrook Research Institute, Canada; {3}Toronto Metropolitan University, Canada*	**A Spurious-Free Laterally-Excited Bulk Acoustic Resonator with Ring-Shaped Interdigital Electrodes** Min Zeng, Wenjuan Liu, Zhiwei Wen, Tiancheng Luo, Yao Cai, Yan Liu, Chengliang Sun *Wuhan University, China*	**Full Material Constants of Alternating Current Poled PMN-0.3PbTiO3 Single Crystals Grown by the Continuous Feeding Bridgman Process** Yohachi Yamashita{1}, Yiqin Sun{5}, Tomoaki Karaki{4}, Hiroshi Maiwa{3}, Yu Xiang{3}, Hwang-Pill Kim{2}, Xiaoning Jiang{2} *{1}NC State Univ. NC, United States; {2}NC State Univ., NC, United States; {3}Shonan Institute of Technology, Fujisawa, Kanagawa, Japan; {4}Toyama Prefectural Univ. Toyama, Japan; {5}Toyama Prefectural Univ. Toyama,, Japan*
8:30 AM	**Comparison of Sound Dispersions in Rarefied Carbon Dioxide and Nitrogen Gases** Guanwen Sun{2}, Na Liu{1}, Chao Li{2}, Yuxin Zhang{2}, Chang Su{2}, Hanyin Cui{2}, Weijun Lin{2} *{1}Beijing Institute of Space Long March Vehicle, China; {2}Institute of Acoustics, Chinese Academy of Sciences, China*	**Impact of in-Plane Residual Stress on the Performance of the Film Bulk Acoustic Resonators** Shashwat Bhattacharya, Liu Chen, Wenjia Yang, Zhang Ying, Xinghua Wang, Yi Zhun Eugene Woo, Zhu Yao *IME AStar, Singapore*	**Development of Large-Diameter and High-Performance Sm Doped PIN-PMN-PT Crystals for Medical Ultrasound Imaging Transducers** Jun Luo{2}, Yu Sakano{1}, Ken Kitahata{2}, Steve Dynan{2} *{1}TAYCA Corporation, Japan; {2}TRS Technologies Inc., United States*
8:45 AM	**Passive and Active Cavitation Detection methods: Inception and Persistence During HIFU Sonication** Gonzalo Garay, Yamil Abraham, Guillermo Cortela, Nicolás Benech, Carlos Negreira *Facultad de Ciencias, UdelaR, Uruguay*	**Composite Tunable Bulk Acoustic Wave Resonator Based on Lithium Niobate Thin Films** Alexandre Reinhardt{1}, Elisa Soulat{1}, Pierre Perreau{1}, Grégory Enyedi{1}, Alice Joulie{1}, Nicolas Boudou{1}, Marie Gorisse{1}, Gaël Castellan{1}, Guillaume Audoit{1}, Marie Bousquet{1}, Paul Fischer{2}	**Piezoelectric Transformer Using Bulk PZT & Fused Quartz for RF Ion Accelerators** Meera Garud{1}, Yuetao Hou{1}, Qing Ji{2}, Thomas Schenkel{2}, Khurram Afridi{1}, Amit Lal{1} *{1}Cornell University, United States; {2}Lawrence Berkeley National Laboratory, United States*

Tuesday, September 5: Lectures

		{1}CEA-LETI, France; {2}Intel Corporation, United States	
9:00 AM	**Experimental Investigate of Dispersion of Sound Speed in low-Pressure Air** Guanwen Sun{2}, Weixuan Kong{1}, Chao Li{2}, Yuxin Zhang{2}, Chang Su{2}, Hanyin Cui{2}, Weijun Lin{2} *{1}Beijing Institute of Space Long March Vehicle, China; {2}Institute of Acoustics, Chinese Academy of Sciences, China*	**Effect of Film Stress on the Performance of Solidly Mounted Resonator** Yan Liu{3}, Yuanhang Qu{3}, Xiyu Gu{2}, Zhiwei Wen{3}, Yilin Wang{1}, Min Wei{3}, Xiang Chen{3}, Chengliang Sun{3} *{1}Hongyihonor college of wuhan university, China; {2}School of Physics and Technology, Wuhan University, China; {3}the Institute of Technological Science, Wuhan University, China*	**(INVITED) Device Structures and Material Synthesis for High Frequency Electromechanical Signal Processors** Troy Olsson *University of Pennsylvania, United States*
9:15 AM	**The Analysis of a Surface Acoustic Wave Resonator with Periodic Electrodes by the Rayleigh-Ritz Method** Jinghui Wu{2}, Chencheng Lian{2}, Ji Wang{2}, Huimin Jing{2}, Yahui Tian{1} *{1}Institute of Acoustics, CAS, China; {2}Ningbo University, China*	**Effect of Temperature on Laterally Excited Bulk Acoustic Resonators** Marco Liffredo, Seniz Ezra Küçük, Soumya Yandrapalli, Luis Guillermo Villanueva *EPFL STI IGM NEMS, Switzerland*	

	Room 1 (Yellowknife) **B3L-01: MTC: Ultrasound Estimation of Sound Speed** **Chair(s):** Kai Thomenius (Massachusetts General Hospital)	**Room 2 (Vancouver)** **B3L-02: MIS: Cardiovascular Imaging** **Chair(s):** Chandra Sehgal (University of Pennsylvania)	**Room 3 (Calgary)** **B3L-03: MBE: Stimulatory and Therapeutic Bioeffects** **Chair(s):** Keith Wear (Food and Drug Administration)	**Room 4 (Winnipeg)** **B3L-04: NAF, NUA: Acoustic Microfluidics and Underwater Acoustics** **Chair(s):** Kui Yao (ASTAR, Singapore), Jun Kondoh (Shizuoka University)
10:45 AM	**Influence of Tissue Heterogeneity on the Accuracy of pulse-Echo speed-of-Sound Imaging** Michael Jaeger, Parisa Salemi Yolgunlu, Martin Frenz, Naiara Korta Martiartu *University of Bern, Switzerland*	**Electromechanical Wave Imaging for Mitral Valve Disease Characterization in the Clinic** Melina Tourni{1}, Alexandra Channing{2}, Seungyeon Han{1}, Mary Kucinsky{1}, Elisa Konofagou{1} *{1}Columbia University, United States; {2}Columbia University Irving Medical Center, United States*	**Rodent Repellent Using Innate Fear Inducing Ultrasonic Voice Playback** Taehyung Kim, Jinhyoung Park *Department of Intelligent Precision Healthcare Convergence, Korea*	**Skipping the Boundary layer: high-Speed droplet-Based Immunoassay Using Rayleigh Acoustic Streaming** Qi Wang{2}, Zhe Ding{3}, Gary Wong{3}, Jia Zhou{2}, Antoine Riaud{1} *{1}ABB Corporate Research, Switzerland; {2}Fudan University, China; {3}Institut Pasteur of Shanghai, Chinese Academy of Sciences, China*
11:00 AM	**Pulse-Echo Speed-of-Sound As Imaging Biomarker for Breast Density: Virtual Source Acquisitions for In-Vivo Application** Can Deniz Bezek, Orcun Goksel *Uppsala University, Sweden*	**Hardware-Accelerated Lightweight Deep Learning Model for Automatic Cardiac Parameter Measurement on Low-Resource Portable Devices** Dongju Kim, Hyunwoo Cho, Yangmo Yoo *Sogang University, Korea*	**Focused Ultrasound Mediated Effect on the Blood - Cerebrospinal Fluid Barrier and its Impact in Reduction of Alzheimer's Pathology** Daniella Jimenez, Alina Kline - Schoder, Fotis Tsitsos, Elisa Konofagou *Columbia University, United States*	**Ultrasound-Induced Wetting Dynamics of superhydrophobic Surfaces at Microsecond Time Scales** Maxime Fauconnier{1}, Bhuvaneshwari Karunakaran{2}, Alex Drago Gonzalez{1}, William Wong{2}, Robin Ras{2}, Heikki Nieminen{1}

				{1}Medical Ultrasonics Laboratory (MEDUSA), Aalto University, Espoo, Finland., Finland; {2}Soft Matter & Wetting group, Aalto University, Espoo, Finland., Finland
11:15 AM	**Speed-of-Sound Measurement Based on Phase Aberration Correction Using Virtual Central Element on Linear Array probe: an Ex Vivo Study** Naotaka Nitta, Toshikatsu Washio, Keigo Hikishima *National Institute of Advanced Industrial Science and Technology (AIST), Japan*	**Ultrasonic Blood Pressure Measurements Using Flexible Large Area Arrays** Laurent Fillinger{2}, Kaj Gijsbertse{2}, Lars Horchens{2}, Anne Saris{1}, Moein Mozaffarzadeh{1}, Laurens Peters{2}, Bart Peeters{2}, Thijs Schrama{2}, Chris de Korte{1}, Gerwin Gelinck{2}, Paul van Neer{2} *{1}RadboudUMC, Netherlands; {2}TNO, Netherlands*	**Low-Intensity Pulsed Ultrasound Stimulation As a Disruptive Liquid Biopsy Approach for Ulcerative Colitis Diagnosis** Andrea Cafarelli{5}, Samuel Elias Pineda Chavez{2}, Giulia Rizzo{2}, Angela Sorriento{5}, Laura Loy{1}, Arianna Dal Buono{1}, Roberto Gabbiadini{1}, Lisa Meanti{3}, Mariangela Allocca{4}, Silvio Danese{4}, Alessandro Repici{2}, Alessandro Armuzzi{2}, Leon *{1}Humanitas Clinical and Research Center, Italy; {2}Humanitas University, Italy; {3}IRCCS Humanitas Research Hospital, Italy; {4}IRCCS Ospedale San Raffaele, Italy; {5}Scuola Superiore Sant'Anna, Italy*	**Ultrasonic Bubble Bulldozer on superhydrophobic Surfaces** Alex Drago-González{1}, Maxime Fauconnier{1}, Bhuvaneshwari Karunakaran{2}, William S. Y. Wong{2}, Robin H. A. Ras{2}, Heikki J. Nieminen{1} *{1}Medical Ultrasonics Laboratory (MEDUSA), Aalto University, Espoo, Finland, Finland; {2}Soft Matter and Wetting, Aalto University, Espoo, Finland, Finland*
11:30 AM	**Ultrasonic Wave Velocity Decrease in Tibia of Hyperglycemic Rats** Yuhi Haneda, Taishi Hattori, Shota Kitajima, Mami Matsukawa *Doshisha University, Japan*	**Slow-Time Upsampling for Doppler Ultrasound Using Deep Learning** Hassan Nahas, Billy Yiu, Alfred Yu *University of Waterloo, Canada*	**In Vivo Two-Photon Microscopy Imaging of Focused Ultrasound-Mediated Glymphatic Transportation in the Mouse Brain** Yan Gong, Dezhuang Ye, Kevin Xu, Yaoheng Yang, Hong Chen *Washington University in St. Louis, United States*	**Acoustic Holographic Field for Parallel Ejection of Multiple Droplets** Rujun Zhang{2}, Youta Huang{1}, Feiyan Cai{2}, Zhiqiang Zhang{2}, Weibao Qiu{2}, Yanyan Yu{1}, Hairong Zheng{2} *{1}School of Biomedical Engineering Health Science Center, Shenzhen University, China; {2}Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China*
11:45 AM	**Real-Time Global Speed-of-Sound Estimation with a Portable Research Ultrasound Scanner** Di Xiao, Pat De la Torre Sanchez, Alfred Yu *University of Waterloo, Canada*	**Vector Velocity Estimation Using Transverse Oscillation and Synthetic Aperture Imaging** Evangelos Vouros, Jørgen Arendt Jensen *Danmarks Tekniske Universitet, Healh Technology Department, Denmark*	**Induction of a torpor-Like Hypothermic and hypometabolic State in Rodents by Ultrasound** Yaoheng Yang{2}, Jinyun Yuan{2}, Rachael Field{3}, Dezhuang Ye{2}, Zhongtao Hu{2}, Kevin Xu{2}, Lu Xu{2}, Yan Gong{2}, Yimei Yue{2}, Alexxai Kravitz{3}, Michael Bruchas{1},	**Early gas-Kick Detection While Drilling Boreholes Using Ultrasonic LWD Transducers** Shivanandan Indimath{2}, Bjarne Rosvoll Bøklepp{1}, Svein-Erik Måsøy{2} *{1}Equinor ASA, Norway; {2}NTNU, Norway*

Tuesday, September 5: Lectures

			Jianmin Cui{2}, Jonathan Brestoff{3}, Hong Chen{2} *{1}University of Washington, United States; {2}Washington University in st louis, United States; {3}Washington University School of Medicine, United States*	
12:00 PM	**Speed of Sound Dispersion Estimation from pulse-Echo Data** Sergio Sanabria, Saachi Munot, Thurston Brevett, Arsenii Telichko, Jeremy Dahl *Stanford University, United States*	**New Directional Synthetic Aperture Focusing Method with Coherence Factor Weighting for Intravascular Ultrasound Imaging** Jaebin Lee{2}, Jihun Jang{2}, Ilseob Song{2}, Jinho Chang{1}, Yangmo Yoo{2} *{1}DGIST, Korea; {2}Sogang University, Korea*	**Histotripsy Immunotherapy Combination for the Treatment of Murine Pancreatic Tumors** Reliza McGinnis, Jadyn James, Tejaswi Worlikar, Zhuwen Wang, Amanda Huber, Michael Green, Zhen Xu *University of Michigan, United States*	**Ultrasonic-Induced Switching of Wetting States of superhydrophobic Surfaces** Alex Drago-González{1}, Maxime Fauconnier{1}, Bhuvaneshwari Karunakaran{1}, William S. Y. Wong{2}, Robin H. A. Ras{2}, Heikki J. Nieminen{1} *{1}Medical Ultrasonics Laboratory (MEDUSA), Aalto University, Espoo, Finland, Finland; {2}Soft Matter and Wetting, Aalto University, Espoo, Finland, Finland*

	Room 5 (Montreal) **B3L-05: Spotlight Session: GHz and Integrated Acoustic Devices** **Chair(s):** Yook-Kong Yong (Rutgers University)	**Room 6 (Halifax)** **B3L-06: MTC: Cancer Tissue Characterization** **Chair(s):** Jonathan Mamou (Weill Cornell Medical College)	**Room 7 (Toronto)** **B3L-07: TMU: Capacitive Micromachined Ultrasonic Transducers** **Chair(s):** Dominique Certon (Francois Rabelais University of Tours), Erik Vilain Thomsen (Technical University of Denmark)
10:45 AM	**(INVITED) Towards Efficient Nanoscale interfaces: light, Sound and Spins** Krishna Coimbatore Balram *University of Bristol, United Kingdom*	**Prior Prediction of Breast Tumor Response to Neoadjuvant Chemotherapy Using Quantitative Ultrasound, Texture and Molecular Subtype with Machine Learning Approach** Gregory Czarnota{1}, Lakshmanan Sannachi{2}, Schontal Halstead{1}, David Alberico{1} *{1}Physical Sciences, Sunnybrook Research Institute, Canada; {2}Physical Sciences, Sunnybrook Research Institutee, Canada*	**System on a Chip with Plane Wave Transmit Beamforming for Guidewire IVUS** Xitie Zhang{1}, Evren Arkan{1}, Coskun Tekes{2}, Tzuhan Wang{1}, Shaolan Li{1}, Levent Degertekin{1} *{1}Georgia Institute of Technology, United States; {2}Kennesaw State University, United States*
11:00 AM		**Breast Lesions Characterization Using Quantitative Ultrasound (QUS) Spectral Parametric Images and Deep Convolutional Neural Networks (CNN)** Laurentius Osapoetra, Schontal Halstead, David Alberico, Gregory Czarnota *Sunnybrook Health Sciences Centre, Canada*	**Ultrasound Imaging with Pre-Charged Collapse-Mode CMUTs** Shinnosuke Kawasaki{4}, Marta Saccher{1}, Willem-Jan de Wijs{2}, Jeroen van Den Brand{4}, Ronald Dekker{3}

			{1}Delft University of Technology, Netherlands; {2}Philips Engineering Solutions, Netherlands; {3}Philips MEMS & Micro devices, Netherlands; {4}TNO/Holst Centre, Netherlands
11:15 AM	**(INVITED) Integrated Acoustic Resonators in Commercial FinFET Technology** Dana Weinstein *Purdue University, United States*	**Predicting Head and Neck Cancer Treatment Outcomes Using Textural Feature Level Fusion of Quantitative Ultrasound Spectroscopic and Computed Tomography: a Machine Learning Approach** Amir Moslemi{1}, Ary Safakish{2}, Lakshmanan Sannchi{1}, David Alberico{1}, Schontal Halstead{1}, Gregory Czarnota{1} *{1}Sunnybrook Research Institute, Canada; {2}Toronto Metropolitan University, Canada*	**Experimental Validation of a dual-Mode ultrasound-Guided HIFU (USgHIFU) CMUT Probe Developed for Targeted endocavitary Focal Therapies** Ivan Suarez-Castellanos{3}, Guillaume Vanstaevel{3}, Antoine Bienassis{3}, Geoffroy De Sallmard{2}, Bruno Giammarinaro{3}, Thomas Payen{1}, Jean-Yves Chapelon{3}, Nicolas Guillen{1}, Nicolas Sénégond{4}, William Apoutou N'Djin{3} *{1}EDAP TMS, France; {2}Hospices Civils de Lyon, France; {3}LabTAU - INSERM U1032, France; {4}Vermon, France*
11:30 AM		**Shortwave Photoacoustic Imaging with Heavy Water Coupling: Application to Skin Cancer and Wound Healing** Christopher Salinas, Eric Reichel, Abhiman Gupta, Russell Witte *University of Arizona, United States*	**Reliability of Collapse Mode CMUT** Rob van Schaijk{1}, Pieter Robaeys{2}, Micha In 'T Zandt{1}, Michiel Slotboom{1}, Johan Klootwijk{1}, Paul Bekkers{1} *{1}Philips, Netherlands; {2}Phillips, Netherlands*
11:45 AM		**Comparison of Methods for Texture Analysis of H-Scan Ultrasound Images from Breast Cancer Patients Undergoing NEOADJUVANT Chemotherapy** Swapnil Dolui{2}, Mehnoosh Torkzaban{1}, Basak Dogan{3}, Dominique James{2}, Corrine Wessner{1}, Jessica Porembka{3}, Priscilla Machado{1}, Bersu Ozcan{3}, Nisha Unni{3}, Maysa Abu-Khalaf{1}, Flemming Forsberg{1}, Kibo Nam{1}, Kenneth Hoyt{2} *{1}Thomas Jefferson University, United States; {2}University of Texas at Dallas, United States; {3}University of Texas Southwestern Medical Center, United States*	**Exploring the Potentials of polymer-Based CMUTs for Ultrasound Tomography** Martin Angerer{1}, Jonas Welsch{2}, Edmond Cretu{2}, Carlos Gerardo{2}, Robert Rohling{2}, Nicole Valerie Ruiter{1} *{1}Karlsruhe Institute of Technology, Germany; {2}University of British Columbia, Canada*
12:00 PM		**Multimodal Deep Learning Approaches to Breast Tumor Characterization Using Ultrasound B-Mode and Nakagami Parametric Images** Sabiq Muhtadi, Caterina Gallippi *University of North Carolina at Chapel Hill, United States*	**Transparent Row-Column CMUT Arrays for Volumetric Photoacoustic Imaging** Mahyar Ghavami, Mohammad Rahim Sobhani, Roger Zemp *University of Alberta, Canada*

Tuesday, September 5: Lectures

	Room 1 (Yellowknife) **B4L-01: MBB: Speed of Sound Estimation and Correction** **Chair(s):** Hideyuki Hasegawa (University of Toyama), Che-Chou Shen (National Taiwan University of Science and Technology)	Room 2 (Vancouver) **B4L-02: MBF: Vector Flow Imaging** **Chair(s):** Billy Yiu (University of Waterloo), Solveig Fadnes (NTNU)	Room 3 (Calgary) **B4L-03: MTH: Neuromodulation** **Chair(s):** Hairong Zheng (Shenzhen Institutes of Advanced Technology)	Room 4 (Winnipeg) **B4L-04: NAS: Acoustic Sensors** **Chair(s):** Andrew Feeney (University of Glasgow), Daniel Schmitt (Fraunhofer-Institut für Biomedizinische Technik)
1:45 PM	**Region-Wise Speed of Sound Estimation and Beamforming Through Graph Segmentation and the Eikonal Equation** Pat De la Torre Sanchez, Di Xiao, Alfred Yu *University of Waterloo, Canada*	**Left Ventricular Vector Flow imaging: in Vivo Comparison of echoPIV Against 4D Flow MRI** Yichuang Han, Daniel Bowen, Mihai Strachinaru, Bernado Loff Barreto, Alexander Hirsch, Annemien van Den Bosch, Jason Voorneveld, Johan Bosch *Erasmus MC, University Medical Center, Netherlands*	**Sonogenetics-Based neuromodulation to Suppress Epilepsy Seizures** Thi-Nhan Phan{1}, Ching-Hsiang Fan{2}, Yu-Chun Lin{3}, Chih-Kuang Yeh{1} *{1}Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan; {2}Department of Biomedical Engineering, National Cheng Kung University, Taiwan; {3}Institute of Molecular Medicine and Department of Medical Science, National Tsing Hua University, Taiwan*	**(INVITED) NDE Sensor and DAQ Optimisation to Achieve the Right SNR** Frederic Cegla *Imperial College London, United Kingdom*
2:00 PM	**Iterative Sound Speed Tomography for Distributed Aberration Correction** Rehman Ali{3}, Trevor Mitcham{3}, Melanie Singh{3}, Richard Bouchard{1}, Marvin Doyley{3}, Jeremy Dahl{2}, Nebojsa Duric{3} *{1}MD Anderson, United States; {2}Stanford University, United States; {3}University of Rochester, United States*	**Simultaneous Dual-Modality Flow Validation: Ultrasound Vector Flow Imaging Validated Using Optical Particle Image Velocimetry** Christopher Kallweit, Adrian Chee, Billy Yiu, Sean Peterson, Alfred Yu *University of Waterloo, Canada*	**High-Throughput Ultrasound neuromodulation in Awake and Freely Behaving Rats** Tommaso Di Ianni, Keith Murphy, Luis de Lecea, Raag Airan *Stanford University, United States*	
2:15 PM	**Sound Speed Estimation for Aberration Correction** Thurston Brevett, Sergio Sanabria, Jeremy Dahl *Stanford University, United States*	**Intraventricular Vector Flow Imaging Using Physics-Informed Deep Learning** Hang Jung Ling, Julia Puig, Fabien Millioz, Denis Friboulet, Damien Garcia, Olivier Bernard *CREATIS, CNRS UMR5220, Inserm U1294, University of Lyon, France*	**Non-Invasive Ultrasound Stimulation of the Sciatic Nerve for the Treatment of Pain** Xiaoyan Chen, Wei Zhou, Jinpeng Li, Wen Meng, Pengqi Li, Zhengrong Lin, Long Meng, Lili Niu, Hairong Zheng *Shenzhen Institutes of Advanced Technology, China*	**Silicon Photonic MEMS Platform-Based Air-Coupled Opto-Mechanical Ultrasound Sensor with Tunable Sensitivity and Dynamic Range for Non-Destructive Test** Sangwoo Nam, Dongju Choi, Mingi Lim, Youngjae Park, Nizar Guezzi, Dongku Jung, Hyojin Seong, Sangheon Lee, Hyemin Yang, Kyungeun Lee,

				Gyurim Jang, Sangyoon Han, Jaesok Yu *DGIST, Tunisia; DGIST, Korea*
2:30 PM	**Specular Beamforming and Refraction Correction Improve Ultrasound Imaging of the Bone Cortex Geometry in Vivo** Amadou Sall Dia{2}, Quentin Grimal{2}, Guillaume Renaud{1} *{1}Department of Imaging Physics, Delft University of Technology, The Netherlands, Netherlands; {2}Sorbonne Université, INSERM UMR-S 1146, CNRS UMR 7371, Laboratoire d'Imagerie Biomédicale, France*	**New Vector Doppler Imaging System for Cardiac Output Monitoring Using a Cross-Shaped Ultrasound Probe: Feasibility Study** Seongjun Park, Jihun Jang, Ilseob Song, Yangmo Yoo *Sogang University, Korea*	**Displacement and Cavitation Monitoring During Focused Ultrasound Neuromodulation of the Sciatic Nerve in Vivo** Erica McCune, Stephen Lee, Seongyeon Kim, Elisa Konofagou *Columbia University, United States*	**Heterostructure-Based Surface Acoustic Wave Resonator for Gas Sensing** Binghui Lin, Min Wei, Yuanhang Qu, Xiyu Gu, Wenjuan Liu, Chengliang Sun, Yao Cai, Yan Liu *Wuhan university, China*
2:45 PM	**Abdominal Sound Speed Estimation Using Neural Networks Trained on Wave Propagation Physics** Louise Zhuang{1}, Walter Simson{1}, Oleksii Ostras{2}, Dongwoon Hyun{1}, Gianmarco Pinton{2}, Jeremy Dahl{1} *{1}Stanford University, United States; {2}University of North Carolina at Chapel Hill and North Carolina State University, United States*	**Physics-Informed Neural Network for Vector Flow Imaging Regularization** Jonathas Haniel, Billy Yiu, Adrian Chee, Alfred Yu *University of Waterloo, Canada*	**Investigation on hemodynamic responses induced by peripheral and central FUS stimulation** Seongyeon Kim, Stephen Lee, Elisa Konofagou *Columbia University, United States*	**Echogenic Segmentation for Ultrasonic Measurements of Spatially Distributed Properties in Solids** Kenneth Walton, Mikhail Skliar *University of Utah, United States*
3:00 PM	**Phase Aberration Correction with Adaptive Coherence-Weighted Point Spread Function Restoration Filtering Technique** Wei-Hsiang Shen{2}, Yu-An Lin{2}, Pai-Chi Li{1}, Meng-Lin Li{2} *{1}National Taiwan University, Taiwan; {2}National Tsing Hua University, Taiwan*	**4D Cardiac Vector Flow Imaging from Triplane Color Doppler and Dynamic Model-Based Regularization** Thomas Grønli, Lasse Lovstakken, Siri Ann Nyrnes, Solveig Fadnes *Norwegian University of Science and Technology, Norway*	**Exploration of biomechanisms Regulating single-Pulse Focused Ultrasound (FUS)-Evoked Ca2+ Signaling** Ivan Suarez-Castellanos{3}, Tom Aubier{3}, Magali Perier{3}, Alexandre Carpentier{1}, Sandrine Parrot{2}, William Apoutou N'Djin{3} *{1}AP-HP, France; {2}CRNL, France; {3}LabTAU - INSERM U1032, France*	

	Room 5 (Montreal)	**Room 6 (Halifax)**	**Room 7 (Toronto)**
	B4L-05: POA: Laser Ultrasonics and Acousto-Optics **Chair(s):** Alexei Maznev (Department of Chemistry, Massachusetts Institute of Technology)	**B4L-06: ABF: BAW Devices for High Frequencies** **Chair(s):** Rich Ruby (Broadcom Ltd.), Matteo Rinaldi (Northeastern University)	**B4L-07: MSD: Ultrasound Array Systems and Applications** **Chair(s):** Nico de Jong (Erasmus Medical Centre), Piero Tortoli (University of Florence)

Tuesday, September 5: Lectures

1:45 PM	**Elastic and Thermal Diffusion Properties of OVPE GaN Studied by Picosecond Ultrasonic Microscopy** Hiroki Fukuda, Akira Nagakubo, Shigeyoshi Usami, Yusuke Mori, Hirotsugu Ogi *Osaka University, Japan*	**A Solidly Mounted 55 GHz Overmoded Bulk Acoustic Resonator** Zachary Schaffer, Ahmed Hassanien, Mohammad Ayaz Masud, Gianluca Piazza *Carnegie Mellon University, United States*	**A Research Scanner Coupled to a 3072-Element Dense Array for Advanced 3-D Imaging** Lorenzo Castrignano{2}, Valentino Meacci{2}, Alessandro Dallai{2}, Fulvio Biordi{1}, Marco Crocco{1}, Enrico Boni{2}, Alessandro Ramalli{2}, Piero Tortoli{2} *{1}Esaote SpA, Italy; {2}University of Florence, Italy*
2:00 PM	**Zero-Group-Velocity Lamb mode's Behavior with Thickness Variations** Sylvain Mezil, Hafsa Diboune, Daniel Kiefer, Anaïs Bianquis, Claire Prada *Institut Langevin, CNRS, ESPCI, PSL University, France*	**55.4 GHz Bulk Acoustic Resonator in Thin-Film Scandium Aluminum Nitride** Sinwoo Cho{2}, Omar Barrera{2}, Pietro Simeoni{1}, Jack Kramer{2}, Vakhtang Chulukhadze{2}, Wen Zhao{2}, Ruochen Lu{2} *{1}northeastern university, United States; {2}the university of texas at austin, United States*	**Contactless Respiratory Waveform Estimation Using Acoustic Planar Array** Geng-Shi Jeng, Sheng Chen, Le-Tung Hsieh *National Yang Ming Chiao Tung University, Taiwan*
2:15 PM	**(INVITED) Laser Ultrasonics As a Versatile Tool for the Excitation and Detection of high-Amplitude BAWs and Saws** Thomas Pezeril *CNRS, France*	**A Sc0.2Al0.8N-Based 14GHz Film Bulk Acoustic Resonator with Over 8% Coupling Coefficient and Over 400 Quality Factor for Ku-Band Applications** Chen Liu, Xinghua Wang, Wenjia Yang, Ying Zhang, Peng Liu, Yizhun Woo, Yao Zhu *Institute of Microelectrics, ASTAR, Singapore*	**Novel Diverging Acoustic Lens Geometries for Row-Column Array Transducers** Mélanie Audoin{1}, Ali Salari{2}, Borislav Gueorguiev Tomov{1}, Jørgen Arendt Jensen{2}, Erik Vilain Thomsen{2} *{1}Technical University Denmark, Denmark; {2}Technical University of Denmark, Denmark*
2:30 PM		**A High Q 6.203 GHz Laterally-Excited Bulk Acoustic Resonator with Reflective Grids** Zhiwei Wen{2}, Wenjuan Liu{2}, Xin Tong{2}, Jian Wang{1}, Shishang Guo{2}, Yan Liu{2}, Yao Cai{2}, Chengliang Sun{2} *{1}Wuhan MEMSonics New Technologies Co., Ltd., Singapore; {2}Wuhan University, China*	**Real-Time 2-D Coherent Multi-Transducer Ultrasound Imaging in Vivo** Daniele Mazierli{2}, Alessandro Ramalli{2}, Alessandro Dallai{2}, Emily Skelton{3}, Joseph Hajnal{1}, Piero Tortoli{2}, Laura Peralta{1} *{1}King's College London, United Kingdom; {2}University of Florence, Italy; {3}University of London, United Kingdom*
2:45 PM	**Guiding Light with Ultrasound Using a Linear Array Transducer at Diagnostic Intensities** Volodymyr Rohovets{1}, Georg Schmitz{1}, Maxim Cherkashin{2} *{1}Ruhr University Bochum, Chair for medical engineering, Germany; {2}Ruhr University Bochum, Photonics and terahertz technolgy, Germany*	**X-Band Bulk Acoustic Wave Resonator (BAW) Using Periodically Polarized Piezoelectric Films (P3F)** Abhay Kochhar, Ramakrishna Vetury, Jeff Leathersich, Zachary Schaffer, Craig Moe, Daeho Kim, Kamran Cheema, Mary Winters, Jeffrey Shealy *Akoustis, Inc., United States*	**(INVITED) Design and 3-D Medical Applications of 2-D Ultrasound Sparse Arrays** Alessandro Ramalli *Department of Information Engineering, University of Florence, Italy*
3:00 PM	**Development of a Stable SPR Ultrasonic Receiver** Kota Dezao, Mami Matsukawa *Doshisha University, Japan*	**Measurement of Intrinsic Mechanical Loss in Aluminum Films from 3 to 25 GHz by HBAR Spectroscopy** Zachary Schaffer, Ahmed Hassanien, Mohammad Ayaz Masud, Gianluca Piazza *Carnegie Mellon University, United States*	

Tuesday, September 5: Lectures

	Room 1 (Yellowknife) **B6L-01: MIM: 3D/4D Imaging** **Chair(s):** Pieter Kruizinga (Erasmus University Medical Center), Clément Papadacci (Institute of Physics for Medicine, France)	**Room 2 (Vancouver)** **B6L-02: MCA: Contrast Agent Imaging and Quantification** **Chair(s):** Mike Averkiou (University of Washington), Simona Turco (Einhoven University of Technology)	**Room 3 (Calgary)** **B6L-03: MTN: Image Guided Theranostics** **Chair(s):** Himanshu Shekhar (Indian Institute of Technology Gandhinagar), Geoffrey Luke (Dartmouth College)	**Room 4 (Winnipeg)** **B6L-04: NPA, NWP, NEH: Photoacoustics, Wave Propagation, and Energy Harvesting** **Chair(s):** Theodos Stratoudaki (University of Strathclyde), Nuri Emanetoglu (University of Maine)
4:30 PM	**Toroidal Curved Row Column Addressed Transducer for 3D Ultrafast Ultrasound Imaging** Manon Caudoux{1}, Oscar Demeulenaere{1}, Jonathan Porée{1}, Jack Sauvage{1}, Martin Flesch{2}, Guillaume Ferin{2}, Mickael Tanter{1}, Thomas Deffieux{1}, Clément Papadacci{1}, Mathieu Pernot{1} *{1}Institute of Physics for Medicine, France; {2}Vermon, France*	**(INVITED) Dynamic Ultrasound Localization Microscopy** Jean Provost *Polytechnique Montreal, Canada*	**Evaluating the Accuracy and Precision of Blood-Brain Barrier Opening by Using Neuronavigation-Guided FUS in Alzheimer's Disease Patients** Sua Bae, Antonios Pouliopoulos, Robin Ji, Keyu Liu, Sergio Jiménez-Gambín, Omid Yousefian, Maria Murillo, Danae Kokossis, Lawrence Honig, Elisa Konofagou *Columbia University, United States*	**In-Vivo Foot Imaging via Dual-Scan 3D Photoacoustic Tomography** Chuqin Huang, Yanda Cheng, Wenhan Zheng, Robert Bing, Huijuan Zhang, Linda Harris, Wenyao Xu, Jun Xia *University at Buffalo, United States*
4:45 PM	**Sub-Pitch plane-Wave Imaging in a 2-D Array for Grating Lobe Reduction** Seongwoo Koo, Doyoung Jang, Heechul Yoon *Dankook university, Korea*		**First-in-Human Prospective Trial of sonobiopsy in Glioblastoma Patients Using neuronavigation-Guided Focused Ultrasound** Lu Xu{2}, Jinyun Yuan{2}, Chih-Yen Chien{2}, Yaoheng Yang{2}, Yimei Yue{2}, Siaka Fadera{2}, Andrew Stark{2}, Katherine Schwetye{4}, Arash Nazeri{5}, Rupen Desai{3}, Umeshkumar Athiraman{1}, Aadel Chaudhuri{2}, Hong Chen{2}, Eric Leuthardt{2} *{1}Department of Anesthesia, Washington University School of Medicine, United States; {2}Department of Biomedical Engineering, Washington University in St. Louis, United States; {3}Department of Neurosurgery, Washington University School of Medicine, Unit*	**Detection of Airborne Particulates Using Air-Coupled Photoacoustics** Eric Strohm, Krishnan Sathiyamoorthy, Taehoon Bok, Ayushi Agarwal, Omar Nusrat, Michael Kolios *Toronto Metropolitan University, Canada*
5:00 PM	**3D Ultrafast Imaging Using a 3072 Elements Cardiac Phased Array** Benjamin Guérif{2}, Oscar Demeulenaere{1}, Elie Supersac{1},	**Preliminary Results from the Multi-Site Study of Predicting Neoadjuvant Chemotherapy Response in Breast Cancer Patients**	**Combination of Lateral Beam Steering and Axial Focusing Significantly Increases theranostic Ultrasound**	**Sub-millimeter, Volumetric Tracking of Beacon Signal During Vascular Access**

	Manon Caudoux{1}, Martin Flesch{2}, Mickael Tanter{1}, Clément Papadacci{1}, Mathieu Pernot{1} *{1}Physics for Medicine, France; {2}Vermon, France*	**Using 3D Subharmonic Aided Pressure Estimation (SHAPE)** Mehnoosh Torkzaban{2}, Basak Dogan{4}, Dominique James{1}, Corrine Wessner{2}, Jessica Porembka{4}, Priscilla Machado{2}, Bersu Ozcan{4}, Nisha Unni{4}, Maysa Abu-Khalaf{3}, Kenneth Hoyt{1}, Flemming Forsberg{2}, Kibo Nam{2} *{1}The University of Texas at Dallas, United States; {2}Thomas Jefferson University, United States; {3}Thomas Jefferson University Hospital, United States; {4}University of Texas Southwestern Medical Center, United States*	**Mediated blood-Brain Barrier Opening Volume and Viral Gene Delivery in Vivo** Alec Batts, Fotis Tsitsos, Rebecca Noel, Robin Ji, Elisa Konofagou *Columbia University, United States*	Jintan Zhang{2}, Laeben Lester{1}, Emad Boctor{2}, Jeeun Kang{2} *{1}Johns Hopkins Medical Institution, United States; {2}Johns Hopkins University, United States*
5:15 PM	**High-frame-Rate 3D Porcine Renal Vasculature Imaging** Luxi Wei{1}, Geraldi Wahyulaksana{1}, Maaike Te Linktel Hekkert{1}, Robert Beurskens{1}, Enrico Boni{3}, Alessandro Ramalli{3}, Emile Noothout{2}, Dirk Duncker{1}, Piero Tortoli{3}, Antonius van der Steen{1}, Nico de Jong{2}, Martin Verweij{2}, Hendrik Vo *{1}Erasmus university medical center, Netherlands; {2}TU Delft, Netherlands; {3}University of Florence, Italy*	**Imaging Spinal Cord Injury Expansion Using Contrast-Enhanced Ultrasound** Jennifer Harmon, Anton Odarenko, Lindsay Cates, Jeffrey Hyde, Matthew Bruce, Zin Khaing *University of Washington, United States*	**Real-Time Guidance and Characterization of Transcranial Focused Ultrasound Exposure** Abhishek Sahoo, Owen Seavey, Huijing He, David Darrow, Clark Chen, Emad Ebbini *University of Minnesota, United States*	**Improving Vasculature Imaging in Humans Using Deep Learning-Enhanced 3D Photoacoustic Tomography** Wenhan Zheng, Huijuan Zhang, Chuqin Huang, Jun Xia *University at Buffalo, United States*
5:30 PM	**Imaging Human Brain Vasculature Using Ultrafast 4D Ultrasound** Luuk Verhoef{1}, Sadaf Soloukey{1}, Petros Arvanitis{1}, Arjan Flikweert{2}, Boris Lippe{2}, Nikola Radeljic-Jakic{2}, Sebastiaan Koekkoek{1}, Iain Haitsma{1}, Arnaud Vincent{1}, Pieter Kruizinga{1} *{1}Erasmus MC, Netherlands; {2}Oldelft Ultrasound, Netherlands*	**3D multi-Parametric Hepatic Functional Perfusion Imaging Based on DCEUS Using 1D Probe and Machine learning: a Feasibly Study** Xiheng Huang, Qin Zou, Mingxi Wan, Diya Wang *Xi'an Jiaotong University, China*	**A Single Linear Array for Simultaneous blood-Brain Barrier Opening and Cavitation Mapping in non-Human Primates** Robin Ji, Sua Bae, Sergio Jiménez-Gambín, Alec Batts, Elisa Konofagou *Columbia University, United States*	**New Capillary wave-Like Phenomena Induced Ultrasonically on a superhydrophobic-Supported Thin Gas Layer** Maxime Fauconnier{1}, Bhuvaneshwari Karunakaran{2}, Alex Drago Gonzalez{1}, William Wong{2}, Robin Ras{2}, Heikki Nieminen{1} *{1}Medical Ultrasonics Laboratory (MEDUSA), Aalto University, Espoo, Finland., Finland; {2}Soft Matter &*

				Wetting group, Aalto University, Espoo, Finland., Finland
5:45 PM	**Four-Dimensional, Computational-Ultrasound Imaging of the Mouse Brain** Michael Brown{2}, Bastian Generowicz{2}, Stéphanie Dijkhuizen{2}, Sebastiaan Koekkoek{2}, Christos Strydis{2}, Johannes Bosch{2}, Geert Leus{1}, Petros Arvantis{2}, Geert Springeling{2}, Chris Zeeuw{2}, Pieter Kruizinga{2} *{1}Delft University of Technology, Netherlands; {2}Erasmus University Medical Center, Netherlands*	**Real-Time Radius Estimation of Oscillating microbubble Based on Linear Acoustic Wave Propagation and Superposition Framework** Hohyun Lee, F Levent Degertekin, Costas Arvanitis *Georgia Institute of Technology, United States*	**Monitoring Microvascular Tortuosity and Velocity Distribution Response of 4T1 Tumor to the DOX-NDs Treatment Using super-Resolution Ultrasound Imaging** Feihong Dong, Jingyi Yin, Jian An, Jie Dang, Tianyu Guo, Jiabin Zhang, Jue Zhang *Peking University, China*	**Through-metal-Wall Power Delivery Using an Ultrasonic pillar-Based metamaterial** Jun Ji, Hyeonu Heo, Jiaxin Zhong, Mourad Oudich, Yun Jing *Penn State University, United States*

	Room 5 (Montreal) **B6L-05: MEL: Wave Propagation in Soft Tissue** **Chair(s):** Jean-Luc Gennisson (Université Paris Saclay - CNRS)	**Room 6 (Halifax)** **B6L-06: MTC: Tissue Characterization Methods and Applications I** **Chair(s):** Emilie Franceschini (CNRS)	**Room 7 (Toronto)** **B6L-07: TTT: Wireless Power Transfer and Communication for Implants** **Chair(s):** Omer Oralkan (NC State University), Alessandro Stuart Savoia (Roma Tre University)
4:30 PM	**Effect of Knee Flexion on 3D Shear Wave Propagation in in Vivo vastus lateralis** Courtney Trutna Paley, Anna Knight, Felix Jin, Spencer Moavenzadeh, Ned Rouze, Laura Pietrosimone, Lisa Hobson-Webb, Mark Palmeri, Kathryn Nightingale *Duke University, United States*	**Pulse-Echo Ultrasound Computed Tomography of Frequency-Dependent Acoustic Attenuation** Sergio Sanabria, Saachi Munot, Thurston Brevett, Arsenii Telichko, Jeremy Dahl *Stanford University, United States*	**An Ultrasonically Powered System Using an AlN PMUT Receiver for Delivering Instantaneous mW-Range DC Power to Biomedical Implants** Amin Rashidi{2}, Marta Saccher{2}, Alessandro Stuart Savoia{3}, Cyril Baby Karuthedath{4}, Abhilash Thanniyil Sebastian{4}, Frederik Lavigne{1}, Frederic Stubbe{1}, Vasiliki Giagka{2} *{1}Cyient, Belgium; {2}Delft University of Technology, Netherlands; {3}Roma Tre University, Italy; {4}VTT Technical Research Centre of Finland, Finland*
4:45 PM	**Line Source Excitation for Accurate Reconstruction of All Three Shear Moduli in Skin Using non-Contact Optical Coherence elastography** Gabriel Regnault, Mitchell A. Kirby, Maju Kuriakose, Matthew O'Donnell, Ivan Pelivanov *University of Washington, United States*	**Multifrequency Joint Reconstruction of Ultrasonic Attenuation Images** Edmundo Miranda{1}, Adrian Basarab{2}, Roberto Lavarello{1} *{1}Pontificia Universidad Católica del Perú, Peru; {2}Université Claude Bernard Lyon 1, France*	**Multi-Channel Piezoelectric Micromachined Transducers Using On-Chip Passive Filtering** Teng Zhang, Hamad Raheem, Ashwin Seshia *University of Cambridge, United Kingdom*
5:00 PM	**Combined Shear Wave elastography and Ultrafast Doppler Imaging Enable the Mapping of Cortical Layers in the Rat Brain**	**Improved Frequency Estimation Using pre-beamformed Ultrasound Data** Tobias Erlöv, Magnus Cinthio *Lund University, Sweden*	**(INVITED) Ultrasound for Communicating and Interacting with in Body Devices** Michael Oelze, Zhengchang Kou, Jenna Cario, Andrew Singer

	Solène Ruinet{3}, Nathalie Ialy-Radio{3}, Sophie Pezet{3}, Pierre Pouget{2}, Pierre Gressens{1}, Mickael Tanter{3} *{1}NeuroDiderot, Hôpital Robert Debré, Inserm, Paris, France; {2}Paris Brain Institute, Paris, France; {3}Physics for Medicine Laboratory, Paris, France*		*University of Illinois at Urbana-Champaign, United States*
5:15 PM	**Ex Vivo Quantification of Corneal Collagen Cross-Linking with Acoustic Micro-Tapping Optical Coherence Elastography** Ivan Pelivanov, Gabriel Regnault, Mitchell Kirby, Matthew O'Donnell, Ruikang Wang, Tueng Shen *University of Washington, United States*	**Model Projected Statistical Features for Homodyned K-Distribution Parameters Estimation** Ali Kafaei Zad Tehrani{1}, Ivan Rosado Mnedez{2}, Hassan Rivaz{1} *{1}Concordia University, Canada; {2}University of Wisconsin, United States*	
5:30 PM	**Detection of Natural Pulse Waves (PWs) for Anisotropy characterization: an in vitro Study** Stefano Fiorentini{2}, Jack Sauvage{1}, Safa Mostefaoui{1}, Lasse Lovstakken{2}, Sebastien Salles{1} *{1}LIB, France; {2}NTNU, Norway*	**In Vivo Quantitative Ultrasound Imaging of the Preeclamptic Placenta** Andrew Markel{1}, Cameron Hoerig{2}, Kenneth Swan{1}, Allan Alencar{1}, Gabriella Pridjian{1}, Jonathan Mamou{2}, Carolyn Bayer{1} *{1}Tulane University, United States; {2}Weill Cornell Medicine, United States*	**Enhancing Broadband Transmission Performance of Piezoelectric Micromachined Ultrasonic Transducers (PMUTs) via Electrical Matching Network** Tingzhong Xu, Damiano Caponi, Zhou Da *Silicon Austria Labs GmbH, Austria*
5:45 PM	**Motion Resistant Pulse Wave Velocity Estimation at the Common Carotid Artery Using High Frame Rate Ultrasound** Jason Hsu, Adrian Chee, Billy Yiu, Alfred Yu *University of Waterloo, Canada*	**Lung Phantoms to Evaluate Quantitative Ultrasound Markers** Ben Davis, Azadeh Dashti, Marie Muller *North Carolina State University, United States*	**A Comparative Study of Si3N4 and Al2O3 As Dielectric Materials for Pre-Charged Collapse-Mode CMUTs** Marta Saccher{1}, Rob van Schaijk{2}, Shinnosuke Kawasaki{4}, Johan Klootwijk{2}, Amin Rashidi{1}, Vasiliki Giagka{1}, Alessandro Stuart Savoia{3}, Ronald Dekker{1} *{1}Delft University of Technology, Netherlands; {2}Philips, Netherlands; {3}Roma Tre University, Italy; {4}TNO/Holst Centre, Netherlands*

B2P-08: MBB-P: Adaptive and 3D Beamforming
Chair(s): Dongwoon Hyun (Stanford University), Anand Ramkumar (Institute of Cancer Research)

(B2P-08-MBB-1): A Strategy for Structured Illumination in Synthetic Aperture Ultrasound Imaging
Vahid Amin Nili{1}, Yan Yan{2}, Soheil Hakakzadeh{1}, Zahra Kavehvash{1}, Mohammad Mehrmohammadi{2}
{1}Sharif University of Technology, Iran; {2}University of Rochester Medical Center Rochester, NY, United States

(B2P-08-MBB-2): Aberration Correction in 3D Echocardiography
Svein-Erik Måsøy{3}, Bastien Dénarié{2}, Anders Sørnes{2}, Espen Holte{3}, Bjørnar Grenne{3}, Torvald Espeland{3}, Erik Andreas Rye Berg{3}, Ole Marius Hoel Rindal{4}, Wayne Rigby{1}, Tore Grüner Bjåstad{2}
{1}GE HealthCare, United States; {2}GE Vingmed Ultrasound AS, Norway; {3}Norwegian University of Science and Technology, Norway; {4}University of Oslo, Norway

(B2P-08-MBB-3): Multi-Element Emission with a Convex Lensed Row-Column Array
Ali Salari, Melanie Audoin, Erik Vilain Thomsen, Jørgen Arendt Jensen
Department of Health Technology, Denmark

(B2P-08-MBB-4): Real-Time 3D Imaging with Row-Column Arrays
Sebastian Kazmarek Præsius, Lasse Thurmann Jørgensen, Jørgen Arendt Jensen
Technical University of Denmark, Denmark

(B2P-08-MBB-5): Structured Illumination super-Resolution Ultrasound Imaging Based on Linear Array
Xiaoyu Qian, Dongdong Liang, Yunlong Bao, Di Wang, Jie Dang, Jiabin Zhang, Jue Zhang
Peking University, China

(B2P-08-MBB-6): X-FMAS Beamforming Method for 3D Ultrafast Doppler Imaging Using Row-Column Addressed Array
Qiandong Sun, Yapeng Fu, Kailiang Xu
Center for biomedical engineering, School of information science and technology, China

(B2P-08-MBB-7): A Performance Investigation of Receive Beamforming Schemes for Specular Tissue Characterization
Gayathri Malamal, Mahesh Raveendranatha Panicker
Indian Institute of Technology Palakkad, India

(B2P-08-MBB-8): Adaptive Beamforming for High-Resolution Speckle Tracking in Cardiac Strain Imaging
Jad El Harake, Changhee Lee, Paul Kemper, Elisa Konofagou
Columbia University, United States

(B2P-08-MBB-9): Evaluation of Advanced Passive Acoustic Mapping (PAM) beamformers for high-duty-Cycle HIFU Ablated in Ex Vivo Tissue
Chunqi Li{1}, Thomas M. Carpenter{2}, David Cowell{2}, Steven Freear{2}, James McLaughlan{2}
{1}Department of Biomedical Engineering, Columbia University, New York, NY, USA, United States; {2}School of Electronic & Electrical Engineering, Leeds, UK, United Kingdom

B2P-09: MBE-P: Mechanisms and Dosimetry
Chair(s): Srinath Rajagopal (National Physical Laboratory), Volker Wilkens (PTB)

(B2P-09-MBE-1): Determination of Effective Hydrophone Sizes from 1 to 50 MHz According to IEC 62127-3:2022 Using Short Pulse Excitation
Volker Wilkens{1}, Martin Weber{2}
{1}Physikalisch-Technische Bundesanstalt, Germany; {2}University of Helsinki, Finland

(B2P-09-MBE-2): Combined Hydrophone Secondary Calibration and Directional Response Measurement Setup
Volker Wilkens{2}, Martin Weber{3}, Jennifer Twiefel{2}, Georg Dietrich{1}
{1}GAMPT Ultrasonic Solutions, Germany; {2}Physikalisch-Technische Bundesanstalt, Germany; {3}University of Helsinki, Finland

(B2P-09-MBE-3): Verification of Protective Effect of Bubbles Attached to Vascular Endothelial Cells on Elastic Wall from Cavitation Under Ultrasound Exposure
Yoshiki Ito{3}, Shunya Watanabe{3}, Narumi Ogawa{3}, Yoshitaka Miyamoto{1}, Daiki Omata{2}, Ryo Suzuki{2}, Kohji Masuda{3}
{1}National Center for Child Health and Development, Japan; {2}Teikyo University, Japan; {3}Tokyo University of Agriculture and Technology, Japan

(B2P-09-MBE-4): Intravital Imaging of Rapid Short-Pulse Ultrasound-Induced Blood-Tumor Barrier Opening with Two-Photon Microscopy
Yiluo Xu{2}, Mengni Hu{2}, Ou Zhao{1}, Xin Chen{2}, Siping Chen{2}, Yanyan Yu{2}, Yuanyuan Shen{2}
{1}Shenzhen College of International Education, China; {2}Shenzhen University, China

(B2P-09-MBE-5): Characterization of Sonoporation-Induced Intracellular Calcium Fluctuations in Neighboring Cells
Jianmin Shi, Yuhang Ma, Tao Han, Peng Qin
Shanghai Jiao Tong University, China

(B2P-09-MBE-6): Sonoporation with Monodisperse Microbubbles: Influence of Bubble Size and Cavitation Regime on Molecular Uptake
Robyn Klassen, Billy Yiu, Xinxing Duan, Mahla Poudineh, Alfred Yu
University of Waterloo, Canada

(B2P-09-MBE-7): Blood biopsy-Based Screening of Clinically Significant Prostate Cancer via Detection of high-intensity-focused-Ultrasound Induced Release of miRNA from Circulating Tumor Cells
Pradyumna Kedarisetti{2}, Joy Wang{1}, Samantha Leier{3}, Frank Wuest{3}, Roger Zemp{2}
{1}Department of Biomedical Engineering, University of Alberta, Canada; {2}Department of Electrical and Computer Engineering, University of Alberta, Canada; {3}Department of Oncology, University of Alberta, Canada

B2P-10: MBF-P: Emerging Blood Flow Imaging Techniques and Applications
Chair(s): Chih-Chung Huang (National Cheng Kung University)

(B2P-10-MBF-1): High Spatiotemporal Resolution Dynamic Cerebral Vector Flow Imaging of Mice Through High-Frequency Ultrasound
Hsin Huang, Chih-Chung Huang
National Cheng Kung University, Taiwan

(B2P-10-MBF-2): Visualization of Post-Exercise Hemodynamics in the Femoral Bifurcation Using High-Frame-Rate Vector Doppler
Hassan Nahas, Billy Yiu, Alfred Yu
University of Waterloo, Canada

(B2P-10-MBF-3): Cascaded Dual-Polarity Waves for Velocity Vector Imaging in Simulated Carotid Bifurcation Flow
Joosje de Bakker, Chris de Korte, Anne Saris
Radboud University Medical Center, Netherlands

(B2P-10-MBF-4): Isolating Single Vascular Functional Trace (SVFT) in Cerebral Cortex Based on Ultrahigh Frequency Ultrafast Doppler
Yu Xia, Daichao Chen, Yunlong Zhao, Dongdong Liang, Yuantong Zhong, Jingyi Yin, Jiabin Zhang, Jue Zhang
Peking University, China

(B2P-10-MBF-5): Estimation of Fractional Flow Reserve Using a Forwarding Looking IVUS Transducer
Ming-Che Lin, Hsuan-Yu Liu, Pai-Chi Li
National Taiwan University, Taiwan

(B2P-10-MBF-6): Validation of Ultrasound Doppler Velocity Measurements for patient-Specific fluid-Structure Interaction Modeling of the Abdominal aorta, Femoral and Carotid Arteries
Judith Fonken{2}, Milan Gillissen{2}, Marc van Sambeek{1}, Frans van de Vosse{2}, Richard Lopata{2}
{1}Catharina hospital, Netherlands; {2}Eindhoven University of Technology, Netherlands

(B2P-10-MBF-7): Comparison of High-Frequency Probes to Quantify Intracardiac Vorticity in Murine Hearts
Daniel Gross{3}, Colin Phoon{1}, Glenn Fishman{2}, Jeffrey Ketterling{3}
{1}Division of Pediatric Cardiology, Hassenfeld Children's Hospital at NYU Langone, United States; {2}Leon H. Charney Division of Cardiology, NYU Langone Health, United States; {3}Weill Cornell Medicine Dept. of Radiology, United States

(B2P-10-MBF-8): Ultrasound Morphoangiometry for Breast Cancer Detection and Prediction of Axillary Lymph Nodes Metastasis
Soroosh Sabeti, Redouane Ternifi, Juanjuan Gu, Giulia Ferroni, Nicholas B. Larson, Robert T. Fazzio, Mostafa Fatemi, Azra Alizad
Mayo Clinic, United States

(B2P-10-MBF-9): Quantitative Microvasculature Ultrasound Imaging for Differentiation of Hepatic Masses
Soroosh Sabeti, Redouane Ternifi, Nicholas B. Larson, Michael C. Olson, Thomas D. Atwell, Mostafa Fatemi, Azra Alizad
Mayo Clinic, United States

(B2P-10-MBF-10): Distributed Aberration Correction for Doppler Through a High Sound Speed and Density Aberrator with Application to Transcranial Doppler
Saachi Munot, Thurston Brevett, Jeremy Dahl
Dahl Lab, Stanford University, United States

(B2P-10-MBF-11): Volumetric Imaging and Quantification of Tumor Microvasculature Architecture Improves Breast Cancer Detection
Soroosh Sabeti, Juanjuan Gu, Redouane Ternifi, Nicholas B. Larson, Robert T. Fazzio, Mostafa Fatemi, Azra Alizad
Mayo Clinic, United States

(B2P-10-MBF-12): Application of the SVD Beamformer to Blood Motion Improves the Sensitivity of Transcranial Functional Ultrasound Imaging
Dimitris Perdios, Victor Blanvillain, Solène Ruinet, Adrien Bertolo, Silvia Cazzanelli, Nathalie Ialy-Radio, Sophie Pezet, Thomas Deffieux, Mickael Tanter
Institute Physics for Medicine Paris, France

B2P-11: MCA-P: Therapeutic and Drug Delivery Strategies
Chair(s): Brandon Helfield (Concordia University)

(B2P-11-MCA-2): Diameter-Dependent Assessment of Microvascular Leakage Following ultrasound-Mediated Blood Brain Barrier Opening for the Delivery of Clinically Relevant Molecules
Lea Peko, Ramona Aronovich, Tali Ilovitsh
Department of Biomedical Engineering, Tel Aviv University, Tel Aviv, Israel

(B2P-11-MCA-3): Loss of Renal Function Characterization in Tumors Observed in Patients by Sensing Ultrasound Localization Microscopy (sULM)
Sylvain Bodard{3}, Louise Denis{2}, Georges Chabouh{2}, Vincent Hingot{2}, Olivier Hélénon{1}, Jean-Michel Correas{1}, Olivier Couture{2}

{1}Hopital Necker-Enfants malades, France; {2}Laboratoire d'Imagerie Biomédicale CNRS INSERM-Sorbonne Université, France; {3}Laboratoire d'Imagerie Biomédicale CNRS INSERM-Sorbonne-Hopital Universitaire Necker-Enfants malades, France

(B2P-11-MCA-4): Bioengineered Gas Vesicle nanostructure Increases the Ultrasound Backscattered Signal Amplitude in Presence Tumoral Enzyme Cathepsin B
Felipe Garrute{1}, Ana Pacheco{1}, George Lu{2}, João Machado{1}
{1}Federal University of Rio de Janeiro, Brazil; {2}Rice University, United States

(B2P-11-MCA-5): First in Vivo Proof of Concept of radiation-Induced nanodroplet Vaporization in the Liver of Healthy Rats Exposed to Proton Radiation
Bram Carlier{2}, Gonzalo Collado-Lara{1}, Sophie Heymans{3}, Marcus Ingram{2}, Yosra Toumia{4}, Luigi Musetta{2}, Gaio Paradossi{4}, Hendrik Vos{1}, Koen Van Den Abeele{3}, Jan D'Hooge{2}, Uwe Himmelreich{2}, Edmond Sterpin{2}
{1}Erasmus Medical Center, Netherlands; {2}KU Leuven, Belgium; {3}KU Leuven campus KULAK, Belgium; {4}University of Rome Tor Vergata, Italy

(B2P-11-MCA-6): Time-Dependence of Microbubble-Mediated Enhanced Endocytosis in Endothelial Cells
Davindra Singh, Stephanie He, Elahe Memari, Alyssa Cristea, Brandon Helfield
Concordia University, Canada

(B2P-11-MCA-7): Selective Release of CO2-Loaded nanoparticles for vesicoureteral Reflux Imaging
Zoe Nussbaum{2}, Van Do{2}, Davin Nguyen{2}, Andy Chang{1}, Travis Williams{2}, Jesse Yen{2}
{1}Children's Hospital Los Angeles, United States; {2}University of Southern California, United States

B2P-12: MEL-P: Elastography in Soft Tissues

Chair(s): Hsiao-Chuan Liu (University of Southern California)

(B2P-12-MEL-1): High-Frequency Ultrasound Elasticity Imaging of Skin Using Surface Wave Model Corroborated by Tensile Test
Alireza Ashofteh, Yahua Wang, Corentin Alix, Jean-Pierre Remenieras, Ayache Bouakaz
UMR 1253, iBrain, University of Tours, France

(B2P-12-MEL-2): Experimental Evidence of Fractional Viscoelastic Shear Waves Enables transluminal elastography in Prostate
Guillermo Rus{2}, Antonio Gomez{1}, Manuel Hurtado{2}, Antonio Callejas{2}, Jorge Torres{2}, Nader Saffari{1}
{1}University College London, United Kingdom; {2}University of Granada, Spain

(B2P-12-MEL-3): Shear Modulus Differentiates Response to Stereotactic Body Radiation and Immunotherapy in Pancreatic Tumor Microenvironment
Nikhila Nyayapathi{1}, Tara Vrooman{2}, Angela Hughson{2}, Scott Gerber{2}, Marvin Doyley{1}
{1}University of Rochester, United States; {2}University of Rochester Medical Campus, United States

(B2P-12-MEL-4): Adaptive Shear Wave Anisotropic Imaging for Pennate Muscle by Using Dual-Direction Shear Wave Imaging
Guo-Xuan Xu, Po-Yang Lee, Pei-Yu Chen, Chih-Chung Huang
National Cheng Kung University, Taiwan

(B2P-12-MEL-5): Multi-Site Evaluation of Kidney Transplants with Shear Wave Elastography
Jay Puffer{1}, Luiz Vasconcelos{1}, Hsiao-Chuan Liu{2}, Melanie Caserta{1}, Nirvikar Dahiya{1}, Thomas Atwell{1}, Andrew Rule{1}, Matthew Urban{1}
{1}Mayo Clinic, United States; {2}University of Southern California, United States

(B2P-12-MEL-6): Ultrasound Shear Wave Imaging of decellularized Muscles
Jinping Dong, Loi Chit Cheung, Wei-Ning Lee
The University of Hong Kong, China

(B2P-12-MEL-7): Ultrasound Passive Shear Wave Elastography of Tongue
Wei-Cheng Hsiao{1}, Yining Weng{2}, Chenhao Chiu{2}, Bao-Yu Hsieh{1}
{1}Chang Gung University, Taiwan; {2}National Taiwan University, Taiwan

(B2P-12-MEL-8): Quantification of Nonlinear Shear Moduli in Transversely Isotropic medium: Preliminary Study Ex Vivo and in Vivo on Muscles
Ha Hien Phuong Ngo{1}, Ricardo Andrade{4}, Corentin Cornu{1}, Aude Loumeaud{3}, Thomas Frappart{2}, Christophe Fraschini{2}, Antoine Nordez{4}, Simon Chatelin{3}, Jean-Luc Gennisson{1}
{1}BIOMAPS, France; {2}Hologic, France; {3}iCube, France; {4}Université Nantes, France

(B2P-12-MEL-9): Frequency Dependent Crystalline Lens elastography
François Legrand, Alice Ganeau, Gabrielle Laloy-Borgna, Maxime Lafond, Cyril Lafon, Stefan Catheline
Labtau INSERM U1032, France

(B2P-12-MEL-10): Enhanced Shear Wave Velocity Calculation in Glaucoma Patients Using Adaptive Singular Value Filter and Deep Neural Network in Ultrasound Elastography
Ngoc Thang Bui, Arash Kazemi, Arthur Sit, John J Chen, Nicholas B Larson, Xiaoming Zhang
Mayo Clinic, Rochester, Minnesota, United States

B2P-13: MEL-P: Signal Processing for Elastography II
Chair(s): Stephen McAleavey (University of Rochester)

(B2P-13-MEL-1): Shear Wave elastography Using Diverging Wave Imaging with sliding-Window Coherent Compounding
Marta Orlowska{2}, Annette Caenen{2}, Kjell Kristoffersen{1}, Jan D'Hooge{2}
{1}GE Healthcare, Norway; {2}KU Leuven, Belgium

(B2P-13-MEL-2): Dispersion Curve Change with Compression on a Gelatin Phantom and Ex Vivo Pig Kidneys
Yuqi Wang{2}, Piotr Kijanka{1}, Matthew Urban{2}
{1}AGH University of Science and Technology, Poland; {2}Mayo Clinic, United States

(B2P-13-MEL-3): Synthetic Shear Wave elastography Based on system-Transfer Deep Learning of Ultrasound B-Scan Imaging Using Conditional Generative Adversarial Network
Chun-Hao Lu, Wei-Cheng Hsiao, Bao-Yu Hsieh, Po-Hsiang Tsui
Chang Gung University, Taiwan

(B2P-13-MEL-4): Frame Fusion Imaging Based on Bilateral Wavelet Transform Filtering in Ultrasound Elastography
Jiayue Dai, Yu Li, Qian Lv, Guanjun Yin, Jianzhong Guo
Shaanxi Normal University, China

(B2P-13-MEL-5): Fast Shear wavevector Estimator for real-Time Elasticity Map Reconstruction
Enrique Gonzalez-Mateo, Francisco Camarena, Noé Jiménez
Universitat Politècnica de València, Spain

(B2P-13-MEL-6): Advancements in Shear Wave elastography with Neural Networks and multi-Resolution Approaches
Ali Kafaei{4}, Sunethra Dayavansha{3}, Yuyang Gu{3}, Marko Jakovljevic{3}, Michael Wang{2}, Rimon Tadross{2}, Kai Thomenius{3}, Hassan Rivaz{1}, Anthony Samir{3}
{1}Concordia University, Canada; {2}GE Healthcare, United States; {3}Massachusetts General Hospital and Harvard Medical School, United States; {4}Massachusetts General Hospital and Harvard Medical School and Concordia University, Canada

B2P-14: MIM-P: Imaging Systems & Tomography
Chair(s): Yinran Chen (Xiamen University)

(B2P-14-MIM-1): Computed Ultrasound Tomography in Echo Mode for Attenuation imaging: Experimental Validation
Naiara Korta Martiartu, Parisa Salemi Yolgunlu, Martin Frenz, Michael Jaeger
University of Bern, Switzerland

(B2P-14-MIM-2): Three-Dimensional Intraoral Imaging Using a Portable 3D Freehand Ultrasound System: a Phantom Study
Javaneh Alavi, Hongbo Chen, Kim-Cuong T Nguyen, Thanh-Giang La, Logiraj Kumaralingam, Kumaradevan Punithakumar, Maria Alexiou, Edmond H.M. Lou, Michelle Noga, Paul W. Major, Lawrence H. Le
University of Alberta, Canada

(B2P-14-MIM-3): Feasibility of Imaging Ischemic Stroke Through the Skull Using Ultrasound Tomography
Trevor Mitcham, Rehman Ali, Derrek Schartz, Melanie Singh, Matthew Bender, Nebojsa Duric
University of Rochester, United States

(B2P-14-MIM-4): A Hydrogel Boot for Rapid 3D Ultrasound Assessment of Achilles Tendon Injury
Yunlong Bao, Jinyu Yang, Jie Dang, Shuo Huang, Wenyu Guo, Feihong Dong, Jiabin Zhang, Jue Zhang
Peking University, China

(B2P-14-MIM-5): Characterisation of Quantitative Attenuation Imaging by Phase Insensitive Ultrasound Computed Tomography
Daniel Sarno{2}, Christian Baker{1}, Bajram Zeqiri{2}
{1}Kings College London, United Kingdom; {2}National Physical Laboratory, United Kingdom

(B2P-14-MIM-6): Enabling Mammography with Adjunctive Co-Robotic Ultrasound
Yuxin Chen, Yifan Yin, Yixuan Wu, Julian Brown, Kevin Wang, Russell Taylor, Emad Boctor
Johns Hopkins University, United States

(B2P-14-MIM-7): High-Resolution Large Field-of-View Ultrasound Imaging with a Circular Transducer and Half-Wavelength Pitch
Eun-Yeong Park, Josquin Foiret, Katherine Ferrara
Stanford University, United States

(B2P-14-MIM-8): Evidence for Slow Biot Wave Tomography
James Wiskin, John Klock
QT Imaging Inc, United States

B2P-15: MIM-P: Image Analysis & AI I
Chair(s): Kenneth Hoyt (University of Texas at Dallas), Diya Wang (Xi'an Jiaotong University)

(B2P-15-MIM-1): Functional Ultrasound Imaging Reveals optogenetic Activation of Neuronal Clusters in Ferret Primary Visual Cortex
Wentao Hu{1}, Silei Zhu{2}, Farran Briggs{2}, Marvin Doyley{1}
{1}University of Rochester, United States; {2}University of Rochester Medical Center, United States

(B2P-15-MIM-2): Oversample Minority Classes in Lung Ultrasound Using Generative Adversarial Network
Noreen Fatima, Federico Mento, Libertario Demi
University of Trento, Italy

(B2P-15-MIM-3): Fully-Automated Periodontal Bone Level Measurements in Adolescents via Landmark Detection in Intraoral Ultrasound Videos
Logiraj Kumaralingam{2}, Hoang Bao Vy Dinh{2}, Kim-Cuong T Nguyen{2}, Kumaradevan Punithakumar{2}, Neelambar R Kaipatur{1}, Edmond H.M. Lou{2}, Paul W. Major{2}, Lawrence H. Le{2}
{1}Private Practice, Canada; {2}University of Alberta, Canada

(B2P-15-MIM-4): Lung Ultrasound Patterns Analysis at Video and prognostic-Level in a Resource Constrained Setting
Umair Khan{3}, Sajjad Afrakhteh{3}, Federico Mento{3}, Andrea Smargiassi{1}, Riccardo Inchingolo{1}, Francesco Tursi{4}, Veronica Narvena{4}, Tiziano Perrone{2}, Giovanni Iacca{3}, Libertario Demi{3}
{1}Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Italy; {2}ipartimento di Emergenza ed Urgenza, Humanitas Gavazzeni Bergamo, Italy; {3}University of Trento, Italy; {4}UOS Pneumologia di Codogno, Asst Lodi, Italy

(B2P-15-MIM-5): A Novel Weighted Majority voting-Based Ensemble Framework for Lung Ultrasound Pattern Classification in Pneumonia Patients
Umair Khan{2}, Riccardo Inchingolo{1}, Andrea Smargiassi{1}, Libertario Demi{2}
{1}Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Italy; {2}University of Trento, Italy

(B2P-15-MIM-6): Exploiting Resonance Effects for Cannula Localization Using Multiview Spectral Channel Data As Input for a Deep Neural Network (DNN)
Mariam Fouad, Marcel Schwegler, Georg Schmitz, Stefanie Dencks
Ruhr University Bochum, Germany

(B2P-15-MIM-7): Ultrasound Analysis of Gas Emboli in Lymph Nodes and Relation to Decompression Sickness in a Porcine Dive Model
Joshua Currens{2}, Arian Azarang{2}, Paul Dayton{2}, Virginie Papadopoulou{2}, Richard Moon{1}, Matthew Makowski{1}, Michael Natoli{1}, Eric Schinazi{1}, Robert Brown{1}, Zach Ransom{1}, Rachel Lance{1}
{1}Duke Center for Hyperbaric Medicine and Environmental Physiology, Duke University, United States; {2}The University of North Carolina at Chapel Hill and North Carolina State University, United States

(B2P-15-MIM-8): Investigating Effective Transfer of Deep Learning Models from Adults to Children for Lung Ultrasound Data Analysis
Russell Thompson{4}, Umair Khan{5}, Jason Li{3}, Lauren Etter{6}, Ingrid Camelo{1}, Rachel Pieciak{3}, Ilse Castro-Aragon{2}, Bindu Setty{2}, Christopher Gill{3}, Libertario Demi{5}, Margrit Betke{3}
{1}Augusta University, United States; {2}Boston Medical Center, United States; {3}Boston University, United States; {4}University of Massachusetts Dartmouth, United States; {5}University of Trento, United States; {6}University of Wisconsin, Madison, United States

(B2P-15-MIM-9): Imposing Object's Trajectory and Dynamic Template Updates to Track ROIs in Ultrasound Image Sequences
Mohammad Wasih, Mohammed Alshahrani, Mohamed Almekkawy
The Pennsylvania State University, University Park, United States

B2P-16: MIS-P: Image Classification
Chair(s): Dimitris Perdios (Inserm U1273 Physics for Medicine Paris)

(B2P-16-MIS-1): Soft-Labels Noise Tolerant Loss Functions for transcranial Doppler Ultrasound Signal Classification
Yamil Vindas{2}, Blaise Kevin Guépié{3}, Marilys Almar{1}, Emmanuel Roux{2}, Philippe Delachartre{2}
{1}Atys Medical, France; {2}Biomedical Imaging Research Lab - CREATIS, France; {3}Université de Technologie de Troyes, Laboratoire Informatique et Société Numérique, France

(B2P-16-MIS-2): Blood Glucose Classification Using high-Frequency Ultrasound and Artificial Intelligence
Jeong Eun Lee{2}, Hyeon-Ju Jeon{1}, O-Joun Lee{3}, Hae Gyun Lim{2}
{1}Korea Institute of Atmospheric Prediction Systems, Korea; {2}Pukyong National University, Korea; {3}The Catholic University of Korea, Korea

(B2P-16-MIS-3): Vision Transformer and Multi-View Classification for Lesion Detection in 3D Cranial Ultrasound
Flora Estermann{2}, Valerie Kaftandjian{2}, Philippe Guy{2}, Philippe Quetin{1}, Philippe Delachartre{2}
{1}CH Avignon, France; {2}INSA Lyon, France

(B2P-16-MIS-4): Classification of Red Blood Cells for the Diagnosis of dysnatremia Based on Ultrasound and Convolutional Neural Networks
Ji Won Nam{2}, Hyeon-Ju Jeon{1}, Jeong Eun Lee{2}, O-Joun Lee{3}, Hae Gyun Lim{2}
{1}Korea Institute of Atmospheric Prediction Systems, Korea; {2}Pukyong National University, Korea; {3}The Catholic University of Korea, Korea

(B2P-16-MIS-5): On the Assessment of Local Tumor Response to Neoadjuvant Chemotherapy
Ziemowit Klimonda{1}, Piotr Karwat{1}, Katarzyna Dobruch-Sobczak{2}, Hanna Piotrzkowska-Wróblewska{1}, Jerzy Litniewski{1}
{1}Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland; {2}IPPT PAN, Maria Skłodowska-Curie National Research Institute of Oncology, Poland

(B2P-16-MIS-6): Quantitative Ultrasound Assessment of Healthy and Degenerated Cartilage
Lorena Guachi{2}, Angela Sorriento{2}, Andrea Cafarelli{2}, Paolo Dolzani{1}, Enrico Lenzi{1}, Gina Lisignoli{1}, Leonardo Ricotti{2}
{1}IRCCS Istituto Ortopedico Rizzoli, Italy; {2}Scuola Superiore Sant'Anna, Italy

(B2P-16-MIS-7): Estimating Force Exerted by the Fingers Based on Forearm Ultrasound
Keshav Bimbraw, Haichong Zhang
Worcester Polytechnic Institute, United States

(B2P-16-MIS-8): Development of a Bias Field Correction Framework for Accurate Diagnosis of Carpal Tunnel Syndrome in Ultrasound Images
Ting-Hsuan Chiu{2}, Chih-Kuang Yeh{2}, Yin-Yin Liao{1}, Hsiao-Huai Kuo{2}, Chia-Yen Lee{3}
{1}Chung Shan Medical University, Taiwan; {2}National Tsing Hua University, Taiwan; {3}National United University, Taiwan

B2P-17: MIS-P: Cardiac and Blood Flow Imaging
Chair(s): Sébastien Salles (Laboratoire d'Imagerie Biomédicale)

(B2P-17-MIS-1): 2D/3D Echocardiography Frame Rate Enhancement by Means of a Novel Spatio-Temporal Reconstruction Technique
Sajjad Afrakhteh, Giovanni Iacca, Libertario Demi
University of Trento, Italy

(B2P-17-MIS-2): Mapping Adipose Tissue in Short-Axis Echocardiograms Using Spectral Analysis
Lucas Gillette{1}, Vu Dinh{1}, Pamela Woodard{2}, Jon Klingensmith{1}
{1}Southern Illinois University Edwardsville, United States; {2}Washington University Saint Louis, United States

(B2P-17-MIS-3): A Clutter Filtering Method of Ultrasound Microvascular Imaging Based on Low-Rank Prior RPCA
Xiao Su, Yueyuan Wang, Liyuan Jiang, Hanbin Chu, Yujin Zong, Mingxi Wan
Xi'an Jiaotong University, China

(B2P-17-MIS-4): Physics-Informed Cyclic GAN for Resolution Enhancement with Application to Ultrafast Ultrasound Blood Flow Imaging
Vassili Pustovalov, Duong-Hung Pham, Denis Kouamé
IRIT Laboratory, France

B2P-18: MIS-P: Lung Ultrasound
Chair(s): Marie Muller (NCSU)

(B2P-18-MIS-1): Estimation of Lung Surface Roughness by Means of an Ultrasound Multifrequency Approach, in silico and in vitro Results
Federico Mento{1}, Matteo Perini{2}, Ciro Malacarne{2}, Libertario Demi{1}
{1}Department of Information Engineering and Computer Science, University of Trento, Italy; {2}Polo Meccatronica (ProM), Italy

(B2P-18-MIS-2): Differential Diagnosis of Lung Disease Through Quantitative Lung Ultrasound Spectroscopy, an in Vivo Clinical Study Over 114 Patients
Federico Mento{1}, Mattia Perpenti{1}, Giuliana Barcellona{2}, Tiziano Perrone{2}, Libertario Demi{1}
{1}Department of Information Engineering and Computer Science, University of Trento, Italy; {2}Emergency Department, Humanitas Gavazzeni, Italy

(B2P-18-MIS-3): Frame-to-video-Based Semi-Supervised Lung Ultrasound Scoring Model
Wenyu Xing{2}, Yiwen Liu{1}, Chao He{3}, Yifang Li{2}, Xin Liu{2}, Dean Ta{2}
{1}Donghua University, China; {2}Fudan University, China; {3}Shanghai Changzheng Hospital, China

(B2P-18-MIS-4): Deep Learning-Based Lung Ultrasound Image Segmentation for real-Time Analysis
Mario Muñoz Prieto, Jorge Fernández Cruza, Guillermo Cosarinsky, Jorge Camacho
Spanish National Research Council (CSIC), Spain

(B2P-18-MIS-5): Lung Sliding Detection in M-Mode Using Wearable Ultrasonic Sensor: an In-Vivo Feasibility Study
Khoa Tran, Shane Steinberg, Yuu Ono, Sreeraman Rajan
Carleton University, Canada

B2P-19: MPA-P: Photoacoustic Imaging Systems
Chair(s): Jun Xia (University of Buffalo)

(B2P-19-MPA-1): Learning-Based sound-Speed Correction for dual-Modal photoacoustic/Ultrasound Imaging
Mengjie Shi, Tom Vercauteren, Wenfeng Xia
King's College London, United Kingdom

(B2P-19-MPA-2): A Low-Cost High-Sensitivity Endoscopic Probe for Real-Time Photoacoustic Imaging
Junxiang Cai, Xiyu Chen, Feng Gao, Tao Wu, Fei Gao
ShanghaiTech University, China

(B2P-19-MPA-3): Experimental Evaluation of Sensor Directivity Using Isotropic Total Variation Minimization in Photoacoustic Tomography
Sudeep Mondal, Pankaj Warbal, Subhadip Paul, Ratan K Saha
Indian Institute of Information Technology Allahabad, India

(B2P-19-MPA-4): Combining Broad Bandwidth Photoacoustic Imaging with Echo Imaging Using an Acoustically Transparent PVDF Receiver Array
Sowmiya Chandramoorthi, Antonio López-Marín, Robert Beurskens, Antonius F.W. Van Der Steen, Gijs van Soest
Erasmus medical Center, Netherlands

(B2P-19-MPA-5): Light-Rotating ring-Shape Photoacoustic Tomography System
Bowei Yao, Xiyu Chen, Gaofei Jin, Fei Gao, Xiran Cai
ShanghaiTech University, China

(B2P-19-MPA-6): A Comprehensive FEA Platform for Realistic Simulations of Photoacoustic Imaging
Reza Rahpeima, Pai-Chi Li
National Taiwan University, Taiwan

(B2P-19-MPA-7): Photoacoustic Microscopy Using Four-Wave Mixing in a Large Mode Area Fiber
Takashi Buma
Union College, United States

(B2P-19-MPA-8): Hands-Free in Vivo Volumetric Photoacoustic Imaging and Spectroscopy for Assessing a Broad Spectrum of Skin Lesions
Eric Reichel, Christopher Salinas, Abhiman Gupta, Delaney Stratton, Clara Curiel-Lewandrowski, Russell Witte
The University of Arizona, United States

B2P-20: MSD-P: Medical Devices and Applications
Chair(s): Antonios Pouliopoulos (King's College London)

(B2P-20-MSD-1): 10-Minute Continuous Acquisitions with the Verasonics Vantage Research Scanner
Borislav Gueorguiev Tomov{1}, Ron Daigle{2}, Jørgen Arendt Jensen{1}
{1}Technical University of Denmark, Denmark; {2}Verasonics, Inc, United States

(B2P-20-MSD-2): Low-power, high-Precision Ultrasound Capsule Position Tracking Technology
Yu-Tzu Liu{1}, Yi-Hong Chou{4}, Yang Yang{2}, k. Kirk Shung{3}, Qifa Zhou{3}, Jian-Xing Wu{1}
{1}National Chin-Yi University of Technolog, Taiwan; {2}San Diego State University, United States; {3}University of Southern California, United States; {4}Yuanpei University of Medical Technology and National Yang Ming University, Taiwan

(B2P-20-MSD-3): Automated Ultrasound Bladder Volume Measurement System Based on Lightweight Deep Learning Network on Point-of-Care (POC) Device
Seongyun Cho, Hyunwoo Cho, Jihun Jang, Ilseob Song, Yangmo Yoo
Sogang University, Korea

(B2P-20-MSD-4): Compact System for Performing Sonoporation on Adherent Cells or Suspended Cells
Ning Rong, Xiufang Liu, Long Meng
SIAT, China

(B2P-20-MSD-5): Ultrasound for Data Transfers from Deep implants: an Experimental Comparison Between Binary-Frequency-Shift-Keying and On-Off-Keying with Backscatter Modulation
Lukas Holzapfel{2}, Vasiliki Giagka{1}
{1}Delft University of Technology, Netherlands; {2}Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM, Germany

(B2P-20-MSD-6): Robot-Assisted Motion Compensation Based on Optical Flow in Ultrasound Images
Giovanni Faoro, Nicolò Pasini, Andrea Mariani, Laura Morchi, Selene Tognarelli, Arianna Menciassi
Scuola Superiore Sant'Anna, Italy

(B2P-20-MSD-7): A dual-Frequency Ultrasonic Aspirator (DFUA) Based on a Novel Langevin Transducer
Zhicheng Liao{2}, Shibo Zhang{2}, Yang Liu{2}, Xiaobing Li{1}, Chao Liu{2}, Yongbo Wu{2}
{1}Nanchang university, China; {2}Southern university of science and technology, China

(B2P-20-MSD-8): Design of a Wearable Ultrasound System for Dynamic Shoulder Tendon Imaging
Hung-Jui Chen, Chien Chen, Guo-Xuan Xu, Hsin Huang, Chih-Chung Huang
National Cheng Kung University, Taiwan

(B2P-20-MSD-9): Acoustic Intensity Monitoring in a 2D Cell Culture Under Low Intensity Ultrasound Stimulation
Philippe Lasaygues{2}, Elise Doveri{2}, Carine Guivier-Curien{1}, Cécile Baron{1}
{1}Aix Marseille Univ, CNRS, Centrale Méditerranée, IRPHE, France; {2}Aix Marseille Univ, CNRS, Centrale Méditerranée, LMA, France

B2P-21: MTC-P: Tissue Characterization Applications
Chair(s): Jean Gabriel Minonzio (Universidad de Valparaiso)

(B2P-21-MTC-1): Characterizing the Thoracolumbar Fascia Ultrastructure Using Quantitative Ultrasound in People with Nonspecific Low Back Pain
Norio Tomita{2}, Marie-Hélène Roy Cardinal{2}, François Destrempes{2}, Boris Chayer{2}, Stacey Daher{1}, Ameer Attiya{1}, Nathaly Gaudreault{3}, Guy Cloutier{2}, Nathalie J Bureau{2}
{1}University of Montreal, Canada; {2}University of Montreal Hospital Research Center, Canada; {3}University of Sherbrooke, Canada

(B2P-21-MTC-2): In-Vivo High-Frequency Point-of-Care Quantitative Ultrasound to Detect Myopia-Induced Microstructural Changes in the Anterior Sclera
Cameron Hoerig{2}, Quan Hoang{1}, Jonathan Mamou{2}
{1}Singapore Eye Research Institute, Singapore; {2}Weill Cornell Medicine, United States

(B2P-21-MTC-3): Cortical Bone Properties Assessment Using Axially Transmitted Low Frequency (<500kHz) Ultrasonic Guided Waves
Aubin Chaboty{3}, Vu-Hieu Nguyen{2}, Guillaume Haiat{1}, Pierre Bélanger{3}

{1}MSME, Centre National de la Recherche Scientifique, France; {2}MSME, Université Paris-Est Créteil, France; {3}PulETS, Ecole de Technologie Superieure, Canada

(B2P-21-MTC-4): Cortical Bone Thickness Assessment from Multi-Frequency Ultrasound RF Data Using a Convolutional Architecture with Multi-Head Attention
Hossam Sultan{2}, Enrico Grisan{2}, Laura Peralta{1}, Sevan Harput{2}
{1}King's College London, United Kingdom; {2}London South Bank University, United Kingdom

(B2P-21-MTC-5): Developing a Variety of Novel Ultrasound Biomarkers for point-of-Care Lung Monitoring
Azadeh Dashti{1}, Jonathan Mamou{2}, Marie Muller{1}
{1}North Carolina State University, United States; {2}Weill Cornell Medicine, United States

(B2P-21-MTC-6): Numerical Methods for Lung Quantitative Ultrasound
Azadeh Dashti{1}, Oleksii Ostras{2}, Jonathan Mamou{3}, Gianmarco Pinton{2}, Marie Muller{1}
{1}North Carolina State University, United States; {2}University of North Carolina at Chapel Hill, United States; {3}Weill Cornell Medicine, United States

(B2P-21-MTC-7): Ultrasound Localization of Tissues Inside Alveolar Bone Ex Vivo
Yiyun Wang{3}, Chengxiao Liu{2}, Yujie Wang{3}, Niansong Ye{1}, Feng Gao{3}, Lunguo Xia{2}, Bing Fang{2}, Fei Gao{3}
{1}Shanghai Huaguang Dental Clinic, China; {2}Shanghai Ninth People's Hospital, China; {3}ShanghaiTech University, China

(B2P-21-MTC-8): Quantitative Microstructural Assessment in the Neonatal Brain
Laura Castaneda-Martinez{2}, Chrysanthy Ikonomidou{3}, Amber Possel{1}, Ivan M. Rosado-Mendez{1}
{1}Department of Medical Physics and Department of Radiology, University Wisconsin-Madison, United States; {2}Department of Medical Physics, University of Wisconsin-Madison, United States; {3}Department of Neurology, University of Wisconsin-Madison, Unite

(B2P-21-MTC-9): Ultrasound Quantitative Monitoring of Muscle Quality Changes in Sarcopenia Patients After Supervised Exercise Intervention
Morelva Saeteros Ortiz{5}, Naiara Virtro Castro{5}, Ignacio Oyarzábal Illarramendi{5}, Xabier Rio de Frutos{5}, Rafael García{2}, Almudena Avendaño-Cespedes{2}, Elisa Belén Cortés Zamora{2}, Elena Gómez Jiménez{2}, Pedro Abizanda{2}, Leocadio Rodríguez-Ma
{1}Biodonostia Health Research Institute, Spain; {2}Carlos III Health Institute, Spain; {3}EUNEIZ University, Spain; {4}Stanford Medicine, United States; {5}University of Deusto, Spain

B2P-22: MTH-P: Therapy III
Chair(s): Anthony Novell (CEA)

(B2P-22-MTH-1): Fast transcranial Ultrasound Simulations Based on time-of-Flight Minimization
Célestine Angla{2}, Hamza Chouh{3}, Paul Mondou{4}, Gwenaël Toullelan{3}, Kévyn Perlin{3}, Sylvain Chatillon{3}, Jean-Luc Gennisson{1}, Benoit Larrat{4}
{1}BIOMAPS, France; {2}BIOMAPS/CEA List/Neurospin, France; {3}CEA List, France; {4}CEA Neurospin, France

(B2P-22-MTH-2): Ultrasound Transmission Mapping Using the Acoustic Emission from Cavitation Cloud Collapse
Ellen Yeats, Zhen Xu, Timothy Hall
University of Michigan, United States

(B2P-22-MTH-3): Spatiotemporal Passive Mapping of Cavitation in a Focused Acoustic Vortex Field
Shukuan Lu, Ruibo Su, Chunye Wan, Shifang Guo, Yi Feng, Mingxi Wan
Xi'an Jiaotong University, China

(B2P-22-MTH-4): Real-Time transcranial Phase Aberration Correction Using a raytracing Method
Wolfgang Bost, Holger Hewener, Daniel Schmitt, Marc Fournelle, Franz Josef Becker, Steffen Tretbar
Fraunhofer IBMT, Germany

(B2P-22-MTH-5): Performance of Learned pseudo-CT in transcranial Ultrasound Simulations Using Fluid and Solid Skulls
Ya Gao{1}, Beatrice Lauber{3}, Beat Werner{2}, Daniel Razansky{3}, Qian Cheng{1}, Héctor Estrada{3}
{1}Tongji university, China; {2}University Children's Hospital Zurich, Switzerland; {3}University of Zurich, Switzerland

(B2P-22-MTH-6): Focused Ultrasound Fracture of Calcified Atherosclerotic Plaque
Adam Maxwell{2}, Lucas Chen{2}, Yak-Nam Wang{2}, Ga Won Kim{2}, Zorawar Singh{2}, Adrienne Lehnert{2}, Robert Miyaoka{2}, Hitinder Gurm{1}
{1}University of Michigan, United States; {2}University of Washington, United States

(B2P-22-MTH-7): Ultrasound Frequency and microbubble Properties Can Be Tuned to Modulate the blood-Brain Barrier Phenotype
Yutong Guo{1}, Hohyun Lee{1}, Chulyong Kim{1}, Miguel Bernabeu{2}, Costas Arvanitis{1}
{1}Georgia Institute of Technology, United States; {2}University of Edinburgh, United Kingdom

(B2P-22-MTH-8): Improving sonogenetics by Ion Channel Engineering
Kevin Xu, Jinyun Yuan, Yaoheng Yang, Hong Chen
Washington University in St. Louis, United States

(B2P-22-MTH-9): Self-Sensing Cavitation in mm-Scale Hollow Cylindrical Transducers for Use in Intravascular Thrombolysis
Li Gong{2}, Alex Wright{1}, Kullervo Hynynen{1}, David Goertz{1}
{1}Sunnybrook Research Institute, Canada; {2}University of Toronto, Canada

B2P-23: MTN-P: Theranostic Agents
Chair(s): Mark Borden (University of Colorado at Boulder)

(B2P-23-MTN-1): Improving the theranostic Potential of Magnetic nanoparticles by Coating with Natural Rubber Latex for Magnetomotive ultrasound, Photoacoustic imaging, and Magnetic Hyperthermia
Thiago Vicente, Saeideh Arsalani, Mateus Quiel, Guilherme Fernandes, Oswaldo Baffa, Eder Jose Guidelli, Antonio Adilton Carneiro, Ana Paula Ramos, Theo Pavan
University of Sao Paulo, Brazil

(B2P-23-MTN-2): Enhanced Delivery of antidepressant(escitalopram)-liposome-Loaded microbubbles with Focused Ultrasound for Depressive Disorders
Chen-Cheng Tasi, Chia-Wei Lin, Chih-Kuang Yeh
National Tsing Hua University, Taiwan

(B2P-23-MTN-3): Measuring MRI Signal of Gd-Labelled Antibodies and Liposomes for Confirming Ultrasound-Mediated Delivery Into the Brain
Hasan Koruk, Paul Cressey, Christopher Payne, Maria Thanou, Antonios N. Pouliopoulos
King's College London, United Kingdom

(B2P-23-MTN-4): Multifunctional Genetically Engineered Bacteria for image-Guided Tumor Immunotherapy
Haitao Wu, Zhuonan Chen, Yuebo Wang, Minxi Wan, Yujin Zong
Xi'an Jiaotong University, China

B2P-24: MSR-P: Cardiovascular and Abdominal Super-Resolution Imaging
Chair(s): Jorgen Jensen (Technical University of Denmark)

(B2P-24-MSR-1): Comparison of 2D Sure and 3D CT Imaging of Cortical Vessels in a Rat Kidney
Lauge Naur Hansen{2}, Hans Martin Kjer{1}, Nathalie Sarup Panduro{3}, Mostafa Amin-Naji{1}, Carsten Gundlach{1}, Charlotte Mehlin Sørensen{3}, Anders Bjorholm Dahl{2}, Jørgen Arendt Jensen{2}
{1}Technical University of Copenhagen, Denmark; {2}Technical University of Denmark, Denmark; {3}University of Copenhagen, Denmark

(B2P-24-MSR-2): Morphology and Hemodynamics Parameter Analysis Based on super-Resolution Hepatic Tumor Microvascular Ultrasound Imaging
Shizhe An{3}, Jiacheng Liu{3}, Anqi Huang{3}, Mingting Zhu{3}, Jianjun Yu{3}, Qianqian Zeng{1}, Yali Ouyang{2}, Minxi Wan{3}, Yujin Zong{3}
{1}Department of Interventional Ultrasound, Chinese PLA Medical School & Fifth Medical Center of Chines, China; {2}Shenzhen Mindray Bio-Medical Electronics Co., Ltd, China; {3}Xian jiaotong university, China

(B2P-24-MSR-3): Transthoracic 3D Ultrasound Localization Microscopy Using a Large Aperture Probe with a multi-Lens Diffracting layer: an in vitro Study
Nabil Haidour, Hugues Favre, Mathieu Pernot, Mickael Tanter, Clément Papadacci
Physics for Medicine, INSERM, ESPCI, PSL, CNRS, France

(B2P-24-MSR-4): Structural Analysis of Dense Microvascular Networks Based on 3D contrast-Enhanced Ultrasound super-Localization in the Prostate
Peiran Chen, Simona Turco, Hessel Wijkstra, Massimo Mischi
Eindhoven University of Technology, Netherlands

(B2P-24-MSR-5): High Frequency Super-Resolution Ultrasound Imaging of Vasa Vasorum in Rabbit Atherosclerotic Plaques
Qiyang Chen, Zhiyu Sheng, Tara Richards, Julie Phillippi, Kang Kim
University of Pittsburgh, United States

(B2P-24-MSR-6): Super-Resolution (SR) Processing Can Detect Changes in Small Intestinal Microvascular Structure and Blood Flow in Rats
Clotilde Vie{1}, Cecilia Dunsterville{1}, Jacob Broughton-Venner{1}, Su Yan{1}, Alastair Brown{2}, Kevin Murphy{1}, Meng-Xing Tang{1}
{1}Imperial College London, United States; {1}Imperial College London, United Kingdom; {2}Sosei Heptares, United Kingdom

(B2P-24-MSR-7): Comparison of 3D super-Resolution Ultrasound Imaging Using a row-column-Addressed Array and a Matrix Array in a Langendorff Porcine Heart Model
Qingyuan Tan, Kai Riemer, Bingxue Wang, Biao Huang, Konstantinos Ntagiantas, Joseph Hansen-Shearer, Jipeng Yan, Su Yan, Peter Weinberg, Christopher Dunsby, Rasheda Chowdhury, Meng-Xing Tang
Imperial College London, United Kingdom

(B2P-24-MSR-8): Quantitative Assessment of Microvascular Changes Using super-Resolution Ultrasound Imaging During Chronic Kidney Disease in Sickle Cell Mice
Qiyang Chen, Roderick Tan, Samit Ghosh, Kang Kim
University of Pittsburgh, United States

B2P-25: MSR-P: Super-Resolution Imaging of the Brain
Chair(s): Stefanie Dencks (Ruhr-University Bochum)

(B2P-25-MSR-2): Mice Meningeal Lymphatic System Imaging Using Microbubble-Based Ultrasound Localization Microscopy
De-Quan Chen, Shyh-Hau Wang, Yu-Min Kuo, Chih-Chung Huang
National Cheng Kung University, Taiwan

(B2P-25-MSR-3): Adaptive Beamforming Combined with Decision theory-Based Detection for Ultrasound Localization Microscopy
Alexandre Corazza{1}, Pauline Muleki-Seya{1}, Arthur Chavignon{2}, Olivier Couture{2}, Adrian Basarab{1}, Barbara Nicolas{1}
{1}CREATIS, CNRS (UMR 5220), INSERM (U1206), INSA Lyon, Université de Lyon, France, France; {2}Sorbonne Université, CNRS, INSERM, Laboratoire d'Imagerie Biomédicale, France

(B2P-25-MSR-4): Ultrasound Localization Microscopy in the Human Brain Using a Low Frame Rate Clinical Scanner
Louise Denis{4}, Elena Meseguer{1}, Georges Jalkh{1}, Arthur Chavignon{3}, Vincent Hingot{3}, Dominique Hervé{2}, Eric Vicaut{2}, Pierre Amarenco{1}, Olivier Couture{4}
{1}Department of Neurology Bichat University Hospital (APHP), France; {2}Lariboisière-Fernand Vidal Hospital, (APHP), France; {3}Resolve Stroke, Paris, France; {4}Sorbonne Université, CNRS, INSERM Laboratoire d'Imagerie Biomédicale, France

(B2P-25-MSR-5): Realistic 3D Organ micro-Vascularisation super-Resolution Imaging Simulation for Clinical application: Whole Brain Imaging Using Large Surface Aperture Probe with multi-Lens Diffracting Layer
Hugues Favre, Alexandre Dizeux, Nabil Haidour, Mathieu Pernot, Mickael Tanter, Clement Papadacci
Physics for Medicine, ESPCI Paris, France

(B2P-25-MSR-6): Combined Microbubble- and Nanodroplets-Based Ultrasound Localization Microscopy for Detecting Intracerebral Hemorrhage
Bing-Ze Lin{2}, Alexander Fan{4}, Yike Wang{2}, Matthew Lowerison{2}, Qi You{1}, Nathiya Sekaran{3}, Daniel Llano{3}, Mark Borden{4}, Pengfei Song{2}
{1}Department of Bioengineering, University of Illinois at Urbana-Champaign, United States; {2}Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, United States; {3}Department of Molecular and Integrative Physiology, University of Illinois at Urbana-Champaign, United States; {4}Mechanical Engineering Department, University of Colorado, Boulder, United States

B2P-26: NDE-P: Signal Processing; Material & Defect Characterization; Transducers; Process Control and Industrial Ultrasound
Chair(s): Aryaz Baradarani (Tessonics Medical Systems), Jaime Parra Raad (King's College London)

(B2P-26-NDE-1): Ultrasonic Assessment of the Effect of Manufacturing Parameters on the Variability Within Additively Manufactured 316L Samples
Shafaq Zia, Johan E. Carlson, Pia Åkerfeldt
Luleå University of Technology, Sweden

(B2P-26-NDE-2): Advanced Ultrasonic Diagnostic Technology Towards Green Hydrogen Energy Systems
Zehua Dou{3}, Laura Tropf{1}, Harry Hoster{1}, Hagen Schmidt{2}, Juergen Czarske{3}, David Weik{3}
{1}Hydrogen and Fuel Cell Centre, ZBT GmbH, Duisburg, Germany; {2}Leibniz Institute for Solid State and Materials Research Dresden (Leibniz IFW Dresden), Germany; {3}Technische Universität Dresden, Germany

(B2P-26-NDE-3): A Fast Optical Coherence Tomography Based Angiography Projection (FOCTAP) Method on Dermatology Applications
Tianyu Zhang, Yilong Zhang, Chunhui Li, Zhihong Huang
University of Dundee, United Kingdom

(B2P-26-NDE-4): Ultrasonic Instrumentation of Rheometer for Simultaneous Ultrasonic and Rheological Monitoring of Materials with Temperature
Nesrine Houhat, Laksana Saengdee, Thibaut Devaux, Samuel Callé, Séverine Boucaud-Gauchet, François Vander Meulen
Greman UMR 7347, Univesité de Tours, CNRS, INSA-CVL, France

(B2P-26-NDE-5): Precise and Iterative Ultrasonic Phase Aberration Correction Using Cross-Spectral Phase
Chikayoshi Sumi, Masayuki Hata, Takumi Takeda
Sophia University, Japan

(B2P-26-NDE-6): Flexible, scalable, Printed Ultrasound Sparse Array for Corrosion Detection Using Machine Learning
Matthew McInnes, Claire Thring, Cameron Dick, Daniel Irving, Dave Hughes
Novosound Ltd., United Kingdom

(B2P-26-NDE-7): Generative Adversarial Network with a Parameter-Mapped Latent Vector Space for Ultrasonic NDT Data Synthesis and Analysis
Kushal Virupakshappa, Erdal Oruklu
Illinois Institute of Technology, United States

(B2P-26-NDE-8): Method of Removing Lens Inner Noise for High Resolution Ultrasound NDT Imaging
Sungwoo Kang{1}, Eui-Ji Shin{2}, Yoon Seong Jang{1}, Jin Ho Chang{1}
{1}Daegu Gyeongbuk Institute of Science and Technology, Korea; {2}Sogang University, Korea

(B2P-26-NDE-9): Proposal of an Ultrasonic Transducer System for Sterilization Radical Generation
Jungsoon Kim{2}, Moojoon Kim{1}

{1}Pukyong National University, Korea; {2}Tongmyong University, Korea

(B2P-26-NDE-10): Flexural Ultrasonic Transducers with Nonmetallic Membranes
Sam Adams{1}, Abdul Hadi Chibli{1}, Mahshid Hafezi{1}, Will Somerset{3}, Lei Kang{2}, Steve Dixon{3}, Andrew Feeney{1}
{1}University of Glasgow, United Kingdom; {2}University of Portsmouth, United Kingdom; {3}University of Warwick, United Kingdom

(B2P-26-NDE-11): Development of a Lens with a screw-Shaped Side for High-Frequency Ultrasound Transducers
Yoonseong Jang, Sungwoo Kang, Jin Ho Sung, Jin Ho Chang
Daegu Gyeongbuk Institute of Science & Technology, Korea

(B2P-26-NDE-12): A Novel 3D CNN to Classify Defects from Full Volumetric Ultrasonic Non-Destructive Testing Data of Composites
Shaun McKnight{2}, Christopher Mackinnon{2}, Vedran Tunukovic{2}, Ehsan Mohseni{2}, Gareth Pierce{2}, Charles Macleod{2}, Tom O'Hare{1}
{1}Spirit Aerosystems, United Kingdom; {2}University of Strathclyde, United Kingdom

(B2P-26-NDE-13): Data Compression for Ultrasonic Microstructure Scattering Signals Using Unsupervised Neural Networks
Xin Zhang, Jafar Saniie
Illinois Institute of Technology, United States

(B2P-26-NDE-14): Software-Defined Ultrasonic Communication System Using PPM-EMAT with High Transmission Rate
Xin Huang{2}, Jafar Saniie{2}, Sasan Bakhtiari{1}, Alexander Heifetz{1}
{1}Argonne National Laboratory, United States; {2}Illinois Institute of Technology, United States

(B2P-26-NDE-15): Ultrasonic Imaging and Flaw Detection with Optimized Convolutional Transformer Neural Networks
Xin Zhang, Jafar Saniie
Illinois Institute of Technology, United States

(B2P-26-NDE-16): Ultrasonic non-Linear Harmonic Generation in Air for ultra-Wide Band Characterization of Thin Membranes
Maria Dolores Fariñas{2}, Tomas Gomez Álvarez-Arenas{1}
{1}CSIC, Spain; {2}SIC, Spain

(B2P-26-NDE-17): Lithium-Ion Batteries' State-Of-Charge and Health Assessment by Non-Contact Ultrasound Spectroscopy
Maria Dolores Fariñas, Manuel Muñoz, Tomas Gomez Alvarez-Arenas
csic, Spain

(B2P-26-NDE-18): Impact Damage Characterization in Composite Plate Using Ultrasonic Guided Waves
Hongguang Yun{2}, Shashank Pant{1}, Marc Genest{1}, Lucy Li{1}, Zheng Liu{2}
{1}National Research Council Canada, Canada; {2}University of British Columbia, Canada

(B2P-26-NDE-19): System-on-Chip Design for Fast Ultrasonic Chirplet Signal Decomposition Algorithm
Tianyang Fang, Austin Fite, Mikhail Gromov, Jafar Saniie
Illinois Institute of Technology, United States

(B2P-26-NDE-20): Determining the Grain Geometry from Ultrasonic Measurements of large-Grained Temperate Ice Cores
Jerome Graves, Sevan Harput, Ben Lishman
London South Bank University, United Kingdom

(B2P-26-NDE-21): An Electromagnetic Acoustic Transducer for Generating Shear Horizontal Guided Waves at Two Different Wavelengths
Iury Martins, Lucas Martinho, João Pedro Andrade, Alan Kubrusly
Pontifical Catholic University of Rio de Janeiro, Brazil

(B2P-26-NDE-22): Multiscale and Multiresolution Analysis of Cultural Heritage Objects Using Ultrasonics from 32KHz to 50MHz. the Case of Pantokratoros Monastery in Mount Athos
Georgios Karagiannis, Theodoros Karagiannis, Emmanuel Karagiannis
Diagnosis Multisystems IKE, Greece

(B2P-26-NDE-23): Characterization of Mapped Embedded Reflectors in Concrete from Ultrasonic Reconstructed Images
Suhaib Reyaz, Surendra Beniwal
Indian Institute of Technology,Jammu, India

(B2P-26-NDE-24): Ensemble Ai Fault Diagnosis Model Using Ultrasonic Microphone
Amirhossein Moshrefi{1}, Mathieu Gratuze{1}, Hani H. Tawfik{2}, Mohannad Y. Elsayed{2}, Frederic Nabki{1}
{1}École de technologie supérieure ÉTS, Canada; {2}MEMS-Vision Co., Canada

(B2P-26-NDE-25): Machine Learning for real-Time Inversion of Locally Anisotropic Weld Properties Using in-Process Ultrasonic Array Measurements
Richard Pyle, Charles Macleod, Katherine Tant, Nina Sweeney, Ewan Nicolson, Shaun McKnight
University of Strathclyde, United Kingdom

B2P-27: PAT-P: Acoustic Tweezers and Particle Manipulation III
Chair(s): Jae Youn Hwang (Daegu Gyeongbuk Institute of Science & Technology)

(B2P-27-PAT-1): Control of the Effective Apertures of an Ultrasound variable-Focus Liquid Crystal Lens Using Multiple Flexural Vibration Modes
Yuma Kuroda{1}, Yuki Harada{1}, Akira Emoto{2}, Mami Matsukawa{1}, Daisuke Koyama{1}
{1}Doshisha University, Japan; {2}Tokushima University, Japan

(B2P-27-PAT-2): Rotation-Free High Order Bessel Beam Acoustic Transducer for Particle Trapping
Zhenhuan Sun{1}, Jiaqi Li{1}, Hai Liu{2}, Lurui Zhao{2}, Teng Li{1}, Song Liu{1}
{1}ShanghaiTech University, China; {2}University of Southern California, United States

(B2P-27-PAT-3): Ultrasonic Transducer Encoding Intersecting Bessel Beams for Particle Patterning
Zhenhuan Sun{1}, Jiaqi Li{1}, Hai Liu{2}, Lurui Zhao{2}, Teng Li{1}, Song Liu{1}
{1}ShanghaiTech University, China; {2}University of Southern California, United States

(B2P-27-PAT-4): Bottle Trap Acoustic Transducer with PDMS Lens for Particle Trapping
Jiaqi Li{1}, Zhenhuan Sun{1}, Hai Liu{2}, Lurui Zhao{2}, Teng Li{1}, Song Liu{1}
{1}ShanghaiTech University, China; {2}University of Southern California, United States

(B2P-27-PAT-5): Twin Trap Acoustic Transducer with PDMS Fresnel Lens for Particle Trapping
Jiaqi Li{1}, Zhenhuan Sun{1}, Hai Liu{2}, Lurui Zhao{2}, Teng Li{1}, Song Liu{1}
{1}ShanghaiTech University, China; {2}University of Southern California, United States

(B2P-27-PAT-6): Investigation of Emitting Liquid with Various Sizes to the Same Height Using Acoustic Droplet Ejection
Shih-Hung Shen, Chih-Hsien Huang, Pu-Chun Liu, Yu-Chun Chu, Yu Wen Huang, Han-Wei Lian, Ju-Hsuan Hung, Shao-Wei Wu, Ying-Hsien Chen
National Cheng Kung University, Taiwan

(B2P-27-PAT-7): Investigation of Ultrasonically Levitated Droplets for Sonochemistry with high-Speed Camera Observations
Mohammad Aldahi, Nasif Bin Saif, Ali Khaheshi, Hamed Rajabi, Sevan Harput
London South Bank University, United Kingdom

(B2P-27-PAT-8): Sparsity-Controlled Acoustic Vortex Tweezer Constructed by a 1024-Element Imaging Matrix Array Probe
Dongdong Liang, Xiaoyu Qian, Yunlong Bao, Di Wang, Feng Feng, Jiabin Zhang, Jue Zhang
Peking University, China

(B2P-27-PAT-9): Acoustic Cell Elastography: a New Approach to Characterize Cell Mechanics
Heeyeon Park, Sangyeon Youn, Jae Youn Hwang
DGIST, Korea

(B2P-27-PAT-10): AcoMan: an Acoustic System for 5-DOF Noninvasive Manipulation of Nanocarrier Cluster
Hiep Cao Xuan{1}, Daewon Jung{3}, Eunpyo Choi{2}, Jong-Oh Park{3}, Byungjeon Kang{2}
{1}Chonnam National University, Korea; {2}Chonnam National University,, Korea; {3}Korea Institute of Medical Microrobotics,, Korea

(B2P-27-PAT-11): Visualized Programmable Acoustic Manipulation for Functional Macrophage
Dingyuan Liu{2}, Ye Yang{2}, Shuang Lei{2}, Qi Zhang{2}, Jiqing Huang{2}, Yongchuan Li{2}, Shuo Wang{2}, Zeping Gao{2}, Bing Wang{2}, Ye Tian{1}, Teng Ma{2}, Hairong Zheng{2}
{1}Harbin Medical University, Harbin 150086, China, China; {2}Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, China

(B2P-27-PAT-12): Height-Dependent Rotation of Disk via Acoustic vortices with Variable Topological Charge
Jinping Wang, Feiyan Cai, Rujun Zhang, Hairong Zheng
Shenzhen Institutes of Advanced Technology, Chinese Academy of S, China

B2P-28: PNL-P: Nonlinear Physical Acoustics II
Chair(s): Andreas Mayer (HS Offenburg - University of Applied Sciences, Gengenbach)

(B2P-28-PNL-1): Velocity Variation Under Applied Electric Field and Stress for Nonlinear Piezoelectric and Elastic Constants of Lithium Tantalate Single Crystal
Yasuo Cho{2}, Ryo Nakagawa{1}, Toshimaro Yoneda{1}, Takeshi Nakao{1}, Mamoru Ikeura{1}
{1}Murata Manufacturing Co., Ltd., Japan; {2}Tohoku University, Japan

(B2P-28-PNL-2): Dual-Mode second-Harmonic (DMSH) Generation on Plate and Cylinder Guided Media
Krishnadas V Kanakambaran, Krishnan Balasubramaniam
Indian Institute of Technology Madras, India

(B2P-28-PNL-3): Two-Dimensional Visualization of Intense Ultrasound Field Using Confined Particle Movement Caused by Radiation Pressure Field
Keisuke Hasegawa
the University of Tokyo, Japan

(B2P-28-PNL-4): Numerical Verification of Generation of Ultrasound-Driven Bent Flow by Centripetal and Tangential Body Force Field
Kenta Matsuuchi, Keisuke Hasegawa
The University of Tokyo, Japan

(B2P-28-PNL-5): Spatial Calibration of Airborne Ultrasonic Phased Arrays with Two-Dimensional Visualization of Ultrasound Emissions
Masato Nakagawa, Keisuke Hasegawa
The University of Tokyo, Japan

B2P-29: ABD-P: BAW Devices II
Chair(s): Amelie Hagelauer (Fraunhofer EMFT, TUM)

(B2P-29-ABD-1): 6.9 GHz Film Bulk Acoustic Resonator Based on Pulsed Laser Deposited LiNbO3 Film
Laura Sauze{1}, Nicolas Vaxelaire{1}, Roselyne Templier{1}, Pierre François{1}, Catherine Maeder-Pachurka{1}, Julien Delprato{1}, Denis Remiens{3}, Guillaume Rodriguez{1}, Marie Bousquet{1}, Florian Dupont{2}
{1}CEA Leti, France; {2}CEA Letu, France; {3}IEMN-DOAE-MIMM, France

(B2P-29-ABD-2): High-Overtone Mode Solid Mounted Resonators with Polarity Inverted Multilayered SiAlN/AlN Films
Masashi Suzuki, Jun Sekimoto, Shoji Kakio
University of Yamanashi, Japan

(B2P-29-ABD-3): 3.3 GHz BAW Resonators Fabricated on Single Crystal AlN Template
Congquan Zhou, Wenzheng Jiang, Jia Zhao, Zhiqiang Mu, Wenjie Yu
Shanghai Institute of Microsystem and Information Technology Chinese Academy of Sciences, China

(B2P-29-ABD-4): Mode-Matched Bulk Acoustic Wave Disk Gyroscope Utilizing Pseudo-Extensional Mode
Congchen Wang, Jianlin Chen, Nan Wang, Yuandong Gu
Shanghai University, China

(B2P-29-ABD-5): Fast Analysis of Border Ring Suppression on BAW Resonators
Carlos Udaondo, Carlos Collado, Jordi Mateu
Universitat Politècnica de Catalunya, Spain

(B2P-29-ABD-6): Analysis of Crosstalk in Binary Weighted Bulk Acoustic Wave Transducers for Ultrasonic Based Fourier Transform Accelerators
Daniel Ssu-Han Chen{3}, Shyam Trivedi{3}, Xing Haw Marvin Tan{2}, Yong Shun Teo{3}, Jaibir Sharma{3}, Zaifeng Yang{2}, Viet Phuong Bui{2}, Ching Eng Png{2}, Amit Lal{1}, Kevin Tshun Chuan Chai{3}
{1}Cornell University, United States; {2}Institute of High Performance Computing, Singapore; {3}Institute of Microelectronics, Singapore

(B2P-29-ABD-7): Full-Epitaxial ScAlN, ZnO and MgZnO SMR Based on Epitaxial Metal Acoustic Bragg Reflector
Satoshi Tokai, Takahiko Yanagitani
Waseda University, Japan

(B2P-29-ABD-8): A Novel 2D Phononic Crystal-Based Laterally-Excited Bulk Wave Resonator
Ronghui Wang{2}, Wenjuan Liu{2}, Zhiwei Wen{2}, Haoyang Su{1}, Yao Cai{2}, Yan Liu{2}, Chengliang Sun{2}
{1}Shanghai Institude of Microsystem and Information Technology, China; {2}Wuhan University, China

(B2P-29-ABD-10): 32.8°Y-LiNbO3 Thin Film Grown by DLI-CVD for High-Frequency Bulk Acoustic Resonators
Sondes Boujnah{2}, Quentin Micard{2}, Lilia Arapan{2}, Mihaela Ivan{2}, Valérie Soumann{2}, Mario Costanza{2}, Samuel Margueron{2}, Vincent Astié{1}, Jean-Manuel Decams{1}, Ausrine Bartasyte{2}
{1}Annealsys, France; {2}FEMTO-ST Institute, CNRS, University of Bourgogne Franche-Comté, France

(B2P-29-ABD-11): Shear Mechanical Properties of Acoustic Bragg Reflector Measured by GHz Pulse Echo Method
Satoshi Matsumura, Naoki Ishii, Motoshi Suzuki, Takahiko Yanagitani
Waseda University, Japan

(B2P-29-ABD-12): Studying Laterally Excited Higher-Order Plate Mode Spectrum Towards Design of Spurious-Free Sub-6GHz XBARs
Natalya Naumenko
National University of Science and Technology MISIS, Russia

(B2P-29-ABD-13): Use of Periodically Slotted SiO2 in SMR-Type XBAR for k2eff Enhancement
Yi-Ming Liu, Zhao-Hui Wu, Hua-Yong Luo, Jing-Fu Bao, Ken-Ya Hashimoto
UESTC, China

(B2P-29-ABD-14): Modal FEM Analysis of XBAR
Julius Koskela, Greg Dyer, John Koulakis
Resonant, a Murata Company, Finland; Resonant, a Murata Company, United States

(B2P-29-ABD-15): Quality Factor Enhancement of Laterally-Excited Bulk Acoustic Resonators with Reflectors
Xin Tong, Yao Cai, Zhiwei Wen, Jieyu Liu, Yan Liu, Bowoon Soon, Wenjuan Liu, Chengliang Sun
Wuhan University, China

(B2P-29-ABD-16): First Demonstration of High-Overtone Bulk Acoustic Resonators Using an Epitaxial ε-Ga2O3 Piezoelectric Film on SiC
Xing Lu, Zhipeng Zhang, Yujia Tu, Yuping Fu, Zimin Chen, Gang Wang
Sun Yat-sen University, China

(B2P-29-ABD-17): 7 - 11 GHz 30% ScAlN microacoustic Ladder Filters with sub-dB Insertion Loss
Gabriel Giribaldi, Luca Colombo, Matteo Rinaldi
Northeastern University, United States

B2P-30: TMU-P: Capacitive Micromachined Ultrasonic Transducers
Chair(s): Alessandro Stuart Savoia (Roma Tre University)

(B2P-30-TMU-1): Design, Fabrication and Test of CMUT-Based Single Element Transducer for Passive Cavitation Detection
Dominique Certon{2}, Corentin Cornu{1}, Laurent Colin{2}, Flavien Barcella{2}, Juline Cloet{2}, Laurene Jourdain{1}, Rose-Marie Dubuisson{1}, Jean-Luc Genisson{1}, Anthony Novell{1}
{1}BioMaps, Université Paris-Saclay, CEA, CNRS, Inserm, Orsay, France, France; {2}GREMAN - University of TOURS - INSA CVL, France

(B2P-30-TMU-2): Effect of Shear Deformation on Capacitive Micromachined Ultrasonic Transducers
Stine Loevholt Grue Pedersen, Erik Vilain Thomsen
Technical University of Denmark, Denmark

(B2P-30-TMU-4): The Effect of cell-to-Cell Variation in CMUTs on Quality Factor and Frequency Noise
Jin Hyuk Kim, Chang Hoon Lee, Beom Hoon Park, Kwan Kyu Park
Hanyang University, Korea

(B2P-30-TMU-5): Radiation Impedance of Large Row Column CMUT Arrays
Erik Vilain Thomsen
DTU, Denmark

(B2P-30-TMU-6): Utilising FIB-SEM for Investigation of Short Circuits in Row-Column Addressed CMUT Arrays
Rune Sixten Grass, Kitty Steenberg, Kasper Fløng Pedersen, Erik Vilain Thomsen
Technical University of Denmark, Denmark

(B2P-30-TMU-7): Implementation of an Accelerated Electrical Ageing Protocol of Capacitive Micromachined Ultrasonic Transducers (CMUT)
Pierre Bouchez{2}, Jacques Heller{2}, Nicolas Sénégond{2}, Etienne Lemaire{1}, Cyril Meynier{2}, Dominique Certon{1}
{1}GREMAN UMR-CNRS 7347, France; {2}Vermon SA, France

(B2P-30-TMU-8): Small Signal Equivalent Circuit Model of High Performance Long Rectangular CMUT Membranes
Eric Dew, Shayan Khorassany, Mahyar Ghavami, Mohammad Rahim Sobhani, Roger Zemp
University of Alberta, Canada

(B2P-30-TMU-9): Fabrication of 32x32 2D CMUT Arrays on a Borosilicate Glass Substrate with Silicon-Through-Wafer Interconnects Using Anodic Bonding Process
Muhammetgeldi Annayev, Ali Onder Biliroglu, Yalcin Feysel Yamaner, Omer Oralkan
NC State University, United States

(B2P-30-TMU-10): Radiation Impedance of Rectangular and Piston-Like CMUT Membranes
Shayan Khorassany, Eric Dew, Roger Zemp
University of Alberta, Canada

(B2P-30-TMU-11): Fast Sound Field Characterization of Beamforming Capable Capacitive Micromachined Ultrasonic Transducer (CMUT) Arrays by refracto-vibrometry
Sebastian Peller, Tobias Zankl, Christoph Fischer, Rudolf Bierl
OTH Regensburg, Germany

(B2P-30-TMU-12): G-CMUT: Investigating the Potential of graphene As Vibrating Membrane of CMUT for High Precision Applications
Nooshin Saeidi{1}, Kevin Diex{1}, Akshay Dudhat{1}, Martin Kalbac{2}, Jaganandha Panda{2}, Wiesław Bicz{3}, Agnieszka Bicz{3}, Maik Wiemer{1}, Harald Kuhn{1}
{1}Fraunhofer ENAS, Germany; {2}J. Heyrovský Institute of Physical Chemistry, Czech Rep.; {3}PBP OPTEL Sp. z o.o., Poland

(B2P-30-TMU-13): Robust, Acoustic couplant-Free Encapsulation for CMUT Devices
Karman Frances Raj George Maria Selvam, Nooshin Saeidi, Meghana Vishwanatha, Maik Wiemer, Harald Kuhn
Fraunhofer ENAS, Germany

B2P-31: TMS-P: Transducer Modeling and Electronics
Chair(s): David Cowell (University of Leeds)

(B2P-31-TMS-1): Hyperuniform Disordered Sparse Array for 3D Ultrasound Imaging
Mohamed Tamraoui, Emmanuel Roux, Hervé Liebgott
Creatis, France

(B2P-31-TMS-2): Novel Hybrid Simulation of Large 128 by 128 Pixels Input to Ultrasonic Wavefront Computing Apparatus
Zibo Juan{4}, Daniel Ssu-Han Chen{3}, Yong Shun Teo{3}, Jaibir Sharma{3}, Zaifeng Yang{2}, Kevin Tshun Chuan Chai{3}, Amit Lal{1}, Ching Eng Png{2}, Viet Phuong Bui{2}, Xing Haw Marvin Tan{2}
{1}Cornell University, United States; {2}Institute of High Performance Computing (IHPC), Agency for Science, Technology & Research (ASTAR), Singapore; {3}Institute of Microelectronics (IME), Agency for Science, Technology & Research (ASTAR), Singapore; {4

(B2P-31-TMS-3): 35 MHz Linear Array Prototype Based on P(VDF-TrFE) Film Deposited on Silicon: an Experimental and Numerical Study
Marie-Coline Dumoux{1}, Franck Levassort{1}, Lionel Fritsch{2}, Dominique Certon{1}, Rémi Rouffaud{1}, Laurent Colin{1}, Flavien Barcella{1}, Samuel Callé{1}
{1}GREMAN, UMR 7347, University of Tours, CNRS, INSA Centre Val de Loire, France; {2}LFritsch Technologies Consulting, France

(B2P-31-TMS-4): Effect of SAR-ADC Non-Idealities on Medical Ultrasound B-Mode Imaging
Nikola Radeljic-Jakic{2}, Arjan Flikweert{3}, Yannick Hopf{1}, Zhao Chen{4}, Nuriel Rozsa{1}, Michiel Pertijs{1}
{1}Delft University of Technology, Netherlands; {2}Delft University of Technology & Oldelft Ultrasound, Netherlands; {3}Oldelft Ultrasound, Netherlands; {4}Philips, Netherlands

(B2P-31-TMS-5): Integrating finite-Element Model of Probe Element in GPU Accelerated Ultrasound Image Simulation
Jean-Baptiste Jacquet{2}, Mohamed Tamraoui{1}, Pierre Kauffmann{2}, Jean-Luc Guey{2}, Emmanuel Roux{1}, Barbara Nicolas{1}, Hervé Liebgott{1}
{1}Creatis, France; {2}Imasonic, France

(B2P-31-TMS-6): Optimization of Ultrasonic Array Parameters Using a Beam-Imaging Mapping Model
Ze Xi, Xiangang Wang, Xiaowei Luo
Tsinghua University, China

(B2P-31-TMS-7): Analytical Modeling of a Capacitive Micromachined Ultrasonic Transducer Including MOS Effects : Description and Validation
Pierre Bouchez{2}, Jacques Heller{2}, Nicolas Sénégond{2}, Dominique Certon{1}, Cyril Meynier{2}
{1}GREMAN UMR-CNRS 7347, France; {2}Vermon SA, France

(B2P-31-TMS-8): Power Consumption Considerations for Ultrasound Capsule Endoscopy
Alexandru Corneliu Moldovan{2}, Bartas Abaravicius{1}, Srinjoy Mitra{1}, Sandy Cochran{2}
{1}University of Edinburgh, United Kingdom; {2}University of Glasgow, United Kingdom

(B2P-31-TMS-9): Aluminum Scandium Nitride Phononic Integrated Circuits Platform with Gaussian Acoustics
Jiawei Li, Shuai Shao, Tao Wu
ShanghaiTech University, China

(B2P-31-TMS-10): Phase Distribution Efficiency of cm-Scale Ultrasonically Powered Receivers
Marta Saccher{1}, Amin Rashidi{1}, Alessandro Stuart Savoia{2}, Vasiliki Giagka{1}, Ronald Dekker{1}
{1}Delft University of Technology, Netherlands; {2}Roma Tre University, Italy

Wednesday, September 6: Lectures

	Room 1 (Yellowknife) **C1L-01: MIM: Novel Applications of Ultrasound Imaging** **Chair(s):** Michael Oelze (University of Illinois at Urbana-Champaign)	**Room 2 (Vancouver)** **C1L-02: MEL: Cardiovascular Elastography** **Chair(s):** Chris de Korte (Radboud University Medical Center)	**Room 3 (Calgary)** **C1L-03: MSR: Super-Resolution Techniques** **Chair(s):** Mengxing Tang (Imperial College), Charlie Demene (ESPCI)	**Room 4 (Winnipeg)** **C1L-04: NSP: Signal Processing** **Chair(s):** Jafar Saniie (Illinois Institute of Technology), Erdal Oruklu (Illinois Institute of Technology)
8:00 AM	**Tracking Macrophages with Ultrasound for Cancer Diagnosis** Ashley Alva, Chulyong Kim, Hohyun Lee, Costas Arvanitis *Georgia Institute of Technology, United States*	**Comparison Between Induced Shear Wave and Natural Wave Velocities for Full Cardiac Myocardial Stiffness Assessment by Ultrafast Ultrasound Imaging in Healthy Volunteers and Hypertrophic Cardiomyopathy** Aimen Malik{3}, Jose Lizardi{1}, Jerome Baranger{3}, Maelys Venet{3}, Mathieu Pernot{2}, Seema Mital{1}, Minh Nguyen{1}, Rajiv Chaturvedi{1}, Luc Mertens{1}, Olivier Villemain{3} *{1}Hospital for Sick Children, Canada, Canada; {2}Physics for Medicine, PSL Research University, Paris, France; {3}University of Toronto, Hospital for Sick Children, Canada, Canada*	**Context-Aware Deep Learning Enables Efficient Localization of High Concentration Microbubbles for Ultrasound Localization Microscopy** Yirang Shin{2}, Matthew R. Lowerison{2}, Yike Wang{2}, Xi Chen{2}, Qi You{1}, Zhijie Dong{2}, Mark Anastasio{1}, Pengfei Song{2} *{1}Department of Bioengineering, University of Illinois Urbana–Champaign, United States; {2}Department of Electrical and Computer Engineering, University of Illinois Urbana–Champaign, United States*	**Dispersion Acquisition of Circumferential Guided Wave in Composite Circular Pipe Based on the Matrix Pencil Method** Can Jiang{1}, Dan Wu{2}, Mengjiong Shu{2}, Jiawei Wen{1}, Weiwei Ma{1} *{1}Chinese Academy of Sciences, China; {2}System Design Institute of Hubei Aerospace Technology Academy, China*
8:15 AM	**Ultrasound Guided Picosecond Infrared Laser (PIRL) Procedure** Yohannes Soenjaya{1}, Manoel Da Silva Neto{2}, Samansa Maneshi{2}, Hon Leong{1}, Dwayne Miller{2}, Stuart Foster{1}, Christine Demore{1} *{1}Sunnybrook Research Institute, Canada; {2}University of Toronto, Canada*	**Myocardial Infarction Detection Using Combined Myocardial Elastography and Electromechanical Wave Imaging** Hannah Schleifer, Jad El Harake, Melina Tourni, Vincent Sayseng, Yik Tung Tracy Ling, Elisa Konofagou *Columbia University, United States*	**Backscattering Amplitude in Ultrasound Localization Microscopy** Noemi Renaudin, Sophie Pezet, Nathalie Ialy-Radio, Mickael Tanter, Charlie Demene *Institute Physics for Medicine Paris, INSERM CNRS ESPCI PSL., France*	**Machine-Learning Architecture for Ultrasonic Thermometry** Mason John, Mikhail Skliar *University of Utah, United States*
8:30 AM	**A user-Friendly Solution for Remote Ultrasound Imaging** Angela Sorriento{2}, Giorgia Marola{2}, Andrea Cafarelli{2}, Paolo Spinnato{1}, Leonardo Ricotti{3} *{1}Istituto Ortopedico Rizzoli, Italy; {2}Scuola Superiore Sant'Anna, Italy; {3}Scuola Superiore Sant'Anna, Italy*	**Near Field Clutter Mitigation in Speckle Tracking Echocardiography** Yue Xu, Wei-Ning Lee *The University of Hong Kong, China*	**Super-Resolution Ultrasound Imaging with Phase Change nanodroplets in 3D** Kai Riemer{1}, Qingyuan Tan{1}, Sophie Morse{1}, Luca Bau{2}, Matthieu Toulemonde{1}, Jingwen Zhu{1}, Bingxue Wang{1}, Laura Taylor{1}, Jipeng Yan{1}, Marcelo Lerendegui{1}, Qiang Wu{2}, Eleanor Stride{2}, Christopher Dunsby{1}, Peter D. Weinberg{1}, Meng	**Near-Surface Artifact Removal in Total Focusing Methods Using an Apex-Shifted Radon Transform** Gus Loshelder, John Day, Jiaze He *The University of Alabama, United States*

			{1}Imperial College London, United Kingdom; {2}University of Oxford, United Kingdom	
8:45 AM	**Can Data from One Medical Center Be Enough to Generalize Lung Ultrasound Pattern classification? a multi-Center Domain Generalization Study** Umair Khan{3}, Elena Torri{1}, Riccardo Inchingolo{2}, Andrea Smargiassi{2}, Libertario Demi{3} *{1}Dipartimento di Emergenza ed Urgenza, Humanitas Gavazzeni, Italy; {2}Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Italy; {3}University of Trento, Italy*	**Myocardial Stiffness and Strain Assessment in Hypertrophic Cardiomyopathy Patients with Genetic Sarcomeric Mutation Carriers** Aimen Malik{2}, Maelys Venet{2}, Jerome Baranger{2}, Seema Mital{1}, Minh Nguyen{1}, Luc Mertens{1}, Olivier Villemain{2} *{1}Hospital for Sick Children, Canada; {2}University of Toronto, Hospital for Sick Children, Canada*	**3D Large Field of View Super Resolution Imaging in Vivo and in Human Using a Row Column Array and Rolling Coherence Beamforming** Joseph Hansen-Shearer{1}, Kai Riemer{1}, Qingyuan Tan{1}, Matthieu Toulemonde{1}, Peter Weinberg{1}, Jipeng Yan{1}, Johanna Tonko{2}, Meng-Xing Tang{1} *{1}Imperial College London, United Kingdom; {2}University College London, United Kingdom*	**Hand Gesture Recognition Using Thin Plate Radiation and Gated-Recurrent-Unit, Based on Ultrasound Doppler** Paul Glémain{4}, Emmanuel Hardy{2}, Charles Hudin{3}, Pierre-Henri Orefice{3}, Nazih Mechbal{1} *{1}PIMM Laboratory, UMR CNRS 8006 – Ensam, Le Cnam Arts et Métiers, France; {2}Univ. Grenoble Alpes, CEA, Leti, France; {3}Université Paris-Saclay, CEA, List, France; {4}Université Paris-Saclay, CEA, List, PIMM Laboratory, UMR CNRS 8006 – Ensam, Le Cnam*
9:00 AM	**Real-Time Coherence Imaging of Suspicious Breast Masses** Arunima Sharma{2}, Eduardo A. Gonzelez{2}, Eniola Oluyemi{1}, Emily Ambinder{1}, Kelly Myers{1}, Muyinatu A. Lediju Bell{2} *{1}Johns Hopkins Medicine, United States; {2}Johns Hopkins University, United States*	**Association of Stroke Occurrence with Biomarkers Derived from Pulse Wave Imaging and Vector Flow Imaging: a Preliminary Study in Carotid Atherosclerosis Patients in Vivo** Parth Gami, Alex Ying, Grigorios Karageorgos, Mary Kucinski, Elisa Konofagou *Columbia University, United States*	**Spatiotemporal Localization of microbubble Trajectories for Highly Resolved Hemodynamics in Ultrasound Localization Microscopy** Alexis Leconte{2}, Jonathan Porée{2}, Brice Rauby{2}, Paul Xing{2}, Alice Wu{2}, Nin Ghigo{2}, Chloé Bourquin{2}, Gerardo Ramos-Palacios{1}, Abbas F. Sadikot{1}, Jean Provost{2} *{1}McGill University, Canada; {2}Polytechnique Montréal, Canada*	**Data-Driven Subsampling Matrices Design for Phased Array Ultrasound Nondestructive Testing** Han Wang{1}, Eduardo Pérez{2}, Florian Römer{1} *{1}Fraunhofer Institute for Nondestructive Testing, Germany; {2}Technische Universität Ilmenau, Germany*
9:15 AM	**In Vivo Evaluation of the Stent Placement by Using a Dual-Frequency Intravascular Ultrasound (IVUS)** Dongqing Shang, Xinyu Li, Qi Zhang, Jiehan Hong, Bing Wang, Changlu Zhang, Hairong Zheng, Teng Ma *Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China*	**Time-Aligned Plane Wave Compounding and Comb Detection for Vascular Elastography: an in Vivo Study** Charles Capron, Hyoung-Ki Lee, Prabh Singh, Sreenivasulu Kilari, Sanjay Misra, Matthew Urban *Mayo Clinic, United States*	**Resolution Improvement of ULM Images Applying a Rauch-Tung-Striebel Smoother** Thomas Lisson, Jannine Salewski, Stefanie Dencks, Georg Schmitz *Ruhr-Universität Bochum, Germany*	**Phase Space Reconstruction Based Methodology for Impact Assessment of Corrosion for Real-Time Structural Health Monitoring of Ships** Prasannata Bhange{1}, Deepak Joshi{1}, Sunil Kumar Pandu{1}, Kamal Mankari{1}, Swati Acharyya{2}, Amit Acharyya{1} *{1}Indian Institute of Technology Hyderbad, India; {2}University of Hyderabad, India*

Wednesday, September 6: Lectures

	Room 5 (Montreal) **C1L-05: MBB: Core Beamforming for Improved Image Quality** **Chair(s):** Adrian Basarab (CREATIS UMR 5220 UCBL), Nick Bottenus (University of Colorado-Boulder)	Room 6 (Halifax) **C1L-06: AMR: Microacoustic Resonators** **Chair(s):** Alexandre Reinhardt (CEA-LETI), Jan Kuypers (MEMS2market)	Room 7 (Toronto) **C1L-07: MSD: Systems for Imaging and Therapy Monitoring** **Chair(s):** Arun Kumar Thittai (Indian Institute of Technology Madras), Mami Matsukawa (Doshisha University)
8:00 AM	**Overcoming the lambda-Half Element Pitch Limit by a Sparse least-Squares Wrapping Inversion in k-Space** Hans-Martin Schwab, Jan-Willem Muller, Richard Lopata *Eindhoven University of Technology, Netherlands*	**Aluminum Nitride (AlN) Based Interspace Structure Resonator (ISR) Achieving Effective Coupling Coefficient Over 10%** Jiewei Jiang{2}, Chen Ma{2}, Qinghua Ren{2}, Jianlin Chen{2}, Qiaozhen Zhang{1}, Nan Wang{2} *{1}College of Information, Mechanical and Electrical Engineering, Shanghai Normal University, China; {2}School of Microelectronics, Shanghai University, China*	**A Novel Single-Phase Piezoelectric-Driven Miniature Optical Slip Ring for Intravascular Imaging** Boquan Wang, Xiaoxiao Liu, Kuiyuan Tao, Dawei Wu *Nanjing University of Aeronautics and Astronautics, China*
8:15 AM	**Complete Complementary Coded Excitation Scheme for Synthetic Transmit Aperture Imaging** Mohamed Tamraoui, Pierre Ecarlat, Frank Nicolet, Hervé Liebgott, Emmanuel Roux *Creatis, France*	**Near-Zero TCF and Spurious-Free Wideband SAW Device on LNOI Platform** Shuai Zhang{1}, Sulei Fu{3}, Rongxuan Su{3}, Huiping Xu{3}, Peisen Liu{3}, Baichuan Li{2}, Qiaozheng Zhang{2}, Zhenyi Yu{1}, Yu Guo{1} *{1}Jiangnan Universtity, China; {2}Shanghai Normal University, China; {3}Tsinghua University, China*	**Design of a Linear Flexible Ultrasound Array Transducer for Real-Time Tracking of the Scaphoid During Percutaneous Scaphoid Fixation** Hasti Rostamikhanghahi, Marcus Ingram, Jan D'Hooge *KU Leuven, Belgium*
8:30 AM	**Depth-Dependent Nonlinear micro-Acoustic Noise Generation and its Effect on Image Quality Degradation in Ultrasound Harmonic Imaging** Teiichiro Ikeda, Misaki Hiroshima, Chizue Ishihara, Aya Kishimoto *FUJIFILM Corporation, Japan*	**Trilayer Periodically Poled Piezoelectric Film Lithium Niobate Resonator** Jack Kramer{3}, Kenny Huynh{2}, Ryan Tetro{1}, Lezli Matto{2}, Omar Barrera{3}, Vakhtang Chulukhadze{3}, Luca Colombo{1}, Mark Goorsky{2}, Ruochen Lu{3} *{1}Northeastern University, United States; {2}University of California Los Angeles, United States; {3}University of Texas at Austin, United States*	**(INVITED) Development of Polymer-Based Ultrasound Transducers with Applications in Spinal Cord Repair and Prevention of Stillbirth** Robert Rohling, Carlos Gerardo, Jonas Welsch, Amirhossein Omidvar, Antony Hodgson, Edmond Cretu *University of British Columbia, Canada*
8:45 AM	**Quantization of Raw Channel Data for Plane-Wave Fourier-Domain Beamforming** Daler Rakhmatov *University of Victoria, Canada*	**High Figure-of-Merit LiNbO3 Lamb Wave Resonators Implemented by Two-Dimensional Bulk Reflector Arrays** Xin Tong, Wenjuan Liu, Zhiwei Wen, Jieyu Liu, Jie Zhou, Yan Liu, Chengliang Sun, Yao Cai *Wuhan University, China*	
9:00 AM	**Beamforming Approaches for Reconstruction of Overlapping Wavefields in Multi-Line Transmit Imaging** Nazli Javadi Eshkalak, Nick Bottenus	**(INVITED) Single Crystal LiNbO3 and LiTaO3 Bulk Acoustic Wave Resonator** Marie Bousquet, Alexandre Reinhardt, Pierre Perreau, Julien Delprato, Gregory Enyedi, Hatem	**Front-End Receiver for CMUT-Based Transcranial Ultrasound System** Reza Pakdaman Zangabad, Sait Kilinc, Xitie Zhang, Evren Erkan, Costas Arvanitis, Levent Degertekin

	University of Colorado Boulder, United States	Dahmani, Elisa Soulat, Gabriel Lima, Gael Castellan, Clement Eleouet, Jean Guerrero, Yann Lamy *Cea Leti, France*	*Georgia Institute of Technology, United States*
9:15 AM	**Universal Refocus Beamforming with Pixel Dependent Apodization** Anders Emil Vrålstad{1}, Magnus Kvalevåg{1}, Ole-Marius Hoel Rindal{2}, Svein-Erik Måsøy{1} *{1}NTNU, Norway; {2}UiO, Norway*		**Passive Acoustic Detection System for Focused Ultrasound Device Quality Assurance and Treatment Monitoring in Glioblastoma Patients** Chih-Yen Chien{2}, Lu Xu{2}, Jinyun Yuan{2}, Yaoheng Yang{2}, Yimei Yue{2}, Siaka Fadera{2}, Andrew H. Stark{2}, Katherine E. Schwety{4}, Arash Nazeri{6}, Rupen Desai{3}, Umeshkumar Athiraman{1}, Aadel A. Chaudhuri{5}, Hong Chen{2}, Eric C. Leuthardt{3} *{1}Department of Anesthesia, Washington University School of Medicine, United States; {2}Department of Biomedical Engineering, Washington University in St. Louis, United States; {3}Department of Neurosurgery, Washington University School of Medicine, United States; {4}Department of Pathology and Immunology, Washington University School of Medicine, United States; {5}Department of Radiation Oncology, Washington University School of Medicine, United States; {6}Mallinckrodt Institute of Radiology, Washington University School of Medicine, United States--*

	Room 1 (Yellowknife) **C3L-01: MIS: Deep Learning for Image Segmentation** **Chair(s):** Libertario Demi (University of Trento)	**Room 2 (Vancouver)** **C3L-02: MBF: Functional Ultrasound and Contrast-Free Microvascular Imaging** **Chair(s):** Gianmarco Pinton (University of North Carolina at Chapel Hill)	**Room 3 (Calgary)** **C3L-03: MPA: Imaging Therapy** **Chair(s):** Russell Witte (University of Arizona)	**Room 4 (Winnipeg)** **C3L-04: MEL: Advances in Elastography Analsyis** **Chair(s):** Matthew Urban (Mayo Clinic)
10:45 AM	**Efficient Left Ventricle Segmentation on 3D Echocardiography Using Deep nnU-Net Model** Somayeh Akbari Saghezchi{2}, Konstantina Papangelopoul{1}, Oana Cristina Munteanu-Mirea{3}, Jan D'Hooge{1} *{1}Department of Cardiovascular Sciences, KU Leuven, Belgium; {2}KU Leuven, Belgium; {3}University of Medicine and Pharmacy of Craiova, Romania*	**Functional Ultrasound in the Brain of TrJ mice, a Model of the Neurodegenerative Disease of Charcot Marie Tooth** Maximiliano Anzibar Fialho{3}, Nicolás Rubido{2}, Mariana Martínez{4}, Lucía Vázquez Alberdi{4}, Carlos Negreira{3}, Mikael Tanter{5}, Jerome Baranger{5}, Juan Pablo Damián{1}, Alejandra Kun{4}, Javier Brum{3} *{1}Departamento de Biociencias Veterinarias, Facultad de Veterinaria,*	**Quantitative Ultrasound and Photoacoustic Assessments of Kidney Transplants** Eno Hysi{4}, Alexander Koven{4}, Jihye Baek{3}, Xiaolin He{1}, Kevin Parker{3}, Darren Yuen{4}, Michael Kolios{2} *{1}St. Michael's Hospital, Canada; {2}Toronto Metropolitan University, Canada; {3}University of Rochester, United States; {4}University of Toronto/St. Michael's Hospital, Canada*	**Shear-Wave Elasticity Imaging with sub-Nyquist Sampling** Woojin Oh, Heechul Yoon *Dankook University, Korea*

		Universidad de la República., Uruguay; {2}Institute for Complex Systems and Mathematical Biology, University of Aberdeen, King's College, United Kingdom; {3}Instituto de Física, Faculta		
11:00 AM	**Deep Semantic Segmentation of Echocardiographic Images Using Vision Transformers** Edoardo Bosco, Filippo Casula, Marco Cotogni, Claudio Cusano, Giulia Matrone *University of Pavia, Italy*	**Vascular Compartment Analysis of Hemodynamic Changes During Stroke with Functional Ultrasound** Bao-Yu Hsieh{1}, Yu-Chieh Kao{3}, Shih-Ya Huang{2} *{1}Chang Gung University, Taiwan; {2}China Medical University, Taiwan; {3}National Yang Ming Chiao Tung University, Taiwan*	**US/Pa Imaging Can Detect Antitumor Immune Response of Adoptive T Cell Therapies** Kelsey Kubelick, Jinhwan Kim, Xinyue Huang, Stanislav Emelianov *Georgia Institute of Technology and Emory University, United States*	**Physics-Informed Neural Networks for Modeling Acoustic Radiation force-Induced Shear Wave Propagation and the Reconstruction of Material Parameters from Observations** Felix Jin, Ned Rouze, Courtney Paley, Kathy Nightingale, Mark Palmeri *Duke University, United States*
11:15 AM	**Robust Cardiac Ultrasound Image Segmentation Using Graph Neural Networks** Gilles Van De Vyver{3}, Erik Smistad{2}, Lasse Løvstakken{3}, Sarina Thomas{4}, Guy Ben-Yosef{1}, Sindre Hellum Olaisen{2}, Håvard Dalen{2} *{1}GE Research, Israel; {2}Norwegian University of Science and Technology and SINTEF Medical Technology, Norway; {3}Norwegian University of Science and TechnologyNorwegian University of Science and Technology, Norway; {4}University of Oslo, Norway*	**Non-Invasive 4D Functional Ultrasound Imaging Combined with Volumetric Super Resolution Imaging** Rebecca Jones, Ryan Deruiter, Francisco Santibanez, Paul Dayton, Gianmarco Pinton *University of North Carolina at Chapel Hill, United States*	**Detection of Collagen Content Evolution Modulated by cancer-Associated Fibroblasts Using Photoacoustic Spectral Analysis** Jiayan Li{2}, Wanli Ye{2}, Junmei Cao{2}, Wenxiang Zhi{1}, Qian Cheng{2} *{1}Fudan University, China; {2}Tongji University, China*	**Comb Detection with Tightly-Focused Beams for Measuring Shear Wave Propagation** Hyungkyi Lee, Philip M. Holmes, James Greenleaf, Matthew W. Urban *Mayo clinic, United States*
11:30 AM	**DEEPBEAS3D: Deep Learning and B-Spline EXPLICT Active Surfaces** Helena Williams{3}, Joao Pedrosa{1}, Muhammad Asad{2}, Laura Cattani{3}, Tom Vercauteren{2}, Jan Deprest{3}, Jan D'Hooge{3} *{1}INESC TEC, Portugal; {2}KCL, United Kingdom; {3}KU Leuven, Belgium*	**Contrast-Free Transcranial Functional Ultrasound Imaging** Emelina Vienneau{1}, Victoria Morgan{2}, Stephen Wilson{2}, Brett Byram{1}, Abbie Weeks{1} *{1}Vanderbilt University, United States; {2}Vanderbilt University Medical Center, United States*	**Pre-Transplantation Quality Evaluation of Kidney Using Ultrasound and Photoacoustic Imaging** Anton Nikolaev, Yitian Fang, Jeroen Essers, Ron de Bruin, Robert Minnee, Gijs van Soest *Erasmus MC, Netherlands*	**Unsupervised physics-Informed Neural Network for Shear Wave Viscoelasticity Mapping** Xufei Chen{1}, Rogier Wildeboer{2}, Massimo Mischi{1}, Ruud van Sloun{1} *{1}Eindhoven University of Technology, Netherlands; {2}Philips Research, Netherlands*

Wednesday, September 6: Lectures

11:45 AM	**Expert-Level Reliability of Automated Skin Ultrasonography Segmentation** András László Soós{2}, Mónika Vajay{2}, Zoé Szekér{2}, András Horváth{3}, Domonkos Csabai{2}, Péter Marosán-Vilimszky{2}, Gergely Csány{2}, Norbert Kiss{1}, Klára Szalai{1}, Miklós Gyöngy{2} *{1}Department of Dermatology, Venereology and Dermatooncology, Semmelweis University, Hungary; {2}Dermus Ltd., Hungary; {3}Pázmany Péter Catholic University, Hungary*	**3D Microvascular Monitoring with a cMUT RCA Ultrasound sensor: Towards Wearable Applications** Cyprien Blanquart{3}, Léa Davenet{2}, Mickaël Tanter{2}, Mafalda Correia{1}, Thomas Deffieux{2} *{1}MODULEUS, France; {2}Physics for Medicine, France; {3}Physics for Medicine, MODULEUS, France*	**Ultrasound and Photoacoustic Image-Guided Micro-Histotripsy for Non-Invasive Surgery** Joy Wang{2}, Pradyumna Kedarisetti{2}, Matthew Mallay{1}, Jeffrey Woodacre{1}, Jeremy Brown{1}, Frank Wuest{2}, Roger Zemp{2} *{1}Dalhousie University, Canada; {2}University of Alberta, Canada*	**2D Phase Velocity Elastography Over an Extended Frequency Band** Piotr Kijanka{1}, Matthew Urban{2} *{1}AGH University of Science and Technology, Poland; {2}Mayo Clinic, United States*
12:00 PM	**Copy-Paste Image Augmentation with Poisson Image Editing for Ultrasound Instance Segmentation Learning** Wei-Hsiang Shen, Meng-Lin Li *National Tsing Hua University, Taiwan*	**Characterization of Choroidal Tumors Using Microflow Imaging** Shaheeda Adusei, Soroush Sabeti, Lauren Dalvin, Mostafa Fatemi, Azra Alizad *Mayo Clinic College of Medicine and Science, United States*	**Photoacoustic-Guided Laser Therapy: a Feasibility Study** Yiyun Wang, Daohuai Jiang, Hengrong Lan, Tingyang Duan, Feng Gao, Fei Gao *ShanghaiTech University, China*	**ARFI Log(VoA)-Derived Atherosclerotic Plaque Composition in Symptomatic Vs Asymptomatic Patients** Keerthi Anand{3}, Gabriela Torres{4}, Melissa Caughey{3}, Mark Farber{2}, Katharine McGinigle{2}, William Marston{2}, Federico Parodi{2}, Luigi Pascarella{2}, Jacob Wood{2}, Deanna Sasaki-Adams{1}, Edward Yap{1}, Caterina Gallippi{3} *{1}Department of Neurosurgery, UNC, United States; {2}Division of Vascular Surgery, UNC, United States; {3}Joint Department of Biomedical Engineering, UNC & NCSU, United States; {4}Siemens Healthineers, United States*

	Room 5 (Montreal) **C3L-05: PNL: Nonlinear Physical Acoustics** **Chair(s):** Mihir Patel (MACOM)	**Room 6 (Halifax)** **C3L-06: AMD: Microacoustic Novel Devices** **Chair(s):** Songbin Gong (University of Illinois at Urbana Champaign)	**Room 7 (Toronto)** **C3L-07: TMI: Wearable and Flexible Transducers** **Chair(s):** Xiaoning Jiang (North Carolina State University), Sandy Cochran (University of Glasgow)
10:45 AM	**Graphene-Based Surface Acoustic Wave autocorrelator on LiNbO3** Mario Costanza, Lea La Spina, Ausrine Bartasyte, Samuel Margueron *Femto-ST Institute, University of Franche-Comté, CNRS, France*	**(INVITED) Acoustic Devices (PAW, SAW, and BAW) Using Wafer Bonding Technology** Michio Kadota, Shuji Tanaka *Tohoku university, Japan*	**Wearable Tobe Array for Cardiac and Vascular Monitoring** Mahyar Ghavami{2}, Mohammad Rahim Sobhani{2}, Jeremy Brown{1}, Roger Zemp{2} *{1}Dalhousie University, Canada; {2}University of Alberta, Canada*

Wednesday, September 6: Lectures

11:00 AM	**Capacitance Variation Under Applied Electric Field and Stress for Nonlinear Dielectric and Electrostrictive Constants of Lithium Tantalate Single Crystal** Yasuo Cho{2}, Ryo Nakagawa{1}, Toshimaro Yoneda{1}, Takeshi Nakao{1}, Mamoru Ikeura{1} *{1}Murata Manufacturing Co., Ltd., Japan; {2}Tohoku University, Japan*		**A Flexible Ultrasound Transducer with Tunable Focusing for Non-Invasive Brain Stimulation** Sunho Moon, Xiangming Xue, Mengyue Chen, Darpan Shukla, Yong Zhu, Nitin Sharma, Xiaoning Jiang *North Carolina State University, United States*
11:15 AM	**(INVITED) Nonlinear Ultrasonic Guided Waves for Nondestructive Evaluation** Cliff Lissenden *Penn State, United States*	**Impact of FBAR Oscillator Stabilized to the CPT Resonance As Local Oscillators of Millimeter-Wave Communications** Motoaki Hara{1}, Yuichiro Yano{1}, Toshio Nishizawa{2}, Masanori Ueda{2}, Hiroyuki Ito{3}, Tetsuya Ido{1} *{1}National Institute of Information and Communications Technology, Japan; {2}Taiyo Yuden Mobile Technology, Japan; {3}Tokyo Institute of Technology, Japan*	**A Wearable Ultrasound Transducer Array for Neuromodulation Applications in the Treatment of Diabetic Foot Disease** Ben Fu{1}, Cong Pu{1}, Lehang Guo{2}, Huixiong Xu{3}, Chang Peng{1} *{1}School of Biomedical Engineering, ShanghaiTech University, China; {2}Shanghai Tenth People's Hospital,Tongji University School of Medicine, China; {3}Zhongshan Hospital, Fudan University, China*
11:30 AM		**Optomechanical Quantum Frequency Conversion Using High-Overtone Bulk Acoustic Modes in a Suspended Width-Extensional Resonator** Liam G. Connolly, Jason J. Gorman *National Institute of Standards and Technology, United States*	**Advancing Quadriceps Muscle Monitoring: Wearable A-Mode Ultrasound and Machine Learning Classification for Accurate Estimation of Muscle States** Xiangming Xue, Sunho Moon, Vidisha Ganesh, Bohua Zhang, Nitin Sharma, Xiaoning Jiang *North Carolina State University, United States*
11:45 AM	**Controllable Refractive Index Gradient by 100-Megahertz-Range High-Intensity Ultrasound** Yuki Harada{1}, Mutsuo Ishikawa{2}, Yuma Kuroda{1}, Mami Matsukawa{1}, Daisuke Koyama{1} *{1}Doshisha University, Japan; {2}Toin University of Yokohama, Japan*	**AlN/Diamond Composite FBAR for Coherent Acoustic Control of NV Centers** Ozan Erturk{2}, Noah Opondo{2}, Johnathan Kuan{1}, Anthony D'Addario{1}, Brendan McCullian{1}, Gregory Fuchs{1}, Sunil Bhave{2} *{1}Cornell University, United States; {2}Purdue University, United States*	**(INVITED) Developing the Flopatch, a Wearable Doppler patch, from Prototype to the Clinic** Chelsea Munding *Flosonics Medical, Canada*
12:00 PM	**Rayleigh-Plesset Model Based Nonlinear Simulation of Radial Modulation Imaging** Shuangyi Cheng, Kailiang Xu *Fudan University, China*	**Fundamental Antisymmetric Mode Acoustic Resonator in Periodically Poled Piezoelectric Film Lithium Niobate** Omar Barrera{2}, Jack Kramer{2}, Ryan Tetro{1}, Sinwoo Cho{2}, Vakhtang Chulukhadze{2}, Luca Colombo{1}, Ruochen Lu{2} *{1}Northeastern University, United States; {2}University of Texas at Austin, United States*	

Wednesday, September 6: Lectures

	Room 1 (Yellowknife) **C4L-01: MBB: Novel Beamforming Approaches** **Chair(s):** Alessandro Ramalli (University of Florence), Moein Mozaffarzadeh (Radboud University Medical Center)	Room 2 (Vancouver) **C4L-02: MIM: Ultrafast Doppler/fUS Imaging** **Chair(s):** Pengfei Song (University of Illinois Urbana-Champaign)	Room 3 (Calgary) **C4L-03: MTN: Novel Theranostic Agents** **Chair(s):** Helen Mulvana (University of Strathclyde), Christian Coviello (Verasonics)	Room 4 (Winnipeg) **C4L-04: NTC: Transducers for NDE and Industrial Applications** **Chair(s):** Frederic Cegla (Imperial College London), Luca De Marchi University of Bologna
1:45 PM	**Cross-Spectral Matrix Fitting for Passive Mapping of the Ultrasonic Cavitation Based on Elastic-Net Regularization** Célestine Lachambre{3}, Adrian Basarab{1}, Jean-Christophe Béra{2}, Barbara Nicolas{1}, François Varray{1}, Bruno Gilles{2} *{1}Creatis (INSA LYON), France; {2}LabTAU (INSERM UMR 1032), France; {3}LabTAU (INSERM UMR 1032), Creatis (INSA LYON), France*	**A Unified Clutter and Noise Filter to Improve Ultrafast Power Doppler Image Quality** Rui Wang, Lijie Huang, Jianwen Luo *Tsinghua University, China*	**Photo-Mediated Ultrasound Therapy on the Fundus of the Eye with real-Time SD-OCT Guidance** Mingyang Wang, Wei Zhang, Yannis Paulus, Xueding Wang, Xinmai Yang *University of Michigan, United States*	**(INVITED) High Temperature Ultrasonic Transducer Development by sol-Gel Composite Technique** Makiko Kobayashi, Naoki Zaito, Takeshi Hamada *Kumamoto University, Japan*
2:00 PM	**Improved Row-Column-Addressed Array Imaging by Leveraging Ghost Echoes** Chung-Shiang Mei, Meng-Lin Li *National Tsing Hua University, Taiwan*	**Noninvasive ultrahigh-Frequency Ultrafast Doppler Imaging for Blood Flow of the whole-Central Nervous System in Newborn Rats** Yunlong Zhao, Yu Xia, Daichao Chen, Jinyu Yang, Feihong Dong, Jiabin Zhang, Jue Zhang *Peking University, China*	**Combined Us and Pa Thermal Imaging of nanoparticle-Labeled Cells** Jeungyoon Lee, Kelsey Kubelick, Jinhwan Kim, Stanislav Emelianov *Georgia Institute of Technology, United States*	
2:15 PM	**Feasibility of Optical Tracking for Swept Synthetic Aperture Imaging** Anet Sanchez, Nazli Javadi Eshkalak, Nicholas Bottenus *University of Colorado Boulder, United States*	**(INVITED) The Exposed Human brain: Functional Ultrasound Imaging in the Context of Neurosurgery** Pieter Kruizinga, Sadaf Soloukey, Luuk Verhoef, Bas Generowicz, Frits Mastik, Marion Smits, Djaina Satoer, Bas Koekkoek, Arnaud Vincent *Erasmus MC, Netherlands*	**A nanodroplet Probe with Magnetic Response for Acoustic Droplet Vaporization Therapy and Molecular Imaging Evaluation** Jinyu Yang, Yunlong Bao, Shuo Huang, Wenyu Guo, Dongdong Liang, Feihong Dong, Jiabin Zhang, Jue Zhang *Peking University, China*	**High-Temperature Performance of 3 MHz 36° Y-Cut Lithium Niobate Ultrasonic Transducer for Non-Destructive Testing at 550°C** Josh Hoi Yi Siu, Lars Hoff, Martijn Frijlink *University of South-Eastern Norway, Norway*
2:30 PM	**Ultrasound Monitoring of Simultaneous High-Intensity Focused Ultrasound Therapy Using Minimum-Peak-Sidelobe Code Excitation** Nien-Hung Wu, Che-Chou Shen		**An Evaluation of the Efficacy of Lipid-Shelled Nanobubbles and Microbubbles for Drug Delivery to Orthotopic Liver Tumors** Pinunta Nittayacharn{1}, Eric Abenojar{1}, Michaela Cooley{1},	**Thin Film high-Temperature Ultrasonic Transducers by LiNbO3 Based sol-Gel Composite** Takeshi Hamada{2}, Naoki Zaito{1}, Makiko Kobayashi{1}

	National Taiwan University of Science and Technology, Taiwan		Felipe Berg{1}, Claire Counil{1}, Amin Sojahroo{2}, Muhammad Khan{3}, Celina Yang{3}, Elizabeth Berndl{3}, Marcin Golczak{1}, Michael Kolios{3}, Agata Exner{1} *{1}Case Western Reserve University, France; {1}Case Western Reserve University, United States; {2}Sunnybrook Health Sciences Centre, Canada; {3}Toronto Metropolitan University, Canada*	*{1}Kumamoto University, Japan; {2}Kumamoto Univesity, Japan*
2:45 PM	**Multi-Angle Plane-Wave Compound Imaging of Spine** Chun-Tai Chen{2}, Chun-Hsu Yao{2}, Bao-Yu Hsieh{1} *{1}Chang Gung University, Taiwan; {2}China Medical University, Taiwan*	**Assessment of Brain Development of Preterm Neonates Using Ultrafast Power Doppler Imaging** Lijie Huang{2}, Xingyue Wei{2}, Yunfeng Liu{1}, Rui Wang{2}, Xiaomei Tong{1}, Jianwen Luo{2} *{1}Peking University Third Hospital, China; {2}Tsinghua University, China*	**Ultrasound Targeted VS1 Loaded microbubbles for Oncolytic virotherapy of Breast Cancer** Kishan S. Italiya{3}, Victor Mullins-Dansereau{1}, Tommy Alain{2}, Marie-Claude Bourgeois-Daigneault{1}, François T.H. Yu{3} *{1}Cancer axis, The University of Montreal Hospital Research Centre (CRCHUM), Canada; {2}Department of Biochemistry, Microbiology and Immunology, Faculty of Medicine, University of Ottawa, Canada; {3}Imaging and engineering axis, The University of Montreal Hospital Research Centre (CRCHUM), Canada*	**A New Generation of Piezoceramic Frequency Steerable Acoustic Transducers for the Rapid Inspection of Large Areas of Metallic Plate Structures** Masoud Mohammadgholiha{2}, Jochen Moll{1}, Luca De Marchi{2} *{1}Goethe University of Frankfurt am Main, Germany; {2}University of Bologna, Italy*
3:00 PM	**ROSETTA: the Reusable Organizer for Simulating, Experimenting, Teaching, and Testing in Acoustics** Keita Yokoyama, Caterina Gallippi *University of North Carolina at Chapel Hill and North Carolina State University, United States*	**Functional Ultrasound Imaging of Human Brain Activity in Freely Moving Subjects with an Acoustically Favorable Skull Implant** Sadaf Soloukey{1}, Luuk Verhoef{2}, Bas Generowicz{2}, Frits Mastik{2}, Clemens Dirven{3}, Marion Smits{4}, Sebastiaan Koekkoek{2}, Arnaud Vincent{3}, Chris de Zeeuw{2}, Pieter Kruizinga{2} *{1}Dept. of Neuroscience and Neurosurgery, Erasmus MC, Rotterdam, Netherlands; {2}Dept. of Neuroscience, Erasmus MC, Rotterdam, Netherlands; {3}Dept. of Neurosurgery, Erasmus MC,*	**A Novel Strategy to Enhance Radiotherapy Efficacy: Results from the Prospective Phase I Clinical Trial of MR-Guided Focused Ultrasound-Stimulated Microbubbles Treatment for Breast Cancer** Gregory Czarnota{1}, Danny Vesprini{2}, Irene Karam{2}, Daniel Palhares{2}, Lakshmanan Sannachi{1} *{1}Physical Sciences, Sunnybrook Research Institute, Canada; {2}Radiation Oncology, Sunnybrook Health Sciences Centre, Canada*	**High Power Airborne Ultrasonic Source Based on electro-Pneumatic Source** Romain Rousseau, Maxime Bilodeau, Philippe Micheau, Nicolas Quaegebeur *Université de Sherbrooke, Canada*

		Rotterdam, Netherlands; {4}Dept. of Radiology and Nuclear Medicine, Erasmus		

	Room 5 (Montreal) **C4L-05: PMI: Modelling and Inversion** **Chair(s):** Koen van Dongen (Delft University of Technology)	**Room 6 (Halifax)** **C4L-06: MTC: Tissue Characterization Methods and Applications II** **Chair(s):** Yoshifumi Saijo (Tohoku University)	**Room 7 (Toronto)** **C4L-07: TMI: Diagnostic and Therapeutic Transducers** **Chair(s):** Meng-Lin Li (National Tsing Hua University), Hendrik Vos (Erasmus MC)
1:45 PM	**Fast Fingerprint Reconstruction Based on Ultrasonic Guided Wave Tomography** Shuainan Chen{3}, Chengwei Zhao{3}, Jian Li{3}, Min Lin{2}, Xin Chen{1}, Yang Liu{3} *{1}the Department of Mechanical Engineering, Southwest Research Institute, United States; {2}the Department of Mechanical Engineering, University of Wyoming, United States; {3}the State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, China*	**Ultrasound and Microbubbles Can Deposit qDots Into Murine Ex-Vivo Small Intestine** Mihnea Vlad Turcanu{2}, Maya Thanou{1}, Inke Näthke{3}, Sandy Cochran{4} *{1}King's College London, United Kingdom; {2}KU Leuven, Belgium; {3}University of Dundee, United Kingdom; {4}University of Glasgow, United Kingdom*	**A Novel wide-Band Design of dual-Frequency Transducer Based on PZT – PVDF for Super Harmonic Imaging** Duy Hoang Le, Lars Hoff, Tung Manh *University of South-Eastern Norway (USN), Norway*
2:00 PM	**Full-Waveform Inversion with Resolution Proxies for in-Vivo transmission-Reflection Ultrasound Computed Tomography** Ines Elisa Ulrich{1}, Sebastian Noe{1}, Christian Boehm{1}, Naiara Korta Martiartu{2}, Berkan Lafci{3}, Xose Luis Dean-Ben{1}, Daniel Razansky{1}, Andreas Fichtner{1} *{1}ETH Zuerich, Switzerland; {2}University of Bern, Switzerland; {3}University of Zurich, Switzerland*	**Intelligent Diagnosis of Pulmonary Nodules Based on endobronchial Ultrasonography Images Using multi-Modal Quantitative Features Combined with Convolutional Neural Network** Zhe Chen{2}, Jiaxin Feng{1}, Xingyue Wei{2}, Qiong He{2}, Shiyue Li{1}, Changhao Zhong{1}, Jianwen Luo{2} *{1}The First Affiliated Hospital of Guangzhou Medical University, China; {2}Tsinghua University, China*	**Electronically Scanned Large Apertures for Interventional and Diagnostic Liver** Robert Wodnicki{2}, Josquin Foiret{1}, Christophe Notard{3}, Qifa Zhou{2}, Katherine Ferrara{1} *{1}Stanford University, United States; {2}University of Southern California, United States; {3}Vermon, SA, France*
2:15 PM	**Deep learning-Based Ultrasound Computed Tomography for Cortical Bone Imaging** Chenchen Zhou, Tao Jiang, Kailiang Xu, Dean Ta *Fudan University, China*	**The cylindrical-Gaussian Form Factor with the Structure Factor Model Improves Collagen Fiber Characteristics Estimation with high-Frequency Quantitative Ultrasound** Kazuyo Ito{3}, Quan V. Hoang{2}, Cameron Hoerig{5}, Kazuki Tamura{1}, Sally A. McFadden{4}, Jonathan Mamou{5} *{1}Hamamatsu University School of Medicine, Japan; {2}Singapore Eye Research Institute, Singapore; {3}Tokyo University of Agriculture and Technology, Japan; {4}University of NewCastle, Australia; {5}Weill Cornell Medicine, United States*	**A Gapless 32×32 Fully Sampled 2D Matrix Array Transducer for Sub-Aperture Volumetric Ultrasound Imaging** Ningyuan Wang, Yu Qiang, Chaorui Qiu, Yiliang Chen, Baoqiang Liu, Hairong Zheng, Weibao Qiu, Zhiqiang Zhang *Shenzhen Institute of Advanced Technology Chinese Academy of Sciences, China*
2:30 PM	**Model-Based Real Time Quantitative Ultrasound** Tom Sharon, Yonina C. Eldar	**Classification of Fragility Femoral Fractures in Older Adults Using an Ultrasonic Device**	**Fabrication and Characterization of a Compact 64-Element 50 MHz Linear Array**

	Weizmann Institute of Science, Israel	Francisca Rojo{3}, Ricardo Martinez{2}, Alejandro Martinez{3}, Cristina Espinoza{3}, Carlos Cristi-Montero{2}, Viviana Garcia{3}, Pedro Lopez{1}, José Luis Dinamarca-Montecinos{3}, Jean-Gabriel Minonzio{3} *{1}Cesfam Marcelo Mena, Chile; {2}Pontificia Universidad Católica de Valparaíso, Chile; {3}Universidad de Valparaiso, Chile*	Felipe Roa{2}, Jianhua Yin{1}, Aaaron Boyes{1}, Emmanuel Cherin{1}, Nidhi Singh{2}, Stuart Foster{2}, Chrsitine Demore{2} *{1}Sunnybrook Research Institute, Canada; {2}University of Toronto, Canada*
2:45 PM	**(INVITED) Application of Acoustic Hologram Fields** Peer Fischer, Kai Melde *Max Planck Institute and Heidelberg University, Germany*	**A Novel Rapid-Heating Transducer Array for Ultrasound Thermal Strain Imaging: in Vitro and in Vivo Experimental Evaluation** Zhiyu Sheng{3}, Ran Wei{3}, Mengyue Chen{2}, Bohua Zhang{2}, Howuk Kim{2}, Edith Tzeng{3}, Xuecang Geng{1}, Xiaoning Jiang{2}, Kang Kim{3} *{1}Blatek Industries, Inc., United States; {2}North Carolina State University, United States; {3}University Of Pittsburgh, United States*	**Rotational Intravascular multi-Direction Ultrasound Transducer for sonothrombolysis of Retracted Clots** Huaiyu Wu{2}, Bohua Zhang{2}, Ben Kreager{2}, Jinwook Kim{3}, Paul A. Dayton{3}, Zhen Xu{1}, Xiaoning Jiang{2} *{1}Department of Biomedical Engineering, University of Michigan, United States; {2}Department of Mechanical and Aerospace Engineering, NC State University, United States; {3}Joint Department of Biomedical Engineering, UNC at Chapel Hill and NC State Unive*
3:00 PM		**Depletion of Backscattered Fundamental Band Signal for Nonlinearity Parameter Imaging** Andres Coila{1}, Adriana Romero{1}, Edmundo Miranda{1}, Michael Oelze{2}, Roberto Lavarello{1} *{1}Pontificia Universidad Católica del Perú, Peru; {2}University of Illinois Urbana-Champaign, United States*	**Electro-Wetting Liquid Lens for real-Time Ultrasound Focusing and Steering** Zong Han Hsieh{2}, Yeu Chern Lin{2}, Ching Hsiang Fan{1}, Chih Kuang Yeh{2} *{1}National Cheng Kung University, Taiwan; {2}National Tsing Hua University, Taiwan*

	Room 1 (Yellowknife) **C6L-01: MIS: Image Enhancement I** **Chair(s):** Denis Kouame (University of Toulouse), Paul van Neer (TNO)	**Room 2 (Vancouver)** **C6L-02: MBF: Cardiovascular and Cerebrovascular Flow Imaging** **Chair(s):** Lasse Lovstakken (NTNU), Wei-Ning Lee (The University of Hong Kong)	**Room 3 (Calgary)** **C6L-03: MCA: Bubble Technology** **Chair(s):** Ayache Bouakaz (University of Tours)	**Room 4 (Winnipeg)** **C6L-04: NPC, NFM: Process Control, Industrial Ultrasound, and Flow Measurement** **Chair(s):** Makiko Kobayashi (Kumamoto University), Jiaze He (University of Alabama)
4:30 PM	**Correlation-Based Modified Sign Multiply Coherence Factor for Plane Wave Imaging** Chenzhi You, David Wu *Nanjing University of Aeronautics and Astronautics, China*	**(INVITED) High Frame Rate Imaging in Pediatric and Fetal Medicine – Opportunities and Challenges** Solveig Fadnes *NTNU, Norway*	**The Frequency Response of Single Monodisperse microbubbles Indicates Variance in Shell Parameters** Sander Spiekhout{1}, Benjamin van Elburg{2}, Jason Voorneveld{1}, Michel Versluis{2}, Nico de Jong{1}, Johannes Bosch{1}, Tim Segers{2}	**(INVITED) NDE 4.0. Realizing zero-Defect Mass Production of Bonded Joints by Integrating Ai Into the Advanced real-Time Ultrasonic Quality Monitoring Process** Roman Gr. Maev *The Institute for Diagnostic Imaging Research, Canada*

			{1}Erasmus MC, Netherlands; {2}University of Twente, Netherlands	
4:45 PM	**Inverse Problem for Direct Reconstruction of Despeckled Images from Radio-Frequency Signals: Proof of Concept** Samuel Beuret{3}, Adrien Besson{1}, Akihiro Sugimoto{2}, Jean-Philippe Thiran{3} *{1}e-scopics, France; {2}National Institute of Informatics (NII), Japan; {3}Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland*		**Decorrelation Time Mapping for Analysis of Nanobubble Dynamics in Tumors** Dana Wegierak{1}, Michaela Cooley{1}, Reshani Perera{1}, William Wulftange{1}, Umut Gurkan{1}, Michael Kolios{2}, Agata Exner{1} *{1}Case Western Reserve University, United States; {2}Toronto Metropolitan University, Canada*	
5:00 PM	**Coupling Fast Coherence Filtering with Fast Plane-Wave Fourier-Domain Beamforming** Daler Rakhmatov *University of Victoria, Canada*	**Quantitative Classifier of Arteries-Veins in the Human Neonate Brain Using Ultrafast Ultrasound Imaging** Nikan Fakhari, Julien Aguet, Naiyuan Zhang, Luc Mertens, John Sled, Olivier Villemain, Jerome Baranger *Sickkids, Canada*	**A New Thermodynamic Parameter for Nucleation Location Prediction in Acoustic Droplet Vaporization** Samuele Fiorini, Anunay Prasanna, Gazendra Shakya, Outi Supponen *ETH Zürich, Switzerland*	**Data Fusion for Multi-Modal In-Process Non-Destructive Evaluation of Wire + Arc Additive Manufacturing** Ehsan Mohseni{3}, Vedran Tunukovic{3}, Shaun McKnight{3}, Rastislav Zimermann{3}, M. Khalid Rizwan{3}, Randika K.W.Vithanage{3}, S. Gareth Pierce{3}, Charles N. Macleod{3}, Alastair Poole{3}, Richard Pyle{3}, Charalampos Loukas{3}, Yashar Javadi{3}, Jialu *{1}Cranfield University, United Kingdom; {2}Spirit AeroSystems, United Kingdom; {3}Universty of Strathclyde, United Kingdom*
5:15 PM	**Contrast Enhancement for Ring-Echo Image Using Temporal Dynamic Bandpass Filter** Tianhan Tang, Takashi Azuma, Atsushi Otsubo, Hirofumi Nakamura, Toshihide Iwahashi *Lily MedTech Inc., Japan*	**Topology-Aware Brain Vessel Segmentation in Ultrafast Doppler Imaging** Daichao Chen, Yu Xia, Yunlong Zhao, Xiaoyu Qian, Jingyi Yin, Dawei Li, Jiabin Zhang, Jue Zhang *Peking University, China*	**Frequency-Dependent Shape Oscillation and Microstreaming of a Phospholipid-Coated Wall-Attached Microbubble** Hongchen Li{2}, Yuchen Wang{2}, Ruisheng Su{2}, Christian Cierpka{3}, Michel Versluis{4}, Antonius van der Steen{2}, Martin Verweij{1}, Nico de Jong{2}, Klazina Kooiman{2} *{1}Delft University of Technology, Netherlands; {2}Erasmus MC University Medical Center Rotterdam, Netherlands; {3}Technische*	**Influence of Encapsulated Disc PZTs on Ultrasonic Data and Energy Transmission Through the Metal Barriers** Javad Abbaszadeh, Vladimir Pashchenko, Jochen Bardong, Mohssen Moridi *Silicon Austria Labs GmbH, Austria*

			Universität Ilmenau, Germany; {4}University of Twente, Netherlands	
5:30 PM	**Demonstration of Ultrafast Contrast Enhanced Ultrasounds (CEUS) in the Human Small Intestine** Clotilde Vie{1}, Martina Tashkova{1}, Matthieu Toulemonde{1}, James Burn{2}, Su Yan{1}, Alastair Brown{3}, Kevin Murphy{1}, Gary Frost{1}, Meng-Xing Tang{1} *{1}Imperial College London, United Kingdom; {2}NHS, United Kingdom; {3}Sosei Heptares, United Kingdom*	**Ultrafast Doppler for Assessing Brain Perfusion in TrJ mice, a Model of Charcot Marie Tooth Disease** Mariana Martínez Barreiro{2}, Lucía Vazquez Alberdi{2}, Maximiliano Anzibar Fialho{4}, Miguel Calero{1}, Jerome Baranger{3}, Mickael Tanter{3}, Juan Pablo Damian{4}, Carlos Negreira{4}, Nicolás Rubido{4}, Javier Brum{4}, Alejandra Kun{5} *{1}Chronic Disease Programme (UFIEC), Instituto de Salud Carlos III, CIBERNED and CIEN Foundation, Spain; {2}Instituto de Investigaciones Biológicas Clemente Estable, Uruguay; {3}Physics for Medicine Paris, Inserm U1273, ESPCI Paris, PSL University, CNRS*	**A Fast Fourier Beamformer for Convex-Array Passive Acoustic Mapping** Hui Zhu, Yi Zeng, Yifei Li, Xiran Cai *Shanghaitech University, China*	**Application of Topological Energy for Flow Velocity Field Characterization** Jules Fermé{1}, Serge Mensah{2}, Sandrine Rakotonarivo{2}, Matthieu Cavaro{2}, Jean-François Chaix{2} *{1}CEA, France; {2}LMA, France*
5:45 PM	**Fusion of Dual Probe Bistatic 3D Ultrasound Data Using 3D Shearlet Decomposition** Larissa Jansen, Hans-Martin Schwab, Richard Lopata *Eindhoven University of Technology, Netherlands*	**Noninvasive Monitoring Cerebral Blood Flow in Newborn Rats Using ultrahigh-Frequency Ultrafast Doppler** Yunlong Zhao, Daichao Chen, Yu Xia, Xiaoyu Qian, Jinyu Yang, Feng Feng, Jiabin Zhang, Jue Zhang *Peking University, China*	**Noninvasive Assessment of Blood Pressure Distribution and Fractional Flow in Middle Cerebral Artery Using Microbubble Contrast Agents and Plane Wave** Xiaoyang Qiao{2}, Ruiyan Zhang{2}, Jianjun Yu{2}, Ayache Bouakaz{1}, Yujin Zong{2}, Mingxi Wan{2} *{1}Université de Tours, France; {2}Xi'an jiaotong university, China*	**Phase-Sensitive Air Flow Measurement Using PMUTs** Cyril Baby Karuthedath, Teuvo Sillanpaa, Abhilash Thanniyil Sebastian, David Martin Gomes *VTT Technical Research Centre of Finland, Finland*

	Room 5 (Montreal) **C6L-05: MEL: Elastography of Liver and Prostate** **Chair(s):** Guy Cloutier (University of Montreal)	**Room 6 (Halifax)** **C6L-06: ASS: Sensors and Delay Lines** **Chair(s):** Omar Elmazria (Université de Lorraine), Hagen Schmidt (Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden))	**Room 7 (Toronto)** **C6L-07: TTT: Miniaturized Therapeutic and Interventional Ultrasound Transducers** **Chair(s):** Weibao Qiu (Shenzhen Institutes of Advanced Technology), Robert Wodnicki (University of Southern California)
4:30 PM	**Ultrasound Shear Wave Attenuation in Nonalcoholic Fatty Liver disease: Diagnostic Performance in biopsy-proven Patients and Healthy Volunteers** Ladan Yazdani{4}, Marc Gesnik{4}, Frank Nicolet{4}, Iman Rafati{4}, Boris Chayer{4}, Guillaume	**Monolithic Integration of X-Cut Leaky Saws and Electrically Small Antennas for RF Passive Wireless Sensors** Luca Colombo{2}, Jack Guida{2}, Nicolas Casilli{2}, Ryan Tetro{2}, Mary Elizabeth Galanko Klemash{1},	**Miniaturized Transducer for Sonothrombolysis with Multi-Element Vortex Matching** Jing Wang{1}, Huaiyu Wu{1}, Bohua Zhang{1}, Howuk Kim{3}, Chengzhi Shi{2}, Xiaoning Jiang{4} *{1}Department of Mechanical and Aerospace Engineering, NC State University, United States;*

	Gilbert{2}, Anton Volniansky{4}, Damien Olivié{3}, Jeanne-Marie Giard{3}, Giada Sebastiani{1}, Bich Ngoc Nguyen{3}, An Tang{4}, Guy Cloutier{4} *{1}McGill University, Canada; {2}Philips Healthcare, Canada; {3}University of Montreal Hospital, Canada; {4}University of Montreal Hospital Research Center, Canada*	Ryan Rudy{1}, Sarah Bedair{1}, Siddhartha Ghosh{2}, Cristian Cassella{2}, Matteo Rinaldi{2} *{1}ARL Devcom, United States; {2}Northeastern University, United States*	*{2}Department of Mechanical Engineering, Georgia Institute of Technology, United States; {3}Department of Mechanical Engineering, Inha University, Korea; {4}f Mecha*
4:45 PM	**Shear Wave Rheometry Measurements of the Viscoelastic Properties of Liver Tissue While Quantifying Effects of Anisotropy, Inhomogeneity, and Asymmetry** Sanjay Yengul{3}, Paul Barbone{1}, Bruno Madore{2} *{1}Boston University, United States; {2}Brigham and Women's Hospital, United States; {3}WaveOptima LLC, United States*	**Enhanced Sensitivity of Magnetic Surface Acoustic Waves Sensors (MSAW) Based on Love Waves** Prince Mengue{2}, Laurine Meistersheim{2}, Cécile Floer{2}, Yang Yang{1}, Sébastien Petit-Watelot{2}, Michel Hehn{2}, Sami Hage-Ali{2}, Omar Elmazria{2} *{1}Shanghai Jiao Tong University, China; {2}Université de Lorraine - CNRS, France*	**The Acoustic Lightsaber: an 8 mm Endoscope with High-Resolution Imaging and Electronically Rasterized Histotripsy** Matthew Mallay, Thomas Landry, Jeremy Brown *Dalhousie University, Canada*
5:00 PM	**Post-Transplant Liver Biopsy Classification Using Shear Wave Elastography and Machine Learning Techniques** Luiz Vasconcelos{2}, Sara Aristizabal{1}, Rebeca Oliveira{4}, Shigao Chen{2}, Mathew Urban{2}, James Greenleaf{2}, Ivan Nenadic{3} *{1}Delos, United States; {2}Mayo Clinic, United States; {3}University of Michigan, United States; {4}University of Minnesota, United States*	**Low Propagation Loss Acoustic Delay Lines Based on YX-LiNbO3/SiO2/Sapphire** Chia-Hsien Tsai, Tzu-Hsuan Hsu, Zhi-Qiang Lee, Cheng-Chien Lin, Ya-Ching Yu, Shao-Siang Tung, Ming-Huang Li *National Tsing Hua University, Taiwan*	**Endovascular Therapy Transducer with an Acoustic Metamaterial Lens for Rapid Stroke Thrombectomy** Phuong Vu{2}, Stephan Strassle Rojas{1}, Brooks Lindsey{2} *{1}Georgia Institute of Technology, United States; {2}Georgia Institute of Technology/Emory University, United States*
5:15 PM	**Shear-Wave Assessment of Local Tissue Viscoelasticity by System Identification for Prostate Cancer diagnosis: First Clinical Results** Xueting Li{2}, Florian Delberghe{2}, Simona Turco{2}, David M Mills{3}, Kirk Wallace{3}, Giuseppe Valvano{1}, Wim Zwart{1}, Hessel Wijkstra{2}, Massimo Mischi{2} *{1}Angiogenesis Analytics, Netherlands; {2}Eindhoven University of Technology, Netherlands; {3}GE HealthCare, United States*	**Focused S0 Lamb Modes for Gigahertz Delay Lines in 30% Scandium Aluminum Nitride** Jack Guida, Ryan Tetro, Matteo Rinaldi, Siddhartha Ghosh *Northeastern University, United States*	**A Miniaturized Multidirectional Stacking Ultrasound Transducer for Endo-Bronchoscopy Lung Nodule Ablation** Ren-Hao Lu{1}, Huaiyu Wu{1}, Howuk Kim{2}, Ruth Vorder Bruegge{5}, Oleksii Ostras{5}, Yueh Z. Lee{3}, Gianmarco F Pinton{5}, Allen Cole Burks{4}, Xiaoning Jiang{1} *{1}Department of Mechanical and Aerospace Engineering, NC State University, United States; {2}Department of Mechanical Engineering, Inha University, Korea; {3}Department of Radiology and Biomedical Research Imaging Center, UNC at Chapel Hill, United States; {4}Division of Pulmonary and Critical Care, UNC at Chapel Hill, United States; {5}Joint Department of Biomedical Engineering, UNC at Chapel Hill and NC State University, United States*

Wednesday, September 6: Lectures

5:30 PM	**3-D Acoustic Radiation Force Impulse (ARFI) Imaging for Targeted Biopsy of Prostate Cancer: Demonstration of Clinical Feasibility and Utility** Derek Chan{1}, Spencer Moavenzadeh{1}, Wren Wightman{1}, Mark Palmeri{1}, Thomas Polascik{2}, Kathryn Nightingale{1} *{1}Duke University, United States; {2}Duke University Medical Center, United States*	**(INVITED) High-Temperature Harsh-Environment SAW Sensor Devices** Mauricio Pereira Da Cunha *University of Maine, United States*	**2D Array Needle Transducer for 4D Ultrasound Imaging Guided Spinal Puncture** Xingying Wang, Zhiqiang Zhang, Yue Pan, Min Su, Weibao Qiu, Hairong Zheng *Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China; Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Chile*
5:45 PM	**Implementation of Strain and Shear Wave Elastography with Micro-Ultrasound** Tajwar Abrar Aleef{5}, Reid Vassallo{5}, Qi Zeng{5}, Brian Wodlinger{4}, Miles Mannas{3}, Sara Mahdavi{1}, Peter Black{3}, Septimiu Salcudean{2} *{1}BC Cancer-Vancouver Center, Canada; {2}Department of Electrical and Computer Engineering, University of British Columbia, Canada; {3}Department of Urologic Sciences, UBC, Canada; {4}Exact Imaging, Canada; {5}University of British Columbia, Canada*		**Development and Testing of an angled, High Frequency Ultrasound Probe for Minimally Invasive Spine Surgeries** Theresa Gu, Thomas Landry, Jeremy Brown *Dalhousie University, Canada*

C2P-08: MBB-P: Coherent Transmit Compounding
Chair(s): Anne Saris (Radboud University)

(C2P-08-MBB-1): High Contrast and High Frame Rate Coherent Plane Wave Compounding by Means of 2D Spatio-Angular Interpolation Technique
Sajjad Afrakhteh, Giovanni Iacca, Libertario Demi
University of Trento, Italy

(C2P-08-MBB-2): Ultrasound Plane Wave Reference Frame Multi-Hypothesis Prediction Reconstruction
Lin Tong, Ping Wang, Xitao Li, Qianwen Li, Jinghan Chen, Yue Shen
Chongqing University, China

(C2P-08-MBB-3): A Novel Plane-Wave Reverse Time Migration Method for High-Quality Ultrasound Imagin
Yue Pan, Xingying Wang, Yu Qiang, Ningyuan Wang, Zhiqiang Zhang, Weibao Qiu, Hairong Zheng
Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China

(C2P-08-MBB-4): Hyper-Beam Coherent Plane Wave Compounding for Improving Localization Accuracy of Ultrasound Localization Microscopy
Yen-Chen Wang, Chun-Hsien Chiang, Meng-Lin Li
National Tsing Hua University, Taiwan

(C2P-08-MBB-5): Development and Validation of Spatial Coherence Beamformers for Lung Ultrasound Imaging
Oleksii Ostras, Gianmarco Pinton
University of North Carolina at Chapel Hill, United States

(C2P-08-MBB-6): Combining Delay-Multiply-and-Sum and Covariance Matrix-Based Weighting for Synthetic Aperture Ultrasound Imaging
Yuanguo Wang, Yan Fan, Zhihui Han, Chichao Zheng, Hu Peng
Hefei University of Technology, China

(C2P-08-MBB-7): Microbubble Signal Enhancement with Doppler-Based Motion Correction and Adaptive-Weight-Based Compounding
Biao Huang{1}, Jipeng Yan{1}, Matthieu Toulemonde{1}, Johanna Tonko{2}, Joseph Hansen-Shearer{1}, Pier Lambiase{2}, Roxy Senior{1}, Meng-Xing Tang{1}
{1}Imperial College London, United Kingdom; {2}University College London, United Kingdom

(C2P-08-MBB-8): Towards Freehand 3D Synthetic Aperture Imaging with a Linear Probe Using Differentiable Beamforming
Dongwoon Hyun
Stanford University, United States

(C2P-08-MBB-9): A New 3D Imaging Technique Evaluated Using a 244-Element Electrostrictive Row-Column Array with a Multiplexed Elevation Sub-Aperture
Nicholas Campbell{1}, Justin Greige{1}, Roger Zemp{2}, Jeremy Brown{1}
{1}Dalhousie University, Canada; {2}University of Alberta, Canada

C2P-09: MBF-P: Deep Learning and Other New Techniques in Blood Flow Imaging
Chair(s): Brett Byram (Vanderbilt University)

(C2P-09-MBF-1): Portal Vein Pressure Estimation Based on Subharmonic Scattering of microbubbles
Huimin Lu{3}, Gang Xu{2}, Yun Wang{1}, Laixin Huang{4}, Wenkui Yu{3}, Fei Li{4}
{1}Department of Ultrasound, Sun Yat-Sen University Cancer Center, China; {2}Liver Transplant Center, Organ Transplant Center, West China Hospital of Sichuan University, China; {3}Nanjing Drum Tower Hospital, The Affiliated Hospital of Nanjing University

(C2P-09-MBF-2): Fast Channel-Domain Denoising for Ultrafast Doppler Imaging
Baptiste Pialot{2}, Lionel Augeul{1}, Lorena Petrusca{2}, François Varray{2}
{1}CarMen - INSERM U1060 - INRAE U1397 - University of Lyon, France; {2}CREATIS - CNRS UMR 5220 – INSERM U1294 – University of Lyon 1 – INSA Lyon, France

(C2P-09-MBF-3): A Simplified and Accelerated Implementation of SVD for Filtering Ultrafast Doppler Blood Flow Images
Baptiste Pialot{2}, Lionel Augeul{1}, Lorena Petrusca{2}, François Varray{2}
{1}CarMen - INSERM U1060 - INRAE U1397 - University of Lyon, France; {2}CREATIS - CNRS UMR 5220 – INSERM U1294 – University of Lyon 1 – INSA Lyon, France

(C2P-09-MBF-4): High Resolution Hemodynamic Predictions from Ultrasound Image Velocimetry Using Adaptive Physical Neural Network
Meiling Liang, Jiacheng Liu, Chao Guo, Yujin Zong, Mingxi Wan
Xi'an Jiaotong University, China

(C2P-09-MBF-5): Non-Invasive Work Energy-Derived Relative Pressure Estimation with 2D Synthetic Aperture Ultrasound
Lars Emil Haslund, Marie Sand Traberg, Jørgen Arendt Jensen
Center for Fast Ultrasound, Denmark

(C2P-09-MBF-6): Fast Training of PINN for Ultrafast Doppler Ultrasound with Initial In-Vivo Results
Haotian Guan, Wei-Ning Lee
The University of Hong Kong, Hong Kong

(C2P-09-MBF-7): Coronary Arterial Pressure Imaging from Velocity Field Marked by microbubbles Using physics-Informed Neural network: a Feasibility Study

Wentao Zhao, Chaoyu Wang, Xiheng Huang, Mingxi Wan, Diya Wang
Xi'an Jiaotong University, China

(C2P-09-MBF-8): Automatic Jet Flow Convergence Detection and Quantification from 2D Color Doppler Flow Using Deep Learning
Sigurd Vangen Wifstad{1}, Espen Holte{2}, Håvard Dalen{2}, Henrik Agerup Kildahl{2}, Bjørnar Grenne{2}, Lasse Løvstakken{1}
{1}NTNU, Norway; {2}NTNU, St. Olavs Hospital, Norway

(C2P-09-MBF-9): Adaptive Acoustic Power and Frequency Adjustment in Color Doppler Imaging
Matthew Huber, Gregg Trahey
Duke University, United States

(C2P-09-MBF-10): Spectral Doppler Estimation in Laser Ultrasound: Feasibility Study
Hyunwoo Song, Emad Boctor, Jeeun Kang
Johns Hopkins University, United States

C2P-10: MCA-P: PAM and Microbubble Production
Chair(s): David Goertz (Sunnybrook Research Institute)

(C2P-10-MCA-1): A Single Probe Method for Refraction-Corrected Transcranial Passive Acoustic Mapping
Gaofei Jin, Hui Zhu, Yifei Li, Yi Zeng, Xiran Cai
ShanghaiTech University, China

(C2P-10-MCA-2): Deep Learning Enabled 3D Passive Acoustic Mapping with row-column-Addressed Arrays
Yihang Lian{2}, Yi Zeng{2}, Hui Zhu{2}, Gaofei Jin{2}, Yu Deng{1}, Xiran Cai{2}
{1}Doppler Electronic Technologies Incorporated Company, China; {2}ShanghaiTech University, China

(C2P-10-MCA-3): Heterogeneous Cylindrical Wave Spectrum Method for Passive Acoustic Mapping
Yifei Li, Hui Zhu, Yi Zeng, Shixiao Jiang, Xiran Cai
shanghaitech university, China

(C2P-10-MCA-4): Generation and Acoustic Characterization of size-Isolated decafluorobutane (C4F10) nanodroplets and Parent size-Isolated microbubbles
Amin Jafarisojahrood{2}, Carly Pellow{2}, Harriet Lea Banks{2}, Jingjing Liu{2}, Michael C. Kolios{3}, Agata Exner{1}, David Goertz{2}
{1}Case Western University, United States; {2}Sunnybrook Research Institute, Canada; {3}Toronto Metropolitan University, Canada

(C2P-10-MCA-5): Producing Coalescence-Free and Stable Monodisperse Microbubbles at Room Temperature with Pluronic F68 Addition
Yuchen Wang{1}, Sander Spiekhout{1}, Ana Walgode{3}, Antonius F. W. van der Steen{1}, Benjamin Johnson{2}, Klazina Kooiman{1}
{1}Erasmus MC, Netherlands; {2}University of Leeds, United Kingdom; {3}University of Porto - FEUP, Portugal

(C2P-10-MCA-6): Influence of Continuous Phase Properties and Chip Outlet Width on PDI and PR of Monodisperse Microbubbles Formed by Flow-Focusing
Chunjie Tan, Chang Lu, Tao Han, Peng Qin
Shanghai Jiao Tong University, China

(C2P-10-MCA-7): Passive Cavitation Imaging Using Pth Root Delay Add Sum beamforming: in vitro and in Vivo Feasibility Assessment for histotripsy Guidance
Abhinav Singh{1}, Kai Flores{2}, Kenneth Bader{2}, Himanshu Shekhar{1}
{1}Indian Institute of Technology Gandhinagar, India; {2}University of Chicago, United States

C2P-11: MCA-P: Clinical Applications and Imaging Technology
Chair(s): Peter Lewin (Drexel University)

(C2P-11-MCA-1): A Novel Quantitative Approach to Evaluate Femoral Head Perfusion by contrast-Enhanced ultrasound: a Pilot Study in Infants with Developmental Dysplasia of the Hip
Sultan Laith{1}, Andressa Alves{1}, Trudy Morgan{1}, Anush Sridharan{1}, Morgan Batley{1}, Kassa Darge{1}, Wudbhav Sankar{1}, Susan Back{2}
{1}Children's hospital of Philadelphia, United States; {2}Children's Hospital of Philadlphia, United States

(C2P-11-MCA-2): Microbubble Based Gradient Convergence and Multi-Level Accumulation Microvascular Plane-Wave Imaging with High Spatiotemporal Resolution
Hanbing Chu, Liyuan Jiang, Yichen Yan, Jiacheng Liu, Chao Guo, Xiao Su, Jinxuan Ma, Yujin Zong, Mingxi Wan
Xi'an Jiaotong University, China

(C2P-11-MCA-3): Non-Invasive Quantification of Kidney Inflammation Using Nanobubbles – Mediated Contrast-Enhanced Ultrasound
Niloufar Rostam Shirazi{3}, Eno Hysi{4}, Dana Wegierak{1}, Xiaolin He{2}, Darren Yuen{4}, Agata Exner{1}, Michael Kolios{3}
{1}Case Western Reserve University, United States; {2}St. Michael's Hospital, Canada; {3}Toronto Metropolitan University, Canada; {4}University of Toronto, Canada

(C2P-11-MCA-4): Comparing dual-Frequency Transducers for superharmonic Imaging in vitro
Kathlyne Jayne Bautista{3}, Jing Yang{4}, Elvira Vasquez Avila{4}, Jianhua Yin{1}, Emmanuel Cherin{1}, Stuart Foster{2}, Christine Demore{2}, Paul Dayton{3}
{1}Sunnybrook Research Institute, Canada; {2}Sunnybrook Research Institute, University of Toronto, Canada; {3}The University of North Carolina at Chapel Hill, North Carolina State University, United States; {4}University of Toronto, Canada

(C2P-11-MCA-5): Evaluating the Reproducibility of contrast-Enhanced Ultrasound Perfusion Metrics in Clinical Data
Connor Krolak, Marissa Shumaker, Manjiri Dighe, Michalakis Averkiou
University of Washington, United States

(C2P-11-MCA-6): Measuring Variability in Placental Perfusion from Early to Mid-Gestation in Healthy Nonhuman Primates Using Contrast-Enhanced Ultrasound
Rachel Walmer{2}, Sarah Cilvik{3}, Shannon Scarberry{3}, Abigail Williams{3}, Masha Block{3}, Kylie Kavanagh{3}, Kennita Johnson{1}
{1}North Carolina State University, United States; {2}The University of North Carolina at Chapel Hill, United States; {3}Wake Forest University, United States

C2P-12: MEL-P: Advances in Elastography Methods
Chair(s): Salavat Aglyamov (University of Houston)

(C2P-12-MEL-1): Passive elastography Using a CMUT-Based Device Developed for endocavitary ultrasound-Guided HIFU: Gel Phantoms Experiments
Bruno Giammarinaro{2}, Ivan Suarez-Castellanos{2}, Antoine Bienassis{2}, Guillaume Vanstaevel{2}, Nicolas Guillen{1}, Nicolas Sénégond{3}, Stefan Catheline{2}, W. Apoutou N'djin{2}
{1}EDAP TMS, Vaulx-en-Velin, France; {2}LabTAU, INSERM, Centre Léon Bérard, Université de Lyon, France; {3}Vermon, Tours, France

(C2P-12-MEL-2): Unidirectional Shear Waves for Transcranial Ultrasound Assessment of Viscoelasticity and Fluidity of Brain Tumor in a Skull Model
Jianjun Yu, Yiran Chen, Xiaoyang Qiao, Hao Guo, Shizhe An, Hongmei Zhang, Mingxi Wan
Xi'an Jiaotong University, China

(C2P-12-MEL-3): SWEI of 3D Cell Cultures for Developing Mechanotherapy Targeting Matrix Stiffness with Verteporfin
Wei-Wen Liu, Mu-Cyun Tseng, Pai-Chi Li
National Taiwan University, Taiwan

(C2P-12-MEL-4): Analysis of Guided Shear Wave Behavior in a Three Layers phantom: Application to Diaphragm Monitoring by Shear Wave elastography
Corentin Cornu{1}, Javier Brum{3}, Jérôme Laurent{2}, Thomas Poulard{1}, Damien Bachasson{4}, Jean-Luc Gennisson{1}
{1}BIOMAPS, France; {2}CEA List, France; {3}Montevideo University, Uruguay; {4}UMR-S 1158, France

(C2P-12-MEL-5): Non-Destructive Testing of Stored Red Blood Cell Transfusion Units Using ARFI Ultrasound
Anna Philips, Matthew Karrafin, Caterina Gallippi, Melissa Caughey
University of North Carolina at Chapel Hill, United States

(C2P-12-MEL-6): Optimization of the Tracking Beam Sequence in Harmonic Motion Imaging
Yangpei Liu, Niloufar Saharkhiz, Md Murad Hossain, Elisa E. Konofagou
Columbia University, United States

(C2P-12-MEL-7): Characterization of Compressive and Shear Moduli in Transversely Isotropic Materials Using Viscoelastic Response (VisR) Ultrasound
Sabiq Muhtadi, Caterina Gallippi
University of North Carolina at Chapel Hill, United States

C2P-13: MEL-P: Cardiac and Vascular Elastography
Chair(s): Annette Caenen (Ghent University/KU Leuven)

(C2P-13-MEL-1): In Vivo Assessment of Abdominal Aortic Aneurysm Wall Strain Using 2D and 3D B-Mode Ultrasound
Marie-Hélène Roy Cardinal{2}, Hongliang Li{2}, Vanessa Guerrera{2}, Samuel Kadoury{1}, Guy Cloutier{2}, Gilles Soulez{2}
{1}École Polytechnique of Montreal, Canada; {2}University of Montreal Hospital Research Center, Canada

(C2P-13-MEL-2): Understanding the Biomechanics of Cardiac Shear Wave elastography: an in silico Study in a Contracting Left Ventricle
Annette Caenen{2}, Mathias Peirlinck{1}, Jan D'Hooge{3}, Patrick Segers{2}
{1}Delft University of Technology, Netherlands; {2}Ghent University, Belgium; {3}KU Leuven, Belgium

(C2P-13-MEL-3): Singular Value Decomposition for Physiological Motion Compensation in Cardiac Shear Wave elastography
Xufei Chen, Yizhou Huang, Rogier Wildeboer, Massimo Mischi, Ruud van Sloun
Eindhoven University of Technology, Netherlands

(C2P-13-MEL-4): Coordinate-Independent Myocardial Strain Imaging Using 3D Ultrasound Principal Stretch and Axis Estimation
Po-Syun Chen, Min-Yen Hsieh, Mark de Villiers, Geng-Shi Jeng
National Yang Ming Chiao Tung University, Taiwan

(C2P-13-MEL-5): Ex Vivo Vascular 3-D Strain Imaging with High Volume Rate multi-Aperture Bistatic Ultrasound Acquisitions
Hein de Hoop, Esther Maas, Jan-Willem Muller, Hans-Martin Schwab, Richard Lopata
Eindhoven University of Technology, Netherlands

(C2P-13-MEL-6): A New Robust Method for Measuring Pulse Wave Propagation
Hyungkyi Lee, Charles B. Capron, James Greenleaf, Sanjay Misra, Matthew W. Urban
Mayo clinic, United States

C2P-14: MIM-P: Image Analysis & AI II
Chair(s): Marvin Doyley (University of Rochester)

(C2P-14-MIM-1): Mapping Cardiac Mechanical Activation Sequence Using High Frame Rate Speckle Tracking Echocardiography
Konstantina Papangelolpoulou{1}, Marta Orlowska{1}, Laurine Wouters{1}, Gabor Voros{2}, Joris Ector{2}, Jan D'Hooge{1}
{1}KU Leuven, Belgium; {2}UZ Leuven, Belgium

(C2P-14-MIM-2): Quantitative Vessel Assessment for Fetal Growth Restriction Using 3D Ultrasound Microvessel Imaging
U-Wai Lok, Shanshan Tang, Chengwu Huang, Ping Gong, Hannah Scott, Janelle Santos, Michael Nienow, Krystal Ruka, Reade Quinton, Elizabet Cheek-Norgan, Mauro Schenone, Jingke Zhang, Shigao Chen, Elizabeth Enninga
Mayo Clinic, United States

(C2P-14-MIM-3): Intravascular Ultrasound to Obtain Wall Thickness of Abdominal Aortic Aneurysms
Floor Fasen{2}, Daniek van Aarle{2}, Arjen van der Horst{3}, Marc van Sambeek{1}, Richard Lopata{2}
{1}Catharina Hospital Eindhoven, Netherlands; {2}Eindhoven University of Technology, Netherlands; {3}Philips, Netherlands

(C2P-14-MIM-4): Automated Anatomical Feature Detection for Completeness of Abdominal Fast Exam
Hyeonwoo Lee{2}, Mohsen Zahiri{2}, Goutam Ghoshal{2}, Stephen Schmidt{2}, Nikolai Schnittke{1}, Bryson Hicks{1}, Matt Kaili{1}, Cynthia Gregory{1}, Magdelyn Feuerherdt{1}, Caelan Thomas{1}, Yuan Zhang{1}, Katlyn Hibbs{1}, Aishwarya Sreenivasan{1}, Kenton
{1}Oregon Health & Science University, United Kingdom; {1}Oregon Health & Science University, United States; {2}Philips Research North America, United States

(C2P-14-MIM-5): Estimation of Fractional Flow Reserve in Coronary Artery Based on Serial Intravascular Ultrasound Images
Yoshifumi Saijo, Takashi Orihara, Naoya Kanno, Hiroyuki Yagami, Takuro Ishii
Tohoku University, Japan

(C2P-14-MIM-6): Neural Implicit Representation for Three-Dimensional Ultrasound Carotid Surface Reconstruction Using Unsigned Distance Function
Hongbo Chen{1}, Logiraj Kumaralingam{2}, Jiawen Li{1}, Kumaradevan Punithakumar{2}, Lawrence H Le{2}, Rui Zheng{1}
{1}Shanghaitech University, China; {2}University of Alberta, Canada

(C2P-14-MIM-7): Ultrasonic Measurement of the Longitudinal Motion of the Arterial Wall – a Novel Parameter for Improved Analysis of the Motion at Late Systole
Artturi Petäjä, Tobias Erlöv, Åsa Ahlgren, Magnus Cinthio
Lund University, Sweden

(C2P-14-MIM-8): H-Scan Ultrasound Imaging with Adaptive Attenuation Correction for Detection of Liver Steatosis in Human Subjects
Mawia Khairalseed{3}, Lokesh Basavarajappa{3}, Ahmed El Kaffas{1}, Aya Kamaya{1}, Kevin Parker{2}, Kenneth Hoyt{3}
{1}Stanford University, United States; {2}University of Rochester, United States; {3}University of Texas at Dallas, United States

(C2P-14-MIM-9): Cardiac Ultrasound Motion Estimation with Deep Learning and Synthetic Data Augmentation: a Joint-Learning Approach
Andrea Pulido{1}, Nitin Burman{1}, Helena Williams{1}, Sandro Queirós{2}, Jan D'hooge{1}
{1}Ku Leuven, Belgium; {2}University of Minho, Portugal

(C2P-14-MIM-10): Diagnosis of Hepatic Steatosis Using H-Scan Ultrasound Imaging and Texture Analysis
Leroy Arthur{3}, Mawia Khairalseed{3}, Lokesh Basavarajappa{3}, Swapnil Dolui{3}, Ahmed El Kaffas{1}, Aya Kamaya{1}, Kevin Parker{2}, Kenneth Hoyt{3}
{1}Stanford University, United States; {2}University of Rochester, United States; {3}University of Texas at Dallas, United States

C2P-15: MIM-P: US Simulations and US-based Modeling
Chair(s): Yaoyao Cui (Suzhou Institute of Biomedical Engineering and Technology)

(C2P-15-MIM-1): An Intelligent Ovarian Ultrasound Image Generation Algorithm Based on Generative Adversarial Networks
Hongbei Xiang{2}, Yue Zhao{2}, Kuo Miao{1}, Yuntao Ji{2}
{1}Department of Ultrasound, Fourth Affiliated Hospital of Harbin Medical University, China; {2}Harbin Institute of Technology, China

(C2P-15-MIM-2): Generation of Numerical Phantoms Based on Tissue Microstructure for Realistic Ultrasound Simulations of Organs and Tissues
Daniek van Aarle{1}, Harold Schmeitz{2}, Frederik de Bruijn{2}, Richard Lopata{1}, Hans-Martin Schwab{1}
{1}Eindhoven University of Technology, Netherlands; {2}Philips Research, Netherlands

(C2P-15-MIM-3): An ULTRASOUND-Based Modeling Framework for the Assessment of Peripheral Arterial Disease
Milan Gillissen{2}, Frans van de Vosse{2}, Marc van Sambeek{1}, Richard Lopata{2}
{1}Catharina Hospital Eindhoven, Netherlands; {2}University of Technology Eindhoven, Netherlands

(C2P-15-MIM-4): Evaluation on HIFU Focus Prediction Using Acoustic Radiation Force Imaging
Lian Feng, Xingwang Shi, Fang Zhou, Yanhua Chen, Xiaowei Zhou
Chongqing Medical University, China

(C2P-15-MIM-5): Automatic 3D Ultrasound Modeling Imaging for Spine Deformity Using Neural Networks
Liyue Qian, Jianhao Zhao, Yuchong Gao, Yiwen Tang, Rui Zheng
ShanghaiTech University, China

(C2P-15-MIM-6): Automated Patient-Specific Left Ventricular Simulations for Cardiac Function Evaluation Using Image-Based Computational Fluid Dynamics and Color Flow Imaging
Vincent Bryon, Sigurd Vangen Wifstad, Jieyu Hu, Thomas Grønli, Lasse Løvstakken
NTNU, Norway

C2P-16: MIS-P: Image Formation and Reconstruction
Chair(s): Adrien Besson (E-Scopics SAS)

(C2P-16-MIS-1): Beamforming-Integrated Neural Networks via Sparse Matrices
Di Xiao, Alfred Yu
University of Waterloo, Canada

(C2P-16-MIS-2): Analysis of Diverging Wave Synthetic Aperture Focusing and Grating Lobe Suppression
Jaebum Park{1}, Yewon Lee{2}, Tai-Kyong Song{1}
{1}Department of Electronic Engineering, Sogang University, Korea; {2}LG Innotek, Korea

(C2P-16-MIS-3): Get Ready to Spy on Ultrasound: Meet ultraspy
Pierre Ecarlat{1}, Ewen Carcreff{2}, François Varray{1}, Hervé Liebgott{1}, Barbara Nicolas{1}
{1}CREATIS, France; {2}TPAC/DB-SAS, France

(C2P-16-MIS-4): A New Real-Time Spatial Compounding Method with Elevational Synthetic Aperture Focusing (ESAF-SC) for an Automated Breast Ultrasound System (ABUS)
Daehyun Park, Jihun Jang, Ilseob Song, Yangmo Yoo
Sogang University, Korea

(C2P-16-MIS-5): Sensorless End-to-End Freehand Ultrasound with Physical Inspired Network
Yimeng Dou, Fangzhou Mu, Yin Li, Tomy Varghese
University of Wisconsin-Madison, Madison, WI, United States

(C2P-16-MIS-7): A Multiple Algorithm Imaging Scheme Towards in-vitro Reconstruction Performance Benchmarking for pMUTs
Rui Amendoeira Esteves, Sina Sadeghpour, Michael Kraft
Katholieke Universiteit Leuven, Belgium

(C2P-16-MIS-8): Single-channel, ultraportable, real-Time Imaging System Based on Deep learning: a proof-of-Concept
Valentino Meacci{1}, Edoardo Bosco{2}, Alessandro Ramalli{1}, Enrico Boni{1}, Piero Tortoli{1}, Daniele Mazierli{1}, Edoardo Spairani{2}, Giulia Matrone{2}
{1}University of Florence, Italy; {2}University of Pavia, Italy

(C2P-16-MIS-9): Enhanced Plane Wave Approximations of Spherical Waves for Fourier-Based Synthetic Aperture Imaging
Edgar Dorausch{2}, Julian Kober{1}, Cornelius Kühnöl{2}, Tönnis Trittler{1}, Daniel Swist{2}, Jochen Hampe{1}, Gerhard Fettweis{2}, Moritz Herzog{1}
{1}Else Kröner Fresenius Center for Digital Health, TU Dresden, Germany; {2}Vodafone Chair Mobile Communications Systems, TU Dresden, Germany

(C2P-16-MIS-10): Estimating Shape of Flexible Ultrasound Arrays Using Spatial Coherence
Amirhossein Omidvar, Robert Rohling, Edmond Cretu, Mark Cresswell, Antony J Hodgson
University of British Columbia, Canada

(C2P-16-MIS-11): Channel Sounding Approach Using Cyclic Zadoff-Chu Sequences for Ultrasound Imaging
Daniel Swist{2}, Moritz Herzog{2}, Edgar Dorausch{2}, Tönnis Trittler{2}, Julian Kober{2}, Cornelius Kühnöl{1}, Ahmad Nimr{2}, Jochen Hampe{2}, Gerhard Fettweis{2}
{1}FAU Erlangen, Germany; {2}TU Dresden, Germany

C2P-17: MIS-P: Tomography and Speed of Sound
Chair(s): Naiara Korta Martiartu (University of Bern)

(C2P-17-MIS-1): A Feasibility Study on Estimation of Average Speed of Sound for Blood Flow Imaging
Ryo Nagaoka, Masaaki Omura, Hideyuki Hasegawa
University of Toyama, Japan

(C2P-17-MIS-2): A signal-Domain Method to Reconstruct object's Boundary for 3D Ultrasound Computed Tomography
Teng Liang, Gaofei Jin, Yi Zeng, Xiran Cai
shanghaitech university, China

(C2P-17-MIS-3): Adaptive Denoising in Computed Ultrasound Tomography in Echo Mode (CUTE)
Parisa Salemi Yolgunlu, Naiara Korta Martiartu, Urs Richard Gerber, Martin Frenz, Michael Jaeger
Universität Bern, Switzerland

(C2P-17-MIS-4): Accelerating Image Reconstruction Speed in Ultrasound Computed Tomography with Structural Information
Yiming Huang{1}, Shilong Cui{2}, Gaofei Jin{2}, Xiran Cai{2}
{1}ShanghaiTech Unicersity, China; {2}ShanghaiTech University, China

(C2P-17-MIS-5): Full-Waveform Ultrasound Bone Tomography Using Angular Spectrum Method
Lexiu Xu{2}, Yifang Li{1}, Qinzhen Shi{2}, Yunyun Zhang{2}, Fei Dai{2}, Dean Ta{2}
{1}Academy for Engineering and Technology, Fudan University,, China; {2}Center of Biomedical Engineering, School of Information Science and Technology,Fudan University, China

(C2P-17-MIS-6): Beam Domain Speed of Sound Estimation via Point Spread Function Analysis
Yu-An Lin, Wei-Hsiang Shen, Meng-Lin Li
National Tsing Hua University, Taiwan

C2P-18: MIS-P: Motion Estimation and Image Registration
Chair(s): Hervé Liebgott (CREATIS UMR 5220 UCBL)

(C2P-18-MIS-1): Tissue Motion Correction by Using Vector Doppler Imaging
Deng-Yen Zhuang, Hsin Huang, Chih-Chung Huang
National Cheng Kung University, Taiwan

(C2P-18-MIS-2): Ultrasonic Visualization of Contraction and Relaxation in Left Ventricular Myocardium Based on high-Reliability Distribution of Local Strain Rate
Yu Obara{2}, Shohei Mori{3}, Masumi Iwai-Takano{1}, Mototaka Arakawa{2}, Hiroshi Kanai{3}
{1}Department of Epidemiology, Fukushima Medical University, Japan; {2}Graduate School of Biomedical Engineering, Tohoku University, Japan; {3}Graduate School of Engineering, Tohoku University, Japan

(C2P-18-MIS-3): 2D Velocity Field Estimation in Polar Coordinates Using Joint Pair-Wise Optical Flow and Doppler Constraints for Diverging Wave Imaging
Zichen Zhuang{2}, Lu Dong{2}, Yinran Chen{2}, Jianwen Luo{1}, Xiongbiao Luo{2}
{1}Tsinghua University, China; {2}Xiamen University, China

(C2P-18-MIS-4): Comparing Volumetric Speckle Tracking Performance of Common Parallel Acquisition Sequences in Matrix Probes for Respiratory-Induced Liver Motion
Anand Ramkumar, Jeff Bamber, Emma Harris
The Institute of Cancer Research, United Kingdom

(C2P-18-MIS-5): Motion Magnification Improves 2D sub-Pixel Speckle Tracking in B-Mode Images
Christer Grönlund{2}, Marko Nygård{2}, Robin Rohlén{1}
{1}Lund University, Sweden; {2}Umeå University, Sweden

(C2P-18-MIS-6): Dense Error Map Estimation for MRI-Ultrasound Registration in Brain Tumor Surgery Using Swin UNETR
Soorena Salari, Amirhossein Rasoulian, Hassan Rivaz, Yiming Xiao
concordia university, Canada

(C2P-18-MIS-7): A Spatiotemporal Deep Learning Approach for Non-Cardiac Motion Identification to Improve Reliability of Auto-Quantification in Point-Of-Care (POC) Echocardiography
Rashid Al Mukaddim{2}, Nils Gessert{1}, Shyam Bharat{2}, Ramon Erkamp{2}, Shriram Sethuraman{2}, Jonathan Sutton{2}, Emily Mackay{3}, Cristiana Baloescu{4}, Christopher Moore{4}, Balasundar Raju{2}
{1}Philips Research Hamburg, Germany; {2}Philips Research North America, United States; {3}University of Pennsylvania, United States; {4}Yale University, United States

C2P-19: MIS-P: Image Enhancement II
Chair(s): Ole Marius H Rindal (University of Oslo)

(C2P-19-MIS-1): IA-Noise2Noise: an Image Alignment Strategy for Echocardiography Despeckling
Yuxuan Li, Wenkai Lu, Patrice Monkam, Yonghao Wang
Department of Automation, Tsinghua University, China

(C2P-19-MIS-2): Ultrasound Image Quality Enhancement on Therapeutic Transducer
Eui-Ji Shin{2}, Sunghun Park{2}, Sungwoo Kang{1}, Jinwoo Kim{1}, Jin Ho Chang{1}
{1}Daegu Gyeongbuk Institute of Science & Technology, Korea; {2}Sogang University, Korea

(C2P-19-MIS-3): Super-Resolution with Embedded Denoising via Image Frequency Separation and Convolutional Neural Network in a Prototyped Transcranial Ultrasound Brain Imaging Scanner
Aryaz Baradarani, Kiyanoosh Shapoori, Saghar Farhangfar, Jeff Sadler, Eugene Malyarenko, Juri G. Gelovani, Roman Gr. Maev
Tessonics Medical Systems, United States

(C2P-19-MIS-4): Ultrasound Signal Processing with Deep Learning Using a Large in Vivo Dataset
Erlend Løland Gundersen{2}, Erik Smistad{2}, Tollef Jahren{1}, Svein-Erik Måsøy{2}
{1}GE HealthCare, Norway; {2}The Norwegian University of Science and Technology, Norway

(C2P-19-MIS-5): An Adaptive Spectrum Compensated Pulse Compression Neural Network for Chirp Excitation in Transcranial Ultrasound Super-Resolution Imaging
Jiacheng Liu, Chao Guo, Jinxuan Ma, Meiling Liang, Hanbing Chu, Yujin Zong, Mingxi Wan
Xi'an jiaotong university, China

(C2P-19-MIS-6): Image-to-Image Translation with Deep Neural Networks for the Enhancement of monostatic synthetic-Aperture Ultrasound Images
Edoardo Bosco{2}, Chiara Stellino{2}, Marco Cotogni{2}, Alessandro Ramalli{1}, Claudio Cusano{2}, Giulia Matrone{2}
{1}University of Firenze, Italy; {2}University of Pavia, Italy

(C2P-19-MIS-7): Deep Ultrasound Denoising Using Diffusion Probabilistic Models
Hojat Asgariandehkordi{1}, Sobhan Goudarzi{3}, Hassan Rivaz{1}, Adrian Basarab{2}
{1}Concordia University, Canada; {2}Lyon University, France; {3}Toronto University, Canada

C2P-20: MPA-P: Photoacoustic Image Processing
Chair(s): Kelsey Kubelick (Georgia Institute of Technology)

(C2P-20-MPA-1): Coherent Compounding for Photoacoustic Tomography
Soheil Hakakzadeh, Seyed Masood Mostafavi, Zahra Kevehvash
Sharif Univ. of Tech., Iran

(C2P-20-MPA-2): Robust Denoising of OR-PAM Image by Frequency Decomposition
I Gede Eka Sulistyawan, Daisuke Nishimae, Takuro Ishii, Yoshifumi Saijo
Tohoku University, Japan

(C2P-20-MPA-3): RADU-Net: Eliminating the Necessity of Measurement of Precise Scanning Radius for Image Reconstruction in Photoacoustic Tomography
Sudeep Mondal, Subhadip Paul, Pankaj Warbal, Ratan K Saha
Indian Institute of Information Technology Allahabad, India

(C2P-20-MPA-4): Enhanced Performance of LED-Based Photoacoustic Imaging Using short-Lag Spatial Coherence beamforming: Comparative Analysis with laser-Based Imaging
José Eduardo Freire, Guilherme Santos Pilotto Fernandes, João Henrique Uliana, Antonio Adilton Oliveira Carneiro, Theo Zeferino Pavan
Universidade de São Paulo, Brazil

(C2P-20-MPA-5): Double Direction Minimum Variance 2D Array Beamformation for 3D Photoacoustic Imaging
Chun-Hsien Chiang, Meng-Lin Li
National Tsing Hua University, Taiwan

(C2P-20-MPA-6): An Encoding Approach for Multi-Perspective Photoacoustic Imaging to Increase SNR
Amir Gholampour, Camilo Cano, Marc van Sambeek, Richard Lopata, Hans-Martin Schwab, Min Wu
Eindhoven University of Technology, Netherlands

(C2P-20-MPA-7): Overestimation of the Spatial Resolution of Advanced Algorithms Using the PSF Method on Pat Systems
Irene Pi Martín{2}, Alejandro Cebrecos{2}, Juan José García-Garrigós{1}, Noé Jiménez{2}, Francisco Camarena{2}
{1}Consejo Superior de Investigaciones CientIficas (CSIC) - i3M, UMIL, Spain; {2}Universitat Politècnica de València - i3M, UMIL, Spain

(C2P-20-MPA-8): Application of CohereNet to Photoacoustic Data for Non-Invasive in Vivo Subcutaneous Imaging
José Timaná{2}, Guilherme Fernandes{3}, Theo Pavan{3}, Muyinatu Bell{1}
{1}Johns Hopkins University, United States; {2}Pontificia Universidad Católica del Per, Peru; {3}University of Sao Paulo, Brazil

(C2P-20-MPA-9): Hardware Acceleration of s-Wave Based Pa Image Reconstruction
Yuwei Zheng, Zijian Gao, Yuting Shen, Jiadong Zhang, Daohuai Jiang, Fengyu Liu, Feng Gao, Fei Gao
ShanghaiTech University, China

(C2P-20-MPA-10): Fluence Compensation for Linear Array-Based Photoacoustic Imaging Using Geometrical Depth Mapping
Yichuan Tang{2}, Wojtek Lesniak{1}, Pomper Martin{1}, Haizhong Zhang{2}
{1}Johns Hopkins University, United States; {2}Worcester Polytechnic Institute, United States

C2P-21: MTC-P: Tissue Characterization of Cancer II
Chair(s): Kibo Nam (Thomas Jefferson University)

(C2P-21-MTC-1): Toward Cancer Characterization Using Light Backscattering Spectroscopy and Quantitative Ultrasound
Cyril Malinet{2}, Bruno Montcel{2}, Aurélie Dutour{1}, Iveta Fajnorova{1}, Hervé Liebgott{2}, Pauline Muleki-Seya{2}
{1}CRCL, France; {2}CREATIS, France

(C2P-21-MTC-2): Prior Prediction of Therapy Response in Breast Cancer Patient Using Quantitative Ultrasound with Transfer Learning Approach
Lakshmanan Sannachi, Schontal Halstead, David Alberico, Gregory J Czarnota
Physical Sciences, Sunnybrook Research Institute, Canada

(C2P-21-MTC-3): Personalized Cancer Care Using Quantitative Ultrasound
Gregory Czarnota{2}, Lakshmanan Sannachi{2}, Schontal Halstead{2}, David Alberico{2}, Trudeau Maureen{1}
{1}Medical Oncology, Sunnybrook Health Sciences Centre, Canada; {2}Physical Sciences, Sunnybrook Research Institute, Canada

(C2P-21-MTC-4): Assessment of Indeterminate Breast Lesions Based on Pressure Estimates by 3D Contrast-Enhanced Ultrasound
Mehnoosh Torkzaban, Jason Shames, Lydia Liao, Corinne Wessner, Priscilla Machado, Andrej Lyshchik, Flemming Forsberg, Kibo Nam
Thomas Jefferson University, United States

(C2P-21-MTC-5): Motion Sensitivity of Transmit Sequences for Pulse-Echo Mapping of Sound Speed Based on Apparent Speckle Shifts
Dieter Schweizer{1}, Can Deniz Bezek{3}, Monika Farkas{2}, Orcun Goksel{4}
{1}ETH Zurich, Switzerland; {2}Kantonsspital Baden, Switzerland; {3}Uppsala University, Sweden; {4}Uppsala University/ETH Zurich, Sweden

(C2P-21-MTC-6): An in-Vivo Bead Reference Method to Calculate the Backscatter Coefficient (BSC)
Yuning Zhao, Michael Oelze
UIUC, United States

(C2P-21-MTC-7): H-Scan Ultrasound Imaging for the Preclinical ASSESSEMENT of Liver Cancer Treatment with TRANSARTERIAL CHEMOEMBOLIZATION
Swapnil Dolui, Katherine Brown, Junjie Li, John Eisenbrey, Kenneth Hoyt
University of Texas at Dallas, United States

(C2P-21-MTC-8): Transfer Learning of Pre-Treatment Quantitative Ultrasound Images for the Evaluation of Breast Cancer Response to Neoadjuvant Chemotherapy
Omar Falou{2}, Lakshmanan Sannachi{1}, Gregory Czarnota{1}, Michael Kolios{2}
{1}Sunnybrook Health Sciences Centre, Canada; {2}Toronto Metropolitan University, Canada

(C2P-21-MTC-9): Ultrasonic Spectral Information Promotes Specificity and Visualization of Breast Cancer in Deep Learning
Qizhen Sun{1}, Zhun Xie{1}, Jiaqi Han{1}, Yiqi Cai{1}, Lijun Xu{2}, Jianguo Ma{1}
{1}Beihang University, China; {2}Beihang Universtiy, China

(C2P-21-MTC-10): High Frequency Quantitative Us Measurement of Healthy Brain and Glioblastoma Multiforme for Intraoperative Use in Neurosurgery
Hannah Thomson{2}, Shufan Yang{1}, Sandy Cochran{2}
{1}Edinburgh Napier University, United Kingdom; {2}University of Glasgow, United Kingdom

(C2P-21-MTC-11): Differentiating Normal Brain Tissue and Glioblastoma Using the Integrated Backscatter coefficient: an Ex Vivo Study
Jagruti Patil{2}, Vishwas Trivedi{2}, Anushka Yadav{2}, Shilpa Rao{3}, Hardik Pandya{1}, Vikas Vazhayil{3}, Anita Mahadevan{3}, Karla Patricia Mercado-Shekhar{2}
{1}Indian Institute of Science Bangalore, India; {2}Indian Institute of Technology Gandhinagar, India; {3}National Institute of Mental Health and Neurosciences, Bengaluru, India

C2P-22: MTH-P: Therapy IV
Chair(s): David Melodelima (INSERM)

(C2P-22-MTH-1): Boundary Recognition of HIFU Lesions Using Gamma for Efficient Assessment of Ultrasound Surgery
Quan Zhang, Xuan Liu, Juntao Chang, Mingzhu Lu, Yanshu Jing, Rongzheng Yang, Weihao Sun, Jie Deng, Tingting Qi, Mingxi Wan
Xi'an Jiaotong University, China

(C2P-22-MTH-2): Measurement of HIFU Pressures, Intensities, and Beamwidths Using Spatiotemporal Deconvolution
Keith Wear{2}, Samuel Howard{1}
{1}Onda Corporation, United States; {2}US Food and Drug Administration, United States

(C2P-22-MTH-3): Cutaneous Hypervascularization Treatment Using Photo-Mediated Ultrasound Therapy
Mingyang Wang{2}, Rohit Singh{1}, Yannis Paulus{2}, Xinmai Yang{1}, Xueding Wang{2}
{1}University of Kansus, United States; {2}University of Michigan, United States

(C2P-22-MTH-4): Acoustic Holograms for Homogeneous Hyperthermia Over Several Tumor Spheroids
Diana Andrés{1}, Ian Rivens{2}, Petros Mouratidis{2}, Noé Jiménez{3}, Francisco Camarena{3}, Gail Ter Haar{2}
{1}Consejo Superior de Investigaciones Científicas (CSIC), Spain; {2}Institute for Cancer Research (ICR), United Kingdom; {3}Universitat Politècnica de València, Spain

(C2P-22-MTH-5): MR-Guided Rodent Histotripsy System
Ryan Hubbard, Jonathan Sukovich, David Choi, Tejaswi Worlikar, Timothy Hall, Zhen Xu
University of Michigan, United States

(C2P-22-MTH-6): Nine-French dual-Mode Catheter for Interstitial ultrasound-Guided Directional HIFU Thermal ablations: Experimental Validation
Thomas Biscaldi{2}, Romain L'Huillier{1}, Laurent Milot{1}, W. Apoutou N'Djin{2}
{1}Department of radiology, Hospices civils de Lyon, Lyon, France; {2}Labtau, INSERM, Centre Léon Bérard, Université lyon 1, Univ Lyon, France

(C2P-22-MTH-7): Assessing hemoglobin-Bound Oxygen Scavenging with Varying Perfluorocarbon Droplet Composition and Concentration
Kateryna Stone{2}, Nour Al Rifai{2}, Demetria Fischesser{1}, Rachel Benton{2}, Kevin Haworth{2}
{1}Procter and Gamble, United States; {2}University of Cincinnati, United States

C2P-22-MTH-8): Assessment of Focused-Ultrasound Drug Delivery Efficacy in Brain Tumors with Liquid Biopsy
Victor Menezes, Hohyun Lee, Yutong Guo, Naima Djeddar, Anton Bryksin, Costas Arvanitis
Georgia Institute of Technology, United States

C2P-23: MTN-P: Image Guidance
Chair(s): Francois Yu (University of Montreal)

(C2P-23-MTN-1): Acoustic Reflector-Integrated Encapsulation for Needle-Aligned Ultrasound-Guided PCNL Access
Abhinav Palisetti, Alexander King, Cabot Priestner, Haohao Yi, Yichuan Tang, Ryo Murakami, Haichong Zhang
Worcester Polytechnic Institute, United States

(C2P-23-MTN-2): High-Intensity Focused Ultrasound Ablation Monitoring Using Ultrafast Doppler imaging: a Preliminary Study
Shaoyuan Yan, Yapeng Fu, Kailiang Xu
fudan university, China

(C2P-23-MTN-3): Real-Time Thermal Strain Imaging for Guidance and Monitoring of HIFU Treatment on an ultrasound-Guided Focused Ultrasound (USgFUS) Therapy System
Juvenal Ormachea, Peter Kaczkowski
Verasonics Inc., United States

(C2P-23-MTN-4): Monitoring Ablation Volume of catheter-Based Ultrasound Thermal Therapy Using 3D Imaging of Changes in Ultrasound Backscatter energy: a Feasibility Study
Youjia Sun{3}, Chengzhi Yang{3}, Pengfei Xu{3}, Diya Wang{3}, Yi Feng{3}, Everette C Burdette{1}, Chris J Diederich{2}
{1}Acoustic Medsystems Inc., United States; {2}University of California San Francisco, United States; {3}Xi'an JiaoTong University, China

(C2P-23-MTN-5): Low Intensity Pulsed Ultrasound Accelerates Glucose Uptake in Skeletal Muscle
Zhanke Ma{2}, Liang Tang{2}, Lijun Sun{2}, Xiushan Fan{2}, Chenghui Wang{3}, Jianzhong Guo{3}, Dean Ta{1}
{1}Department of Electronic Engineering, Fudan University, China; {2}Institute of Sports Biology, Shaanxi Normal University, China; {3}Shaanxi Key Laboratory of Ultrasonics, Shaanxi Normal University, China

(C2P-23-MTN-6): Estimation the Focus Location of Ultrasound Field Based on the Phase Information of high-Er Harmonics
Jiahao Yang, Shibo Nie, Pan Li, Guanjun Yin, Jianzhong Guo
Shaanxi Normal University, China

(C2P-23-MTN-7): Active Needle Tracking with Wearable 2DOF Ultrasound Scanner for Lumbar Puncture Guidance
Baichuan Jiang{2}, Liam Wang{2}, Keshuai Xu{2}, Abhay Moghekar{1}, Peter Kazanzides{2}, Emad Boctor{2}
{1}Johns Hopkins Medical Institute, United States; {2}Johns Hopkins University, United States

C2P-24: MSR-P: Super-Resolution Imaging Methods and Applications
Chair(s): Ge Zhang (ESPCI)

(C2P-24-MSR-1): Comparison of super-Resolution Ultrasound Imaging Methods Using Erythrocytes Versus microbubbles
Mostafa Amin Naji{2}, Iman Taghavi{2}, Mikkel Schou{1}, Borislav Gueorguiev Tomov{2}, Stinne Byrholdt Søgaard{3}, Nathalie Sarup Pandu{3}, Carsten Gundlach{2}, Hans Martin Kjer{2}, Anders Bjorholm Dahl{2}, Charlotte Mehlin Sørensen{3}, Jørgen Arendt Jense
{1}BK Medical, Denmark; {2}Technical University of Denmark, Denmark; {3}University of Copenhagen, Denmark

(C2P-24-MSR-2): Use of Erythrocytes As Targets for Murine Cerebral Microvasculature Super-Resolution Ultrasound Imaging
Cheng-Wei Li, Hsin Huang, De-Quan Chen, Chih-Chung Huang
National Cheng Kung University, Taiwan

(C2P-24-MSR-4): Super-Resolution Ultrasound Imaging for Analysis of Microbubbles Cluster Trapped by Acoustic Vortex Tweezers
Chung-Han Huang, Wei-Chen Lo, Chih-Kuang Yeh
National Tsing Hua University, Taiwan

(C2P-24-MSR-5): SRUS Imaging in Vivo with Phase Change Droplets and Variable Pressure Plane Waves
Laura Taylor, Kai Riemer, Matthieu Toulemonde, Jipeng Yan, Qingyuan Tan, Meng-Xing Tang
Imperial College London, United Kingdom

(C2P-24-MSR-6): Robust Response Biomarkers from Super-Resolution Ultrasound
Megan Morris{1}, Emily Durie{2}, Matthieu Toulemonde{1}, Victoria Sinnett{3}, Justine Hughes{3}, Lone Gothard{2}, Matthew Blackledge{2}, Navita Somaiah{2}, Meng-Xing Tang{1}
{1}Imperial College London, United Kingdom; {2}The Institute of Cancer Research, United Kingdom; {3}The Royal Marsden NHS Foundation Trust, United Kingdom

(C2P-24-MSR-7): SUPER-Resolution Ultrasound Imaging of Tumor ANGIOGENSIS and Selective Elimination by a Vascular Disrupting Agent
Dominique James, Brian Trinh, Vy Hoang, Katherine Brown, Kenneth Hoyt
University of Texas at Dallas, United States

(C2P-24-MSR-8): Micro-Vasculature Phantom for Ultrasound Super-Resolution Imaging
Jaime Parra-Raad, Yi-Yi Liu, Daniel Lock, Laura Peralta Pereira, Kirsten Christensen-Jeffries
King's College London, United Kingdom

(C2P-24-MSR-9): Quantification of Spinal Cord Microvascular Perfusion Utilizing Ultrasound
Kelley Kempski-Leadingham, Denis Routkevitch, Andrew Hersh, Max Kerensky, Haley Abramson, Carly Weber-Levine, Brendan Judy, Alexander Perdomo-Pantoja, Nicholas Theodore, Amir Manbachi
Johns Hopkins University, United States

C2P-25: MSR-P: Signal Processing for Super-Resolution Imaging
Chair(s): Sevan Harput (London South Bank University)

(C2P-25-MSR-1): Relaxing Super Localization Frame Rate Requirements Utilizing a Novel 2D Interpolation Technique
Giulia Tuccio, Sajjad Afrakhteh, Giovanni Iacca, Libertario Demi
University of Trento, Italy

(C2P-25-MSR-2): Improved Ultrasound Localization Microscopy Using a United Spatial and Angular Adaptive Scaling Wiener Postfilter Based Beamformer
Lijie Huang{2}, Yadan Wang{1}, Rui Wang{2}, Xingyue Wei{2}, Chichao Zheng{1}, Hu Peng{1}, Jianwen Luo{2}
{1}Hefei University of Technology, China; {2}Tsinghua University, China

(C2P-25-MSR-3): An Adaptive Singular Value Decomposition Filter for Ultrasound Localization Microscopy Based on Feature Clustering
Yu Qiang, Xuan Han, Ningyuan Wang, Zhiqiang Zhang, Hairong Zheng, Weibao Qiu
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

(C2P-25-MSR-4): Precise 3D Tissue Motion Estimation Using a row-Column Array
Iman Taghavi{2}, Nathalie Sarup Panduro{1}, Amy Theresa McDermott{3}, Borislav Tomov{2}, Charlotte Mehlin Sørensen{3}, Jørgen Arendt Jensen{2}
{1}Rigshospitalet, Denmark; {2}Technical University of Denmark (DTU), Denmark; {3}University of Copenhagen, Denmark

(C2P-25-MSR-5): Ultrasound Microbubbles Localization Using Object Detection Model
Xilun Liu, Mohamed Almekkawy
The Pennsylvania State University, United States

(C2P-25-MSR-6): High-Concentration Microvascular Super-Resolution Imaging by Statistical Feature Localization and Dynamic Constraint Labeled Multi-Bernoulli Tracking
Jiacheng Liu, Chao Guo, Meiling Liang, Hanbing Chu, Jinxuan Ma, Yujin Zong, Mingxi Wan
Xi'an jiaotong university, China

(C2P-25-MSR-7): Acceleration-Based Kalman Tracking for Super-Resolution Ultrasound Imaging in Vivo
Biao Huang{1}, Jipeng Yan{1}, Megan Morris{1}, Victoria Sinnett{2}, Navita Somaiah{3}, Meng-Xing Tang{1}
{1}Imperial College London, United Kingdom; {2}Royal Marsden NHS Foundation Trust, United Kingdom; {3}The Institute of Cancer Research, United Kingdom

(C2P-25-MSR-8): Microbubble Mapping via Spatiotemporal Focused Reflection Matrix
Stephen Lee{2}, Jonathan Poree{2}, Gerardo Ramos-Palacios{1}, Abbas Sadikot{1}, Jean Provost{2}
{1}McGill University, Canada; {2}Polytechnique Montreal, Canada

C2P-26: NDE-P: Acoustic Imaging and Microscopy; General NDE Methods; Underwater Acoustics
Chair(s): Roman Gr. Maev (The Institute for Diagnostic Imaging Research, University of Windsor, Canada), Amir Manbachi (Johns Hopkins University)

(C2P-26-NDE-1): Development of a Broadband Cymbal Vector Hydrophone
Donghyun Kim, Yongrae Roh
Kyungpook National University, Korea

(C2P-26-NDE-2): Deep learning-Based Image Translation for high-Quality and Fast Phased Array Ultrasonic Imaging
Keonhyeok Park{2}, Soo Young Lee{2}, Iljoo Jeong{2}, Jun Hyeong Park{1}, Hyung Jin Lee{1}, Seungchul Lee{2}, Choon-Su Park{1}
{1}Korea Research Institute of Standards and Science, Korea; {2}Pohang University of Science and Technology, Korea

(C2P-26-NDE-3): Biomechanical Properties Estimation of Salmon Fish Scales Using Acoustic Microscope
Komal Agarwal, Anowarul Habib, Roy Ambli Dalmo, Tuza Adeyemi Olukan, Frank Melandsø
UiT The Arctic University of Norway, Tromsø, Norway

(C2P-26-NDE-4): Estimating Person Location in Bathroom with Spatial Ultrasound and Variational autoencoder
Shun Sato, Yuto Yasuda, Ryotaro Ohara, Riku Hamabe, Takayuki Genda, Shoya Imanaka, Shintaro Izumi, Hiroshi Kawaguchi
Kobe University, Japan

(C2P-26-NDE-5): Deep Learning Based Ultrasound Computed Tomography for Real-Time Construction
Qinhan Gao, Mohamed Almekkawy
PSU, United States

(C2P-26-NDE-6): An Ultrasonic raytracing Simulation Method for Bathroom Surveillance
M. Shahrul Amir Kamarulzaman, Riku Hamabe, Yuto Yasuda, Ryotaro Ohara, Shun Sato, Shintaro Izumi, Hiroshi Kawaguchi
Kobe University, Japan

(C2P-26-NDE-7): A Study on Relationship Between Micromorphology and Twinkling Signs in Breast microcalcification Using a Scanning Acoustic Microscopy
Minji Kim, Jihun Jang, Ilseob Song, Yangmo Yoo
sogang university, Korea

(C2P-26-NDE-8): Digital Refocusing in Acoustic Microscopy Images Using Adversarial autoencoders
Himanshu Singh{1}, Azeem Ahmad{3}, Komal Agarwal{3}, Kaushik Shukla{2}, Sanat Wagle{4}, Frank Melandsø{3}, Anowarul Habib{3}
{1}Indian Institute of Technology, Guwahati, India; {2}ISM Indian Institute of Technology, India; {3}UiT The Arctic Univ. of Norway, Norway, Norway; {4}UiT The Arctic University of Norway, Norway

(C2P-26-NDE-9): Grating-Lobe Suppression Through Angular Weighting for Laser Induced Phased Arrays
Peter Lukacs{2}, Don Pieris{2}, Geo Davis{2}, Paul Wilcox{1}, Theodosia Stratoudaki{2}
{1}University of Bristol, United Kingdom; {2}University of Strathclyde, United Kingdom

(C2P-26-NDE-10): Compact GHz Ultrasonic Micro-Imager for Cells and Tissues
Anuj Baskota, Justin Kuo, Serhan Ardanuc, Amit Lal
Geegah Inc, United States

(C2P-26-NDE-11): Photoacoustic Microscopy of Sandstone Reservoir Rocks
João Henrique Uliana{2}, Everton Lucas Oliveira{2}, Arthur de Araujo Ferreira{2}, Willian Andrighetto Trevizan{1}, Theo Zeferino Pavan{2}, Tito José Bonagamba{2}, Antonio Adilton Carneiro{2}
{1}Cenpes - Petrobras Research Center, Brazil; {2}University of São Paulo, Brazil

(C2P-26-NDE-12): Estimation of Effective Diameter on Classical Vibration Theory Model in a non-contact, non-Destructive Internal Defect Detection
Kazuko Sugimoto, Tsuneyoshi Sugimoto
Toin University of Yokohama, Japan

(C2P-26-NDE-13): Numerical Investigation of Unidirectional Generation and Reception of Circumferential Shear Horizontal Guided Waves for Defect Detection in Pipe
Alan Kubrusly{1}, Lei Kang{2}, Steve Dixon{3}
{1}Pontifical Catholic University of Rio de Janeiro, Brazil; {2}University of Portsmouth, United Kingdom; {3}University of Warwick, United Kingdom

(C2P-26-NDE-14): Torsional Wave Therapy for the Treatment of Melanoma Stem CELLS: Design and Evaluation of an Experimental Bioreactor
Manuel Hurtado{2}, Carmen Griñán-Lisón{2}, Gema Jiménez{2}, Daniel Martínez-Moreno{2}, Antonio Callejas{1}, Juan Manuel Melchor{2}, Juan Antonio Marchal{2}, Guillermo Carlborg{1}
{1}Universidad de Granada, Spain; {2}University of Granada, Spain

(C2P-26-NDE-15): Experimental Study of Ultrasonic Guided Waves in a Bipolar Plate of a Fuel Cell
Jakob Sablowski{2}, Yevgeniya Lugovtsova{1}, Jannis Bulling{1}, Christian Kupsch{2}
{1}Bundesanstalt für Materialforschung und -prüfung, Germany; {2}TU Bergakademie Freiberg, Germany

(C2P-26-NDE-16): State of Charge-Dependent Changes in Spectral Composition of Guided Lamb Waves in Lithium-Ion Batteries
Patrick Swaschnig{2}, Johannes Kofler{1}, Reinhard Klambauer{2}, Alexander Bergmann{2}
{1}TDK, Austria; {2}TU Graz, Austria

(C2P-26-NDE-17): Development of Efficient Laser Ultrasound Measurement Strategies for Industrial Applications to Detect Defects in Samples with Curved Surfaces
Markus Saurer, Guenther Paltauf, Robert Nuster
University of Graz, Austria

(C2P-26-NDE-18): Automated System for Simultaneous Characterization of Acoustic and Photoacoustic Thermal Properties of Materials
Ricardo Bordonal, Joao Uliana, Ernesto Mazon, Lara Pires, Antonio Carneiro, Theo Pavan
University of Sao Paulo, Brazil

(C2P-26-NDE-19): Shear Horizontal Guided Wave Electromagnetic Acoustic Transducer for Inspection of Laminated Composite Plate Using Conductive Patch
Ambuj K Gautam{2}, Ambuj K Gautam{1}, Ching-Chung Yin{2}, Bishakh Bhattacharya{1}
{1}Indian Institute of Technology Kanpur, India; {2}National Yang Ming Chiao Tung University Taiwan, Taiwan

(C2P-26-NDE-20): End-Face Position Measurement of Work Piece During Press Work Using Surface Wave Reflection
Hu Wenke, Eiko Nakazawa, Norio Tagawa, Ming Yang
Tokyo Metropolitan University, Japan

C2P-27: PGP-P: General Physical Acoustics III
Chair(s): Mihir Patel (MACOM)

(C2P-27-PGP-1): Transcranial Acoustic Hologram Design with Machine Learning: a Universal Solution for All Skulls
Moon Hwan Lee{1}, Young-Seung Yoo{2}, Hyungjoon Cho{3}, Euiheon Chung{2}, Jae Youn Hwang{1}
{1}DGIST, Korea; {2}GIST, Korea; {3}UNIST, Korea

(C2P-27-PGP-2): High Drive Voltage Studies on Lithium Niobate Length Extensional Resonators and Their Generated Quasi-Static Electric Fields
Tristan Wilson, Stewart Sherrit, Srinivas Prasad Mysore Nagaraja, Brook Feyissa, Devin Willey, Darmindra Arumugam

Jet Propulsion Laboratory, California Institute of Technology, United States

(C2P-27-PGP-4): High-Efficiency Underwater Acoustic metagrating Based on fluid-Structure Interaction
Junmei Cao, Hongyu Ma, Shuhuan Xie, Jiayan Li, Yong Li, Qian Cheng
Tongji university, China

(C2P-27-PGP-5): Accelerated Solution Mixing in Acoustically Levitated Droplets via Droplet Coalescence for time-Resolved Protein Crystallography Experiments
Soichiro Tsujino, Takashi Tomizaki
Paul Scherrer Institut, Switzerland

(C2P-27-PGP-6): Measuring the Transmit Transfer Function of Ultrasound Transducers Using Acoustic Streaming
Djalma Simões Dos Santos, Leonardo Baldini, Hendrik J. Vos, Martin D. Verweij, Nico de Jong, Paul L.M.J. van Neer
Delft University of Technology, Netherlands

(C2P-27-PGP-7): Designing Acoustic Holograms with Differentiable Acoustic Simulation
Michael Brown, Ben Cox, Bradley Treeby, Antonio Stanziola
University College London, United Kingdom

(C2P-27-PGP-8): Ultrasonic Investigation of Aragonite Elastic constants: Natural Mineral Versus Mollusk Shell biomineral
Andrei Sotnikov{1}, Richard Best{2}, Igor Zlotnikov{2}, Hagen Schmidt{1}
{1}Leibniz IFW Dresden, Germany; {2}Technische Universität Dresden, Germany

(C2P-27-PGP-9): Scaling of Air-Coupled Metagratings for Beam Steering
Sören Köble{1}, Jan Helge Dörsam{2}, Alexander Anton Altmann{2}, Christoph Haugwitz{2}, Gianni Allevato{2}, Anton Melnikov{1}, Sandro Koch{1}, Mario Kupnik{2}
{1}Fraunhofer Institute for Photonic Microsystems IPMS, Germany; {2}Technische Universitat Darmstadt, Darmstadt, Germany, Germany

(C2P-27-PGP-10): The Monopole Approximation of Acoustic Waves in Proton Therapy
Xiufeng Li{1}, Paul L.M.J. van Neer{2}, Sabiju Valiya Valappil{1}, Maurits S. van der Heiden{2}, Nicolaas de Jong{1}, Martin D. Verweij{1}
{1}Delft University of Technology, Netherlands; {2}Netherlands Organisation for Applied Scientific Research, Netherlands

(C2P-27-PGP-11): Experimental and Theoretical Assessment of Ultrasound Pressure Transmission Through the Murine Skull
Hanjoo Lee, Phil Durham, Rebecca Jones, Mark Ross, Gianmarco Pinton, Paul Dayton
University of North Carolina at Chapel Hill, United States

(C2P-27-PGP-12): New Ultrasonic Torsional Waves for Sensing Applications
Piotr Kielczynski
Institute of Fundamental Technological Research, Poland

(C2P-27-PGP-13): Noninvasive Acoustic Resonance Spectroscopy to Measure Pressure in Sealed System Using Convolutional Neural Network
Daniel Pereira, John Greenhall, Abhishek Saini, Pavel Vakhlamov, Eric Davis, Cristian Pantea
Los Alamos National Laboratory, United States

(C2P-27-PGP-14): Study on Leaky Surface Acoustic Wave Propagation in Layered Piezoelectric Semiconductor Structures
Jianke Du, Jialei He, Ji Wang
Ningbo University, China

C2P-28: PUM-P: Ultrasonic Motors & Actuators
Chair(s): Amit Lal (Cornell University)

(C2P-28-PUM-1): Active Modal Coupling of a Nitinol Langevin Transducer
Yuchen Liu, Mahshid Hafezi, Andrew Feeney
Centre for Medical and Industrial Ultrasonics, James Watt School of Engineering, United Kingdom

(C2P-28-PUM-2): Ultrasound Liquid Lens Using a Viscoelastic Gel Film and Acoustic Radiation Force
Haruto Miki, Yuki Harada, Kosuke Nakamura, Mami Matsukawa, Daisuke Koyama
Doshisha University, Japan

(C2P-28-PUM-3): Study on Preload Conditions of Cryogenic Piezoelectric Transducers Without Bolt-Clamping
Kazuki Kubo, Kairi Yagi, Takefumi Kanda, Daisuke Yamaguchi, Shuichi Wakimoto
Okayama Univercity, Japan

(C2P-28-PUM-4): Submerged Surface Acoustic Wave Propulsion System with SiO2/Al/Ln Structure
Deqing Kong{1}, Ryo Taminura{1}, Fang Wang{2}, Kailiang Zhang{2}, Minoru Kurosawa{3}, Manabu Aoyagi{1}
{1}Muroran Institute of Technology, Japan; {2}Tianjin University of Technology, China; {3}Tokyo Institute of Technology, Japan

(C2P-28-PUM-5): Reversal Phenomenon in Traveling Wave Ultrasonic Motors: Principles and Mitigation Strategies
Tatsuki Sasamura{2}, Norio Sashida{1}, Takeshi Morita{2}
{1}Shinsei Corporation, Japan; {2}The University of Tokyo, Japan

C2P-29: AMR-P: Microacoustic Resonators II
Chair(s): Jan Kuypers (MEMS2market)

(C2P-29-AMR-1): Use of Periodic Pillar Array As Acoustic Coupler for AlN-Based Longitudinally-Coupled Resonator Filters
Hua-Yong Luo, Ting Wu, Yi-Ming Liu, Jingfu Bao, Ken-Ya Hashimoto
University of Electronic Science and Technology of China, China

(C2P-29-AMR-2): Unfolding the Effects of Cobalt-60 Irradiation on contour-Mode Piezoelectric Resonators
David Lynes, Hengky Chandrahalim, James Bevins, James Petrosky
The US Air Force Institute of Technology, United States

(C2P-29-AMR-3): Acoustic Resonator with Excellent wide-Band Reflection Coefficient by LiNbO3 Bonded on Support Substrate Structure
Rei Goto, Yuya Hiramatsu
Skyworks solutions, inc., Japan

(C2P-29-AMR-4): AI-Assisted Material Property Extraction for Piezoelectric Resonators
Xing Haw Marvin Tan{1}, Zaifeng Yang{1}, Zibo Juan{2}, Viet Phuong Bui{1}, Ching Eng Png{1}
{1}Institute of High Performance Computing (IHPC), Agency for Science, Technology & Research (ASTAR), Singapore; {2}National Junior College, Singapore

(C2P-29-AMR-5): A High-Quality-Factor Aluminum Nitride Resonator with Silicon Dioxide Composite Structure
Chen Ma{2}, Jiewei Jiang{2}, Jianlin Chen{2}, Qinghua Ren{2}, Qiaozhen Zhang{1}, Nan Wang{2}
{1}College of Information, Mechanical and Electrical Engineering, Shanghai Normal University, China; {2}School of Microelectronics, Shanghai University, China

(C2P-29-AMR-6): Analytical Modeling of Laterally Excited Acoustic Plate Resonators
Vegard Tollefsen, Hamed Salmani, Agne Johannessen, Ulrik Hanke
University of South-Eastern Norway, Norway

(C2P-29-AMR-7): 3.75 GHz AlN Lamb Wave Resonator with hole-Like Acoustic Reflection Structure
Xiang Chen, Tiancheng Luo, Yuanhang Qu, Zhiwei Wen, Jiaqi Ding, Yan Liu, Chengliang Sun
the Institute of Technological Science, China

(C2P-29-AMR-8): Suppression of Transverse Spurious Modes on 30ºYX-Cut Lithium Niobate-On-Insulator SH0 Resonators Through Electrode Rhomboidal Apodization
Lluis Acosta{3}, Eloi Guerrero{3}, Carlos Caballero{3}, Jordi Verdú{3}, Albert Guerrero{2}, Xavier Borrisé{1}, Jaume Esteve{2}, Pedro de Paco{3}
{1}Catalan Institute of Nanoscience and Nanotechnology, Spain; {2}Institut de Microelectrònica de Barcelona, Spain; {3}Universitat Autònoma de Barcelona, Spain

(C2P-29-AMR-9): Spurious Mode Suppression with Excited Ring in Lithium Niobate Bulk Acoustic Resonators for Piezoelectric Power Conversion
Vakhtang Chulukhadze{3}, Eric Stolt{2}, Kristi Nguyen{3}, Weston Braun{2}, Jeronimo Segovia-Fernandez{1}, Sombuddha Chakraborty{1}, Juan Rivas-Davila{2}, Ruochen Lu{3}
{1}Kilby Labs,Texas Instruments, United States; {2}Stanford, United States; {3}University of Texas at Austin, United States

(C2P-29-AMR-10): A One-Port Thermal-conductivity-Compensated A0 Mode Al0.8Sc0.2N Lamb Wave Resonator Based on SOI Substrate
Xianzheng Lu{1}, Liang Lou{2}, Hao Ren{1}
{1}School of Information Science and Technology, ShanghaiTech University, China; {2}Shanghai Industrial μTechnology Research Institute, China

(C2P-29-AMR-11): De-Embedding of Contact Pads Parasitics in RFMEMS Resonators for 5G Applications
Wenjia Yang, Chen Liu, Ying Zhang, Bhattacharya Shashwat, Xinghua Wang, Eugene Yi Zhun Woo, Yao Zhu
Institute of Microelectronics, ASTAR, Singapore

(C2P-29-AMR-12): Low Loss phononic Integrated Circuits in GaN for Future RF front-Ends
Mahmut Bicer, Krishna Coimbatore Balram
university of Bristol, United Kingdom

(C2P-29-AMR-13): Low Propagation Loss X-Band Impedance Matched Lamb Mode Delay Lines in 30% Scandium Aluminum Nitride
Gabriel Giribaldi, Jack Guida, Siddhartha Ghosh, Matteo Rinaldi
Northeastern University, United States

C2P-30: AMA-P: Materials for Acoustic Wave Devices II
Chair(s): Ausrine Bartasyte (University of Franche-Comté)

(C2P-30-AMA-1): Optimizing High Concentration Scandium Aluminum Nitride Films
Sergey Mishin, Yury Oshmyansky
Ams, Inc., United States

(C2P-30-AMA-2): Elastic Properties of Aluminum Scandium Nitride Films Determined by Laser Ultrasound
Elena Mayer{3}, Pavel Pupyrev{3}, Olga Rogall{3}, Anli Ding{2}, Akash Nair{2}, Agnė Žukauskaitė{1}, Andreas Mayer{3}
{1}Fraunhofer Institute FEP, Dresden, and TU Dresden, Germany; {2}Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg, Germany; {3}Offenburg University of Applied Sciences, Germany

(C2P-30-AMA-3): Material Parameter Extraction for Al0.7Sc0.3N Thin Films Prepared by Magnetron Sputter Epitaxy Using High Overtone Bulk Acoustic Wave Resonators

Balasubramanian Sundarapandian{1}, Niclas Feil{2}, Stephan Ockenfuß{1}, Lutz Kirste{1}, Mario Prescher{1}, Akash Nair{1}, Tim Stadelmann{1}, Mohit Raghwanshi{1}, Oliver Ambacher{2}
{1}Fraunhofer Institute for Applied Solid State Physics, Germany; {2}Institute for Sustainable Systems Engineering (INATECH), Albert-Ludwigs-University, Germany

(C2P-30-AMA-4): Quasi-Shear Mode Excitation of c-Axis Tilted ScAlN and MgZnO Epitaxial Thin Films on off-Angle Sapphire Single Crystal Substrates
Sota Kuninobu, Shiori Kobayashi, Hiroki Kishi, Takahiko Yanagitani
Waseda University, Japan

C2P-31: ASS-P: Sensor Devices
Chair(s): Omar Elmazria (Université de Lorraine)

(C2P-31-ASS-1): Acoustoelectric Voltage Sensor Based on S0 Mode Lamb Wave Resonator with Millivolt Resolution
Wenxuan Li, Peng Qin, Tao Han
Shanghai Jiao Tong University, China

(C2P-31-ASS-2): High Q 2.45 GHz Wireless AlN/Sapphire SAW Sensor for High Temperature Applications
Ulrich Youbi, Sami Hage-Ali, Hamid Mjahed, Demba Ba, Thierry Aubert, Omar Elmazria
Université de Lorraine, CNRS, France

(C2P-31-ASS-3): LiNbO3/SiO2/Si Poi Heterostructure Surface Acoustic Wave Sensor for Intermediate High Temperatures
Baptiste Paulmier, Sami Hage Ali, Jordan Maufay, Demba Ba, Hamid Mjahed, Thierry Aubert, Omar Elmazria
Université de Lorraine, CNRS, France

C2P-32: TMI-P: Biomedical Transducers
Chair(s): Yongrae Roh (Kyungpook National University)

(C2P-32-TMI-1): Compound Angles Phased Array Imaging Method Based on Intracardiac Echocardiography Probe
Yiheng Li{2}, Yang Jiao{1}, Zhile Han{1}, Yujia Tang{1}, Yaoyao Cui{1}
{1}Chinese Academy of Science, Suzhou Institute of Biomedical Engineering and Technology (SIBET), China; {2}University of Science and Technology of China, China

(C2P-32-TMI-2): Rapid Manufacturing of fully-printed, miniaturised, kerfless Arrays for High Resolution Ultrasound Imaging
Blair Rocks{1}, Alexandru Moldovan{1}, Claire Thring{1}, Jessie Gifford{2}, David Hughes{1}
{1}Novosound, United Kingdom; {2}PAVmed, United States

(C2P-32-TMI-3): Transcranial Focused Ultrasound Stimulation of Periaqueductal Gray for Analgesia
Tao Zhang, Benpeng Zhu
Huazhong University of Science and Technology, China

(C2P-32-TMI-4): Lens-Shared Dual Frequency Linear Array for Intracranial Pressure Estimation
Min Su{2}, Fei Li{1}, Zhiqiang Zhang{1}, Hairong Zheng{1}, Weibao Qiu{1}, Lei Sun{2}
{1}Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China; {2}The Hong Kong Polytechnic University, China; {2}The Hong Kong Polytechnic University, Hong Kong

(C2P-32-TMI-5): Broadband Transparent Ultrasonic Transducer with Polymethyl Methacrylate As Matching Layer
Jiaming Zhang{2}, Xing Long{1}, Zhongtian Ma{1}, Wenzhao Li{1}, Yibing Wang{1}, Fan Yang{2}, Riqiang Lin{2}, Changhui Li{1}, Kwok-Ho Lam{2}
{1}Peking University, China; {2}the Hong Kong Polytechnic University, Hong Kong

(C2P-32-TMI-6): High-Frequency 2D Ultrasound Array Fabrication with 2-Parts 3D Printed Interposer
Yizhe Sun, Robert Wodnicki, Qifa Zhou
University of southern california, United States

(C2P-32-TMI-7): A Miniature Forward-Looking Coherent Multi-Phased-Array Transducer for Interventional Guidance
Jiabing Lv, Ninghao Wang, Yiheng Li, Xiaohua Jian, Yaoyao Cui
University of Science and Technology of China, China

(C2P-32-TMI-8): A Focused High Sensitivity Transducer for Intravascular Ultrasound Application
Min Su{2}, Chaorui Qiu{3}, Baoqiang Liu{1}, Fei Li{3}, Hairong Zheng{1}, Weibao Qiu{1}, Lei Sun{2}
{1}Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China; {2}The Hong Kong Polytechnic University, China; {2}The Hong Kong Polytechnic University, Hong Kong; {3}Xi'an Jiaotong University, China

(C2P-32-TMI-9): Fabrication of PZN-PT Single Crystal Based Phased Array Transducers
Xiao Liu, Hu Tang, Jiwei Zhao, Junjian Li, Jue Peng
ShenZhen University, China

(C2P-32-TMI-10): A Prototype Matrix Transducer for High Frame Rate 3D Intracardiac Echography
Djalma Simões Dos Santos{1}, Yannick Hopf{1}, Boudewine Ossenkoppele{1}, Emile Noothout{1}, Hendrik J. Vos{1}, Johan G. Bosch{2}, Michiel A. P. Pertijs{1}, Martin D. Verweij{1}, Nico de Jong{1}
{1}Delft University of Technology, Netherlands; {2}Erasmus Medical Center, Netherlands

(C2P-32-TMI-11): Miniature intracorporeal Ultrasound Transducers As a Payload for Soft Tentacle Robotics
Yifei Wang{1}, Michele Di Lecce{2}, James H. Chandler{2}, Pietro Valdastri{2}, Sandy Cochran{1}, Kwokho Lam{1}

{1}University of Glasgow, United Kingdom; {2}University of Leeds, United Kingdom

(C2P-32-TMI-12): High Performance 60 MHz PMN-PT Based 1-3 Composite for Medical Ultrasound Application
Wei-Yi Chang, Patrick McGowan, Tian Jian
CTS Advanced Materials, United States

(C2P-32-TMI-13): Electrical Impedance of an Ultrasonic Needle Device As an Indicator of Interstitial Needle Tip Position
Youheng Zeng, Ashraf Agweder, Graeme McLeod, Zhihong Huang
University of Dundee, United Kingdom

(C2P-32-TMI-14): Evaluation of a Body-Conforming Electrode for Functional Ultrasound Compatible Electrical Stimulation
Sunho Moon, Xiangming Xue, Vidisha Ganesh, Darpan Shukla, Yong Zhu, Nitin Sharma, Xiaoning Jiang
North Carolina State University, United States

C2P-32-TMI-15): Performance of sonomyography for Upper Limb Prosthetic Control Can Be Improved by Optimizing Placement of Ultrasound Transducers
Abhishek Aher, Laura Marzi, Ahmed Bashatha, Siddhartha Sikdar
George Mason University, United States

(C2P-32-TMI-16): Development of Flexible Transducers for Ultrasonic Plane Wave Imaging
Cheng Bian, He Sun, Linfeng Wang, Chang Liu, Yang Liu
State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, China

C2P-33: TMU-P: Airborne Ultrasound Transducers
Chair(s): Enrico Boni (University of Florence)

(C2P-33-TMU-1): Sensitivity Analysis of Novel PolyMUMPs-Based Ultrasonic MEMS Microphones
Ilgar Jafarsadeghi Pournaki{1}, Navid Heidari{1}, Mathieu Gratuze{1}, Mohannad Y. Elsayed{2}, Hani H. Tawfik{2}, Fredric Nabki{1}
{1}École de technologie supérieure (ÉTS), Canada; {2}MEMS-Vision, Canada

(C2P-33-TMU-3): Near-Field Diffraction and Reception Effects in Finite Element Modeling of Ultrasound Measurement Systems for gas. Comparison to Measurements in Air
Eivind Nag Mosland{2}, Jan Kocbach{1}, Per Lunde{2}
{1}NORCE Norwegian Research Centre AS, Norway; {2}University of Bergen, Norway

(C2P-33-TMU-4): A Novel Type of MEMS Transducer for Airborne Ultrasound Applications
Fabian Stoppel, Lenny Castellanos, Johannes Fankhänel, Thorsten Giese, Fabian Lofink
Fraunhofer ISIT, Germany

Thursday, September 7: Lectures

	Room 1 (Yellowknife) **D1L-01: MIM: Novel Imaging Techinques I** **Chair(s):** Magnus Cinthio (Lund University)	Room 2 (Vancouver) **D1L-02: MIS: Microvascular and Flow Imaging** **Chair(s):** Jean Provost (Polytechnique Montreal)	Room 3 (Calgary) **D1L-03: MSD: Systems for Imaging and Therapy Delivery** **Chair(s):** Ralf Seip (SonaCare Medical, LLC)	Room 4 (Winnipeg) **D1L-04: NMC: Material & Defect Characterization** **Chair(s):** Quang Tran (Michigan Technology University), Bernhard Tittmann (Pennsylvania State University)
8:00 AM	**Speed-of-Sound Reconstruction with Deep Neural Networks in Pulse-Echo Mode: Coherency- Vs RF-Data-Based Approach** Marvin Heller, Georg Schmitz *Ruhr University Bochum, Germany*	**A Clutter Filtering Method of Ultrasound Microvascular Imaging Based on 3D Total Variation Based RPCA** Xiao Su, Yueyuan Wang, Hanbin Chu, Liyuan Jiang, Yujin Zong, Mingxi Wan *Xi'an Jiaotong University, China*	**Transesophageal Ultrasound Prototype Development for the Treatment of Pancreatic Cancer** Andrew Drainville{4}, Adrien Rohfritsch{4}, Frederic Prat{3}, Mathieu Pioche{2}, Jeff Leadbetter{1}, Carmen McKnight{1}, Julian Zou{1}, Jeff Woodacre{1}, Katherine Latham{1}, Maxime Lafond{4}, Cyril Lafon{4} *{1}Daxsonics Ultrasound Inc, Canada; {2}Hospices Civils de Lyon, Edouard Herriot Hospital, France; {3}Institut Cochin, France; {4}LabTAU INSERM U1032, France*	**Impacts of Heavy Particle Irradiation on Very High Frequency Microelectromechanical Resonators** David Lynes{3}, Joshua Young{1}, Eric Lang{2}, Hengky Chandrahalim{3} *{1}Sandia National Laboratories, United States; {2}The University of New Mexico, United States; {3}The US Air Force Institute of Technology, United States*
8:15 AM	**Flexible Array Shape Estimation Using Differentiable Beamforming** Dongwoon Hyun, Shreya Narayan, Walter Simson, Louise Zhuang, Jeremy Dahl *Stanford University, United States*	**Adaptive Higher-Order Singular Value Decomposition Clutter Filter for Measuring Coronary Flow Under Non-Negligible Tissue Motion – Phantom Experiment** Yizhou Huang{1}, Maarten Kuenen{2}, Emilia Badescu{3}, Massimo Mischi{1} *{1}Eindhoven University of Technology, Netherlands; {2}Philips Research Eindhoven, Netherlands; {3}Philips Research Paris, France*	**Development of an Automated theranostic Platform for real-Time Synchronization of Magnetomotive Ultrasound and Magnetic Hyperthermia** Ernesto Edgar Mazon Valadez, João Henrique Uliana, Thiago Tibúrcio Vicente, Antonio Adilton Oliveira Carneiro, Theo Zeferino Pavan *Universidade de São Paulo, Brazil*	**Automatic improved-Resolution Imaging of Composite Adhesive Joints Using time-frequency-Wavenumber Filtering Applied to Ultrasonic Guided wavefields** Mohsen Barzegar{2}, Yevgeniya Lugovtsova{1}, Jannis Bulling{1}, Tatiana Mishurova{1}, Dario Pasadas{2}, Helena Ramos{2}, Artur Ribeiro{2} *{1}Bundesanstalt für Materialforschung und -prüfung (BAM), Germany; {2}Instituto de Telecomunicações, Portugal*
8:30 AM	**Dual Channel Ultrasound Imaging Using a Time Reversal Virtual Array and an External Angle-Dependent Resonator – Ear** David Weik, Zehua Dou, Hannes Emmerich, Jürgen Czarske	**High-frame-Rate Contrast Imaging with higher-Order Singular Value Decomposition Can Resolve Porcine Coronary Fast and Slow Flow** Geraldi Wahyulaksana, Luxi Wei, Maaike Te Lintel Hekkert, Daniel	**A Dual-Mode Magnetic Intravascular Ultrasound Robot for Tortuous Blood Vessels** Zhengxin Yang{1}, Yang Jiao{1}, Lihao Liu{2}, Yujia Tang{1}, Xinze Li{1}, Jiaqi Li{1}, Ninghao Wang{2}, Yaoyao Cui{1}	**Tracking State of Health in lithium-Ion Batteries During Accelerated Degradation Using Quantitative Ultrasound Spectroscopy** Simon Montoya-Bedoya{2}, Esteban Garcia-Tamayo{1}, Daniel

	TU Dresden, Germany	Bowen, Bernardo Raposo Loff Barreto, Antonius van der Steen *Erasmus MC, Netherlands*	*{1}Suzhou Institute of Biomedical Engineering and Technology (SIBET), Chinese Academy of Sciences (CAS), China; {2}University of Science and Technology of China, China*	Rohrbach{4}, Hader V. Martinez-Tejada{2}, David Howey{3}, Miguel Bernal{4} *{1}BATx, Colombia; {2}Universidad Pontificia Bolivariana, Colombia; {3}University of Oxford, United Kingdom; {4}Verasonics Inc, United States*
8:45 AM	**Dynamic Divergence Imaging: New Ultrasound-Based Assessment with a Preliminary Application on Median Nerve Compression** Yuchen Tang, Wei-Ning Lee *The University of Hong Kong, China*	**Multidimensional Angular-Coherence Clutter Filtering for Improved Contrast-Free Microvasculature Imaging** Liyuan Jiang, Hanbing Chu, Xiao Su, Jianjun Yu, Yujin Zong, Mingxi Wan *Xi'an Jiaotong University, China*	**Pseudo-Noise code-Based Ultrasound Tracking of Breast Lesions Through neoadjuvant Chemotherapy** Jenna Cario, Michael Oelze *University of Illinois Urbana-Champaign, United States*	**Speed-of-Sound Estimation in Alloys by Exploiting the Echoes Backscattered by the Microstructure** Gatien Clement{2}, Alexandre Aubry{1}, Cecile Brutt{3}, Benoit Gerardin{3}, Claire Prada{1} *{1}ESPCI Paris, PSL University, CNRS, Institut Langevin, France; {2}ESPCI Paris, PSL University, CNRS, Institut Langevin/Safran Tech, Digital Science & Technologies Dpt, France; {3}Safran Tech, Digital Science & Technologies Department, France*
9:00 AM	**A Physics-Informed Neural Network Approach to the Pulse Wave Inverse Problem for Noninvasive Intravascular Pressure Estimate** Pengcheng Liang, Paul Kemper, Elisa Konofagou *Columbia University, United States*	**A Singular Value Decomposition Based Clustering Technique to Enhance Flow Visualization by Power Doppler** Yizhou Huang{1}, Emilia Badescu{3}, Maarten Kuenen{2}, Massimo Mischi{1} *{1}Eindhoven University of Technology, Netherlands; {2}Philips Research Eindhoven, Netherlands; {3}Philips Research Paris, France*	**Integration of Small Angle Approaches and Refraction Techniques in Capsule Ultrasound Devices for Drug Delivery System** Han-Hsuan Hsiao{1}, K. Kirk Shung{2}, Jian-Xing Wu{1} *{1}National Chin-Yi University of Technolog, Taiwan; {2}University of Southern California, United States*	**Detection of Defects in Foamed Steel Sheets Using Air-Coupled Lamb Waves** Christoph Haugwitz{2}, Thomas Hahn-Jose{1}, Gianni Allevato{2}, Jan Hinrichs{2}, Jan Helge Dörsam{2}, Annalena Kühn{2}, Jörg Lange{2}, Mario Kupnik{2} *{1}Inoson GmbH, Germany; {2}Technische Universität Darmstadt, Germany*
9:15 AM	**How Crystal Features and Gas Content Affect Color Doppler Ultrasound Twinkling** Eric Rokni, Julianna Simon *Penn State University, United States*	**Left Ventricular Volume Estimation in Contrast-Enhanced Echocardiography Using Deep Learning** Jieyu Hu{1}, Erik Smistad{2}, Bjørnar Grenne{1}, Espen Holte{1}, Havard Dalen{1}, Lasse Lovstakken{1} *{1}Norwegian University of Science and Technology, Norway; {2}Norwegian University of Science and Technology, SINTEF Medical Technology, Norway*	**A Dual Ultrasonic Sensor to Obtain the position, Orientation and Moving Direction of a Biomedical Device Through the Skull with Millimeter Accuracy** Pierre Zarader{3}, Quentin François{1}, Bertrand Duplat{1}, Sinan Haliyo{2}, Olivier Couture{2} *{1}Robeauté, France; {2}Sorbonne University, France; {3}Sorbonne University, Robeauté, France*	**Uncertainty Quantification for NDE Data Semantic Segmentation Using Deep Learning** Ryan Scott, Danilo Stocco, Andriy Chertov, Roman Gr. Maev *Institute for Diagnostic Imaging Research, Canada*

Thursday, September 7: Lectures

	Room 5 (Montreal) **D1L-05: PTF: Thin Films** **Chair(s):** Mihir Patel (MACOM)	Room 6 (Halifax) **D1L-06: MSR: Super-Resolution From The Neck Down** **Chair(s):** Meaghan O'Reilly (University of Toronto), Shigao Chen (Mayo Clinic)	Room 7 (Toronto) **D1L-07: TMU: Optomechanical and Electrostrictive Transducers** **Chair(s):** Jeremy Brown (Dalhousie University), Paul van Neer (TNO)
8:00 AM	**Hysteresis Curves of Ferroelectric ScAlN Films for Fabricating Periodically Polarization Inverted Structure** Satoshi Matsumura, Takahiko Yanagitani *Waseda University, Japan*	**3D Sensing Ultrasound Localization Microscopy for Characterization of Kidney Structure** Georges Chabouh{3}, Louise Denis{3}, Sylvain Bodard{3}, Arthur Chavignon{2}, Franck Lager{1}, Gilles Renault{1}, Vincent Hingot{2}, Olivier Couture{3} *{1}Cochin Institut, France; {2}Resolve Stroke, France; {3}Sorbonne University, France*	**Optical Ultrasound Transducer Arrays with Integrated Micro Lenses for Parallel Ultrasound Data Readout** Zhiyu Yan, Jun Zou *Texas A&M University, United States*
8:15 AM	**30-Layer Polarization Inversion Resonator for Acoustic Separation of the Piezoelectric Layer and the Substrate** Satoshi Tokai, Kazutaka Shiraiwa, Takahiko Yanagitani *Waseda University, Japan*	**Dynamic Ultrasound Localization Microscopy Without ECG-Triggering Using motion-Matching** Nin Ghigo{2}, Chloe Bourquin{2}, Gerardo Ramos{1}, Jonathan Poree{2}, Abbas Sadikot{1}, Jean Provost{2} *{1}Montreal Heart Institute, Canada; {2}Polytechnique Montreal, Canada*	**Matrix-Compatible air-Coupled optomechanical Ultrasound Sensor** Grim Keulemans, Cedric Pieters, Hasan Mahmud-Ui, Simone Severi, Hilde Jans, Xavier Rottenberg, Veronique Rochus *imec vzw, Belgium*
8:30 AM	**High quasi-Shear Mode Electromechanical Coupling of c-Axis Tilted PbTiO3 Epitaxial Thin Film Grown on off-Angle SrTiO3 Single Crystal Substrate** Sota Kuninobu, Takahiko Yanagitani *Waseda University, Japan*	**Hepatic Microcirculation Evaluation of Rat Liver Regeneration by Ultrasound Localization Microscopy** Rui Wang{3}, Yuelei Hu{2}, Lijie Huang{3}, Qiong He{3}, Lin Zhang{1}, Yunfang Wang{1}, Jianwen Luo{3} *{1}Beijing Tsinghua Changgung Hospital, China; {2}The First Hospital of Jilin University, China; {3}Tsinghua University, China*	**Minuscule Ultrasensitive Opto-Mechanical Ultrasound Sensor Based on Silicon Photonics MEMS Fabrication Platform for Photoacoustic Imaging: in-vitro Study** Sangwoo Nam, Dongju Choi, Mingi Lim, Youngjae Park, Sangyoon Han, Jaesok Yu *DGIST, Korea*
8:45 AM	**Investigation of the Origins of Electrode Area Dependence in kt2 Evaluation Using FEM Analysis in Comparison with Experimental Data** Yohkoh Shimano, Ryo Seki, Yuki Shimizu, Takahiko Yanaitani *Waseda University, Japan*	**Transthoracic super-Resolution Ultrasound Localisation Microscopy of Myocardial Vasculature in Patients** Jipeng Yan{1}, Biao Huang{1}, Johanna Tonko{3}, Matthieu Toulemonde{1}, Joseph Hansen-Shearer{1}, Pier Lambiase{2}, Senior Roxy{1}, Meng-Xing Tang{1} *{1}Imperial College London, United Kingdom; {2}Univeristy College London, United Kingdom; {3}University College London, United Kingdom*	**Surface-Micromachined Optical Ultrasound Transducer (SMOUT) Array for 3D Acoustic Tomography** Zhiyu Yan, Jun Zou *Texas A&M University, United States*
9:00 AM	**Improvement of shear-Mode Electromechanical Coupling of c-Axis Parallel Oriented ZnO Film by**	**3D super-Resolution Ultrasound Localization Microscopy of a Langendorff Ex Vivo Rabbit Heart**	**A Handheld Bias-Sensitive 128×128 Electrostrictive Tobe Array and Comparison with Commercial Linear and Matrix Probes**

	Limiting Particle Irradiation Direction During RF Magnetron Sputtering Naoki Tomiyama{1}, Taiki Sato{1}, Shinji Takayanagi{1}, Takahiko Yanagitani{2} *{1}Doshisha university, Japan; {2}Waseda university, Japan*	**Model with a row-column-Addressed Array Using Phase Change nanodroplets** Qingyuan Tan, Kai Riemer, Vineesh Kappadan, Tony Hua, Joseph Hansen-Shearer, Jipeng Yan, Su Yan, Peter Weinberg, Christopher Dunsby, Fu Siong Ng, Meng-Xing Tang *Imperial College London, United Kingdom*	Mohammad Rahim Sobhani{1}, Mahyar Ghavami{1}, Randy Palamar{1}, Jeremy Brown{2}, Roger Zemp{1} *{1}University of Alberta, Canada; {2}University of Dalhousie, Canada*
9:15 AM	**Novel Method for Characterization of Ultra-Thin Film Materials Using Surface Acoustic Wave Devices** Brian Fisher *Qualcomm Technologies Inc., United States*	**Spinal Cord Penumbra Restoration Monitoring in Chronic Phase Using Ultrasound Localization Microscopy** Junjin Yu{1}, Haoru Dong{2}, Rong Xie{2}, Kailiang Xu{1} *{1}Fudan University, China; {2}Huashan Hospital, Fudan University, China*	**A 20 MHz 244 Element Electrostrictive Row-Column Array for 3D Imaging Using Slice Multiplexing** Justin Greige{1}, Nicholas Campbell{1}, Roger Zemp{2}, Jeremy Brown{1} *{1}Dalhousie University, Canada; {2}University of Alberta, Canada*

	Room 1 (Yellowknife) **D2L-01: MIM: Novel Imaging Techinques II** **Chair(s):** Stanislav Emelianov (Georgia Institute of Technology and Emory University)	**Room 2 (Vancouver)** **D2L-02: MPA: Functional and Molecular Imaging** **Chair(s):** Carolyn Bayer (University of Tulane), Gijs Van Soest (Erasmus Medical Center)	**Room 3 (Calgary)** **D2L-03: MIS: Machine Learning for Image Analysis** **Chair(s):** Ruud van Sloun (Eindhoven University of Technology), Federico Mento (University of Trento)	**Room 4 (Winnipeg)** **D2L-04: NAI: Acoustic Imaging and Microscopy** **Chair(s):** Robert Wodnicki (University of Southern California), JIAN-XING WU (National Chin-Yi University of Technology)
10:45 AM	**Photoacoustic-Strain Imaging for Evaluating Deep Tissue Microcirculation** Xinyue Huang{2}, David Qin{2}, Samuel Morais{1}, Stanislav Emelianov{2} *{1}Georgia Institute of Technology, United States; {2}Georgia Institute of Technology and Emory University, United States*	**Photoacoustic-Based Quantitation of Targeted PAtrace in a Preclinical Model of Ovarian Cancer** Cayla Wood{2}, Sangheon Han{2}, Riley Watson{2}, Dmitry Nevozhay{2}, Thanh Chung Vu{2}, Emine Bayraktar{2}, Yunfei Wen{2}, Jennifer Meyer{2}, Jason Cook{1}, Amit Roy{1}, Julie-Ann Burdick{1}, Anil Sood{2}, Konstantin Sokolov{2}, Richard Bouchard{2} *{1}NanoHybrids, Inc., United States; {2}The University of Texas MD Anderson Cancer Center, United States*	**A Multi-Task Ultrasound Image Analysis Model with Vision-Language Co-Training** Andong Wang, Haotian Guan, Wei-Ning Lee *The University of Hong Kong, Hong Kong*	**Focused Ultrasound Spectroscopic Study on the Effects of Local Mechanical Stimulation on Living Cells** Natsumi Fujiwara, Takaki Matsumoto, Tan Shao Ying, Akira Nagakubo, Kichitaro Nakajima, Masahiro Kino-Oka, Hirotsugu Ogi *Osaka University, Japan*
11:00 AM	**In Vivo Transcranial Acoustoelectric Imaging of Deep Brain Stimulation Currents in Acute Swine Model** Theodoro Trujillo{1}, Alex Alvarez{1}, Chet Preston{1}, Margaret Allard{1}, Nadia Farha{1}, Jinbum Kang{2}, Matt	**A Novel Biocompatible and Biodegradable NIR-2 Agent for in-Vivo Photoacoustic Imaging to Improve Overall Image Contrast**	**Image-Text Feature Fusion Model for Classification of Ultrasound Breast Tumors Within BI-Rads Category 4** Zhikai Ruan{2}, Pengfei Xu{2}, Jing Zhao{1}, Diya Wang{2}	**Non-Linear Beamforming for Scanning Acoustic Microscopy Imaging Through Scattering Surfaces** Christian Kupsch, Mario Wolf

	O'Donnell{2}, Paul Larson{1}, Martin Weinand{1}, Nan-Kuei Chen{1}, Katalin Gothard{1}, Stephen Cowen{1}, Russell Witte{1} *{1}University of Arizona, United States; {2}University of Washington, United States*	Vinoin Devpaul Vincely{3}, Kristie Huda{3}, Xingjian Zhong{2}, Allison Dennis{1}, Carolyn L. Bayer{3} *{1}Northeastern Univeristy, United States; {2}Northeastern University, United States; {3}Tulane University, United States*	*{1}The Second Hospital of Jilin University, China; {2}Xi'an Jiaotong University, China*	*Measurement, Sensor and Embedded Systems Laboratory (MSE Lab), TU Bergakademie Freiberg, Germany*
11:15 AM	**A Comprehensive Computational Model for Simulating the Acoustoelectric Effect** Wei Yi Oon, Yuchen Tang, Wei-Ning Lee *The University of Hong Kong, Hong Kong*	**pH-Responsive polyaniline-Coated perfluoropentane nanodroplets for Cancer Detection** Euisuk Chung, Ayoung Choe, Andrew Zhao, Stanislav Emelianov *Georgia institute of technology, United States*	**Prediction of in-vitro Fertilization Outcome by Ultrasound Strain Analysis and Machine Learning** Anyi Cheng{2}, Yizhou Huang{1}, Xindan Hu{2}, Lin Xu{2}, Massimo Mischi{1} *{1}Eindhoven University of Technology, Netherlands; {2}ShanghaiTech University, China*	**Visualization of Specular Reflections Using Phase Coherence Imaging** Tony Rasolonirina *PULETS, Canada*
11:30 AM	**Three-Dimensional Image Reconstruction Using Compressed Interferometric Detection of Photoacoustic Waves** John Heggland, Geoffrey Luke *Dartmouth, United States*	**Plaque Characterization Using CNN on Multispectral Photoacoustic Images** Camilo Cano{2}, Nastaran Mohammadian Rad{3}, Marc van Sambeek{1}, Richard Lopata{2}, Min Wu{2} *{1}Catharina Hospital Eindhoven, Netherlands; {2}Eindhoven University of Technology, Netherlands; {3}Maastricht University, Netherlands*	**Ultrasound and Deep Learning for Automated Egg Maturation Prediction of Atlantic Salmon** Yasin Yari{5}, Ingun Næve{2}, Per Helge Bergtun{4}, Asle Hammerdal{1}, Marco Marien Voormolen{3}, Svein-Erik Måsøy{5}, Lasse Løvstakken{5} *{1}Aquagen AS, Norway; {2}BDO AS, Norway; {3}Inphase Solutions AS, Norway; {4}Mowi AS, Norway; {5}Norwegian University of Science and Technology, Norway*	**Dynamic Contact Stiffness Sensitivity in Subsurface Scanning Probe Microscopy As a Localized Depth Dependent Probe Velocity time-Function** Dipankar Mukherjee{1}, Marinus Hoogesteger{1}, Hamed Sadeghian{2}, Henk Nijmeijer{1} *{1}Eindhoven University of Technology, Netherlands; {2}Nearfield Instruments B.V., Netherlands*
11:45 AM	**Rapid Non-Contact Optical Ultrasound for Biomedical Imaging** Erwin Alles *University College London, United Kingdom*	**Investigating Vision-Brain Connectivity in Deep Mouse Brain Using Photoacoustic Computed Tomography** Guan Xu, Kai-Wei Chang, Xueding Wang, Kwoon Wong *University of Michigan, United States*	**ViT-SPI: Vision Transformer with Volumetric Spatial Information for Precise Bladder Volume Measurement** Kyungsu Lee, Moonhwan Lee, Jae Youn Hwang *DGIST, Korea*	**Estimation of Transducer Pressure in the ultra-High Frequency Range Using Gas Vesicle Phantoms** Eric Strohm{2}, Di Wu{1}, Dina Malounda{1}, Mikhail Shaprio{1}, Michael Kolios{2} *{1}California Institute of Technology, United States; {2}Toronto Metropolitan University, Canada*
12:00 PM	**Waveform Inversion in Ultrasound Tomography from Homogeneous Starting Models** Rehman Ali, Trevor Mitcham, Melanie Singh, Brenna Harris, Madalina Tivarus, Nebojsa Duric	**Validation of Cardiac Oxygenation Estimation Algorithms Using a Hybrid Simulation Method** Rashid Al Mukaddim, Tomy Varghese *University of Wisconsin-Madison, United States*	**Deep learning-Based two-Stage Segmentation high-Precision Bladder Volume Measurement Technique for 3-D Bladder Ultrasound Scanner** Dongkyu Jung{1}, Sangwoo Nam{1}, Jaesok Yu{1}, Kyungeun Lee{1}, Hyojin	**Piezoelectric Field Attenuation Microscopy** Jacob Brown, Krishna Balram *University of Bristol, United Kingdom*

	University of Rochester, United States		Sung{1}, Sangheon Lee{1}, Junghoe Kim{2}, Moonchang Hur{2} *{1}DGIST, Korea;* *{2}MCUBETECHNOLOGY CO.,LTD, Korea*	

	Room 5 (Montreal) **D2L-05: PAT: Acoustic Tweezers and Particle Manipulation II** **Chair(s):** Istvan Veres (Qorvo Corporation)	**D2L-06: AMA: Materials for Acoustic Wave Devices** **Chair(s):** Ausrine Bartasyte (University of Franche-Comté), Mauricio Pereira da Cunha (University of Maine)	**Room 7 (Toronto)** **D2L-07: MTH: Therapy Devices** **Chair(s):** Kenneth Bader (University of Chicago)
10:45 AM	**Generating Focused Vortex Beams Using Chiral Reflectors** Noé Jiménez, Paula Femenia-Ys, Enrique M. González-Mateo, Francisco Camarena *Universitat Politècnica de València, Spain*	**New Method for Extracting keff2 from HBAR by Producing Pseudo FBAR Characteristics Without Substrate Removal** Yohkoh Shimano{2}, Kohei Yatabe{1}, Takahiko Yanagitani{2} *{1}Tokyo University of Agriculture and Technology, Japan; {2}Waseda University, Japan*	**Intra-Operative High Intensity Focused Ultrasound in Patients with Colorectal Liver metastases: a Prospective ablate-and-Resect Study in 15 Patients** David Melodelima{2}, Aurelien Dupre{1}, David Perol{1}, Severine Metzger{1}, Claire Cropet{1}, Michel Rivoire{1} *{1}Centre Leon Berard, France; {2}LabTAU, France*
11:00 AM	**Generating Spatially Complex Ultrasonic Standing Waves for Particle Manipulation** Dmitry Nikolaev, Martin Weber, Fabio Valoppi, Jere Hyvönen, Joni Mäkinen, Ari Salmi, Edward Hæggström *Electronics Research Lab., Dept. of Physics, University of Helsinki, Finland*	**Measurement and Analysis of Longitudinal and Transversal Effective Piezoelectric Coefficients (d33,F and e31,f) in 100nm-500nm Sc0.3Al0.7N Films** Chen Liu, Binni Varghese, Peng Liu, Huamao Lin, Minghua Li, Yao Zhu *Institute of Microelectrics, ASTAR, Singapore*	**Focused Ultrasound Hyperthermia Mediated Control of Thermal Responsive Car T Cell Activity in Breast Cancer Brain Metastasis** Chulyong Kim, Ali Zamat, Zizhen Zha, Gabe Kwong, Costas Arvanitis *Georgia Institute of Technology, United States*
11:15 AM	**Design of an Ultrasound Vibrating Disc and a Tilted Reflector for Noncontact Rotation of a Small Object** Eimei Yamamoto, Kosuke Nakamura, Yuma Kuroda, Yuki Harada, Daisuke Koyama *Doshisha University, Japan*	**c-Axis Tilted LiNbO3 Epitaxial Thin Film Grown on off-Angle Al2O3 Single Crystal Substrate** Hiroki Uchida, Shinya Kudo, Takahiko Yanagitani *Waseda University, Japan*	**Low-Intensity Pulsed Ultrasound Attenuates Body Weight and Insulin Resistance in Obese Mice Induced by high-Fat Diet** Min He{1}, Hong Zhu{2}, Jingsong Dong{1}, Dean Ta{1} *{1}Fudan University, China; {2}Shanghai Ninth People's Hospital, China*
11:30 AM	**Inverse Optimization of Holographic Plate for Precise Trajectory Manipulation of a Mie Particle** Qin Lin{1}, Feiyan Cai{2}, Yiying Mo{1}, Hairong Zheng{2} *{1}School of Biomedical Engineering, Guangdong Medical University, China; {2}Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences,, China*	**Materials Assessment of Thin Film 128° Y-Cut LiNbO3 on (0001) Al2O3** Lezli Matto, Mark Goorsky, Kenny Huynh, Michael Liao, Dorian Luccioni *UCLA, United States*	**In Vivo intraoperative HIFU Ablation of the Pancreas Using a Toroidal Transducer for the Treatment of Locally Advanced Pancreatic Cancer** Celia Cilleros{3}, Aurélien Dupré{1}, Yao Chen{1}, Jeremy Vincenot{2}, Michel Rivoire{1}, David Melodelima{3} *{1}Centre Leon Berard, France; {2}EDAP-TMS, France; {3}LabTAU, France*
11:45 AM	**Deciphering Metabolic Heterogeneity of Acoustically-Constructed Pancreatic**	**Frequency Tuning of Suspended Millimeter Wave Lithium Niobate Acoustic Resonators Using Ion Beam Assisted Argon Gas Cluster Trimming**	**Focused Ultrasound Ablation of Uterine Fibroids with a Flat fully-Populated MR-Guided Phased Array Body System**

	Microenvironment Model by Mass Spectrometry Imaging Zeping Gao, Shuo Wang, Chao Zhao, Qi Zhang, Jiqing Huang, Ka Deng, Yueguang Lv, Qian Luo, Teng Ma, Hairong Zheng *Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China*	Vakhtang Chulukhadze, Jack Kramer, Naveed Ahmed, Omar Barrera, Sinwoo Cho, Ruochen Lu *University of Texas at Austin, United States*	Ryan Jones{2}, Yuexi Huang{2}, Ben Lucht{1}, Samuel Gunaseelan{2}, Tyler Portelli{1}, Elizabeth David{2}, Kullervo Hynynen{2} *{1}Arrayus Technologies, Canada; {2}Sunnybrook Research Institute, Canada*
12:00 PM	**Efficient Bio-Particle Separation via Holographic Interdigital Transducers** Pengqi Li, Wei Zhou, Long Meng *Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, China*	**Simple microfabrication Process for Quartz Crystal Using HF Gas and Catalytic Materials** Ko-Hei Sano{2}, Yoshitaka Ono{1}, Yutaka Imamura{1}, Yasuo Hayashi{1}, Takahiko Yanagitani{3} *{1}AGC Inc., Japan; {2}Waseda Univ., AGC Inc., Japan; {3}Waseda Univ., ZAIKEN, JST-CREST, JST-FOREST, JST-START, Japan*	**First In-Vivo Demonstration of Hologram-Assisted Bilateral Blood-Brain Barrier Opening in Non-Human-Primates** Sergio Jiménez-Gambín, Sua Bae, Robin Ji, Fotios Tsitsos, Elisa E. Konofagou *Columbia University, United States*

	Room 1 (Yellowknife) **D4L-01: MIS: Imaging** **Chair(s):** Muyinatu A. Lediju Bell (Johns Hopkins University)	**Room 2 (Vancouver)** **D4L-02: MIM: Cardiovascular Imaging** **Chair(s):** Jason Voorneveld (Erasmus Medical Center)	**Room 3 (Calgary)** **D4L-03: MBB: Sidelobe and Clutter Mitigation** **Chair(s):** Mostafa Fatemi (Mayo Clinic), Rashid Al Mukaddim (Phillips Ultrasound)	**Room 4 (Winnipeg)** **D4L-04: NDE: General NDE Methods** **Chair(s):** Roman Gr. Maev (The Institute for Diagnostic Imaging Research, University of Windsor, Canada)
1:45 PM	**Adapted Nonlinear Full Waveform Inversion for Ultrasound Computed Tomography of Musculoskeletal Tissue in Children** Philippe Lasaygues{1}, Elise Doveri{1}, Régine Guillermin{1}, Vadim Monteiller{1}, Luis Espinosa{2} *{1}Aix Marseille Univ, CNRS, Centrale Méditerranée, LMA, France; {2}Clément Ader Institu, Univ. Paul Sabatier, France*	**High Contrast Ultrafast Cardiac Harmonic Imaging Using a novel, Doppler-based, motion-Correction Approach** Michael Mougharbel, Jonathan Poree, Jean Provost *Polytechnique Montreal, Canada*	**A United Spatial and Angular Adaptive Scaling Wiener Postfilter Based Beamformer for Improved Ultrafast Power Doppler Imaging** Lijie Huang{2}, Yadan Wang{1}, Rui Wang{2}, Xingyue Wei{2}, Chichao Zheng{1}, Hu Peng{1}, Jianwen Luo{2} *{1}Hefei University of Technology, China; {2}Tsinghua University, China*	**Study on Concrete Internal Defect Detection from a Moving Cart Equipped with LDVs and a Sound Source** Tsuneyoshi Sugimoto{3}, Yutaka Nakagawa{3}, Kazuko Sugimoto{3}, Itsuki Uechi{3}, Noriyuki Utagawa{2}, Yasukazu Nihei{1} *{1}FUJIFILM Corp., Japan; {2}SatoKogyo Co.,Ltd., Japan; {3}Toin Univ. of Yokohama, Japan*
2:00 PM	**Speed-of-Sound Ultrasound Computed Tomography Based on Bent Ray Tracing and multi-Layer perceptron** Shilong Cui, Haizhao Dai, Yiming Huang, Jingyi Yu, Xiran Cai *shanghaitech university, China*	**Noninvasive Assessment of Myocardial Perfusion Patterns Using Ultrafast Ultrasound: a Pilot Study for Congenital Heart Disease** Naiyuan Zhang{2}, Minh Nguyen{1}, Luc Mertens{2}, David Barron{2}, Osami Honjo{2}, Maelys Venet{2}, Julien Aguet{2}, Jerome Banage{2}, Olivier Villemain{2}	**Null Subtraction Imaging Combined with Harmonic Imaging for Contrast-Free Microvessel Imaging** Zhengchang Kou, Yike Wang, Matthew Lowerison, Pengfei Song, Michael Oelze *University of Illinois Urbana Champaign, United States*	**Ultrasonic Array Imaging for Defect Detection in the Nuclear Industry** Rosen Rachev, Jeffrey Olfert *Canadian Nuclear Laboratories, Canada*

		{1}Texas Children's Hospital, United States; {2}The Hospital for Sick Children, Canada		
2:15 PM	**Zero Interleaved Mutually Orthogonal Sequences for High Frame Rate Synthetic Transmit Aperture** Mohamed Tamraoui, Emmanuel Roux, Hervé Liebgott *Creatis, France*	**A Pipeline to Simulate Ultra-Realistic Cardiac Ultrasound Recordings on a Large Scale** Nitin Burman{1}, Claudia Manetti{2}, Joost Lumens{2}, Jan D'Hooge{1} *{1}KU Leuven, Belgium; {2}Maastricht University, Netherlands*	**Deep Coherence Learning: an Unsupervised Deep Learning Framework for High-Quality Plane Wave Imaging** Hyunwoo Cho{1}, Jinbum Kang{2}, Yangmo Yoo{1} *{1}Sogang University, Korea; {2}University of Washington, United States*	**Coupling Ultrasonics and FTIR to Non-Destructively Characterize Changes in Cure Kinetics, Chemical Structure, and Mechanical Properties of an Epoxy Resin As a Function of Varying Manufacturing Process** Gonzalo Seisdedos{1}, Edgar Viamontes{1}, Carlos Garrastegui{1}, Christopher Mendoza{1}, Cristian Pantea{2}, Eric Davis{2}, Tommy Rockward{2}, Benjamin Boesl{1} *{1}Florida International University, United States; {2}Los Alamos National Laboratory, United States*
2:30 PM	**Increasing Ultrasound Framerate with Scanline Interlacing** Raja Bandaru{2}, Vincent van de Schaft{1} *{1}Eindhoven University of Technology, Netherlands; {2}Philips Research, Netherlands*	**In Vivo Bistatic Multi-Aperture Ultrasound Imaging and Elastography of the Abdominal Aorta** Vera van Hal, Hein de Hoop, Marc van Sambeek, Hans-Martin Schwab, Richard Lopata *Eindhoven University of Technology, Netherlands*	**Cross-Coherence Factor Improves Sidelobe Suppression in 3D row-Column Array Imaging** Jingke Zhang{1}, Chengwu Huang{1}, U-Wai Lok{1}, Ping Gong{1}, Zhijie Dong{2}, Hui Liu{1}, Pengfei Song{2}, Shigao Chen{1} *{1}Mayo Clinic, United States; {2}University of Illinois Urbana-Champaign, United States*	**A Hybrid Deep Learning Model for Quality Assessment of Selective Laser Melting Workpieces Using Quantitative Ultrasound Parameters and Image Texture Features** Chun-Hui Lin, Shyh-Hau Wang *National Cheng Kung University, Taiwan*
2:45 PM	**Exploring Causes of the Color Doppler Twinkling Artifact with Passive Cavitation Detection** Benjamin Wood, Christine Lee, Matthew Urban *Mayo Clinic, United States*	**Wearable Ultrasound for Strain and Flow Imaging in a Carotid Artery Phantom** Moein Mozaffarzadeh{2}, Laurent Fillinger{1}, Lars Horchens{1}, Jan Menssen{2}, Laurens Peters{1}, Gerwin Gelinck{1}, Paul van Neer{1}, Chris de Korte{2}, Anne Saris{2} *{1}Netherlands Organisation for Applied Scientific Research, Netherlands; {2}Radboud University Medical Center, Netherlands*	**The Contrast Order As an Image Quality Criterion for Nonlinear Beamformers** Dongwoon Hyun *Stanford University, United States*	**A Novel Method for Nozzle-to-Pipe Weld Inspection from the Nozzle Side** Xintao Xu{2}, Haoran Jin{2}, Shiwei Wu{2}, Eryong Wu{2}, Keji Yang{2}, Haiteng Wu{1} *{1}Hangzhou Shenhao Technology Co., Ltd., China; {2}Zhejiang University, China*
3:00 PM	**Speed and Accuracy Comparison of Trilateration Acoustic Cavitation Emission (TRACE) Localization and Passive Acoustic Mapping**	**3D Carotid Artery Flow Imaging Using Compressive Sensing with Spatial Coding Mask: a Simulation Study**	**Calculating the Generalized contrast-to-Noise Ratio Using Kernel Density Estimation**	**Unsupervised Fouling Reconstruction in the Pipe Bend** Denys Iablonskyi{2}, Carlos-Omar Rasgado-Moreno{1}, Madis

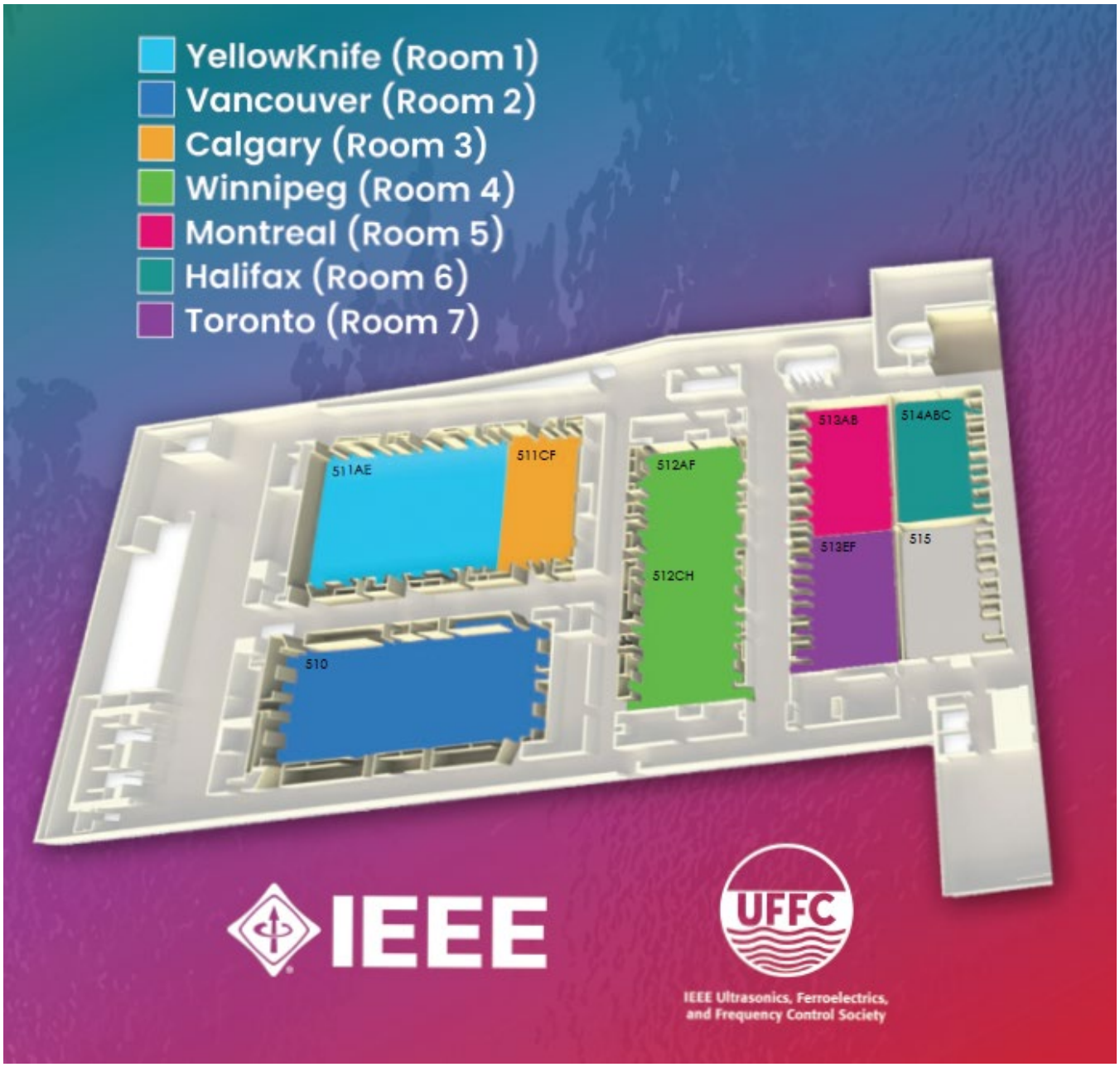
	Mahmoud Komaiha, Jonathan Sukovich, Timothy Hall, Zhen Xu *University of Michigan, United States*	Yuyang Hu{1}, Michael Brown{1}, Didem Dogan{2}, Geert Leus{2}, Antonius F.W. van de Steen{1}, Pieter Kruizinga{1}, Johannes G. Bosch{1} *{1}Erasmus MC, Netherlands; {2}TU Delft, Netherlands*	Sven Peter Näsholm, Håvard Kjellmo Arnestad, Andreas Austeng, Ole Marius Hoel Rindal *University of Oslo, Norway*	Ratassepp{1}, Arto Klami{2}, Edward Hæggström{2}, Ari Salmi{2} *{1}Tallinn University of Technology, Estonia; {2}University of Helsinki, Finland*

	Room 5 (Montreal) **D4L-05: Special Session: Industry Research and Industry-Academia Partnerships** **Chair(s):** Nasim Basij (Acoustiic Inc.), Yashwanth Nanda Kumar (University of Washington)	**Room 6 (Halifax)** **D4L-06: MTC: Liver Tissue Characterization** **Chair(s):** Jeremy Dahl (Stanford University)	**Room 7 (Toronto)** **D4L-07: TMI: Miniaturized Imaging and Therapeutic Transducers** **Chair(s):** Koko Lam (The Hong Kong Polytechnic University), Holly Lay (Acoustiic Inc)
1:45 PM	**Ultrasonic Authentication System Under Foldable Displays: Design and System Performance** Jessica Liu Strohmann, Shaing-Chi Lin, Hrishikesh Panchawagh, Kostadin Djordjev *Qualcomm, Taiwan; Qualcomm, United States*	**Quantitative Ultrasound Imaging Using Regularized phantom-Free Local Attenuation Coefficient Slope Maps for Detection and Classification of Liver lesions: a Pilot Study** Iman Rafati, François Destrempes, Maxime Barat, Elige Karam, Sathiyamoorthy Selladurai, An Tang, Guy Cloutier *University of Montreal Hospital Research Center, Canada*	**A forward-Viewing 2D Array for Steerable Robotic guidewire Imaging with Hybrid Mechanical and Electronic Focusing** Adeoye Olomodosi, Stephan Strassle Rojas, Brooks Lindsey *Georgia Institute of Technology, United States*
2:00 PM	**Electrode Confined Acoustic Wave (ECAW) Devices for Ultra High Band Applications** Alexandre Clairet{2}, Thierry Laroche{2}, Isabelle Huyet{2}, Alice Joulie{1}, Elisa Soulat{1}, Marie Bousquet{1}, Eric Michoulier{2}, Saly Ndiaye{2}, Emilie Courjon{2}, Florent Bernard{2}, Tony Makdissy{2}, Sylvain Ballandras{2} *{1}CEA-Leti, France; {2}Soitec, France*	**Multiparametric Ultrasound Imaging for Diagnosis of Hepatic Steatosis in Human Subjects** Jihye Baek{2}, Lokesh Basavarajappa{3}, Ahmed Kaffas{1}, Aya Kamaya{1}, Kenneth Hoyt{3}, Kevin Parker{2} *{1}Stanford University, United States; {2}University of Rochester, United States; {3}University of Texas at Dallas, United States*	**Automatic 3D Needle Trajectory Navigation Using a Zipper Array Transducer** Cheng-Yuan Hsieh{3}, Yu-Shun Wang{2}, Chih-Peng Lin{2}, Wei-Zen Sun{2}, Fu-Sheng Jiang{4}, Chang-Lin Hu{1}, Weizhi Zhou{2}, Ting-Hsuan Chen{1}, Pai-Chi Li{2} *{1}Industrial Technology Research Institute, Taiwan; {2}National Taiwan University, Taiwan; {3}National Taiwan University Hospital, Taiwan; {4}Qisda corp., Taiwan*
2:15 PM	**A Deep Learning Approach for Artifact Suppression in MEMS-Based Airborne Ultrasonic Transceivers** Alessandra Fusco{1}, Martin Krueger{1}, Lorenzo Servadei{2}, Robert Wille{2} *{1}Infineon Technologies AG, Germany; {2}Technical University of Munich, Germany*	**Cardiovascular pulsing-Based Ultrasound Strain Imaging for Liver Fibrosis Detection** Hsien-Jung Chan, Bao-Yu Hsieh, Po-Hsiang Tsui *Chang Gung University, Taiwan*	**Ultrasound Enhanced Perfusion and Drug Penetration for Intratumoral Immunotherapy Using a Needle Ultrasound Transducer - a Phantom Study** Mengyue Chen{3}, Bohua Zhang{3}, Huaiyu Wu{3}, Ben Kreager{3}, Howuk Kim{2}, Takuya Osada{1}, Erika Crosby{1}, Herbert Kim Lyerly{1}, Xiaoning Jiang{3} *{1}Duke University Medical Center, United States; {2}Inha University, Korea; {3}North Carolina State University, United States*

Thursday, September 7: Lectures

2:30 PM	**Piezoelectric Micromachined Ultrasonic Transducers for Lumbar Vertebra Kinetics Monitoring** Zhiyuan Shen{1}, Ruixuan Li{2}, Pieter Gijsenbergh{1}, Emmanuel V. Poorten{2}, Veronique Rochus{1} *{1}Imec, Belgium; {2}Robot-Assisted Surgery Group, KU Leuven, Belgium, Belgium*	**Grading of Liver fibrosis, Inflammation and Steatosis Using Multimodal Quantitative Ultrasound and Convolutional Neural Networks** Xingyue Wei{2}, Yuanyuan Wang{1}, Lijie Huang{2}, Jianwen Luo{2} *{1}Beijing Institute of Technology, China; {2}Tsinghua University, China*	**A Dual-Mode Miniature Ultrasound Probe for Combined Intravascular Ultrasound Doppler Flow and Imaging Study** Yashuo He, Xi Liu, Jiayi Zhang, Chang Peng *School of Biomedical Engineering, ShanghaiTech University, China*
2:45 PM	**Real-Time 3D Imaging Pipeline for Row-Column Array Probe and Holographic Display** Marcin Lewandowski{2}, Piotr Jarosik{2}, Mateusz Walczak{2}, Beata Witek{2}, Billy Yiu{1} *{1}University of Waterloo, Canada; {2}us4us Ltd., Poland*	**Non-Invasive Hepatic Steatosis Detection on in-Vivo Ultrasound Data Using Estimated Attenuation and Backscatter Coefficients** Jasleen Birdi{5}, Stephane Audiere{3}, Nathalie Ganne-Carrie{2}, Olivier Chazouillères{7}, Jérôme Boursier{1}, Christophe Aubé{1}, Yves Menu{7}, Olivier Seror{4}, Yves Gandon{6}, Edouard Bardou-Jacquet{6}, Veronique Miette{3}, Laurent Sandrin{3}, Alexande *{1}Angers University Hospital, Angers, France; {2}Avicenne Hospital, Bobigny, France; {3}Echosens, France; {4}Jean Verdier Hospital, Bondy, France; {5}KU Leuven, Belgium; {6}Rennes University Hospital, Rennes, France; {7}Saint Antoine University Hospital, Paris, France*	**A 21 MHz, 120 element, 1.8 mm forward-Viewing Piezoelectric 2D Array for intracoronary Imaging** Stephan Strassle Rojas{2}, Saeyoung Kim{3}, Brooks Lindsey{1} *{1}Biomedical Engineering, United States; {2}Electrical and Computer Engineering, United States; {3}Mechanical Engineering, United States*
3:00 PM	**Real-Time Quantitative Ultrasound on Ultraportable Systems: a First Clinical Validation in the Context of Liver Steatosis Assessment** Baptiste Hériard-Dubreuil{2}, Adrien Besson{2}, Joel Gay{2}, Victor De Ledinghen{1}, Claude Cohen-Bacrie{2} *{1}Bordeaux University Hospital, France; {2}E-Scopics, France*	**Reducing the Degrees of Freedom for Simultaneous Estimation of Ultrasonic Attenuation and Backscatter coefficients: Application to Liver Steatosis Detection** José Timaná{1}, Hector Chahuara{1}, Lokesh Basavarajappa{2}, Kenneth Hoyt{2}, Roberto Lavarello{1} *{1}Pontificia Universidad Católica del Perú, Peru; {2}University of Texas at Dallas, United States*	**In-Vivo sonothrombolysis with a forward-Viewing Ultrasound Balloon Catheter in a Swine Deep Vein Thrombosis (DVT) Model** Bohua Zhang{2}, Gabe Owens{1}, Huaiyu Wu{2}, Jinwook Kim{3}, Kathlyne Bautista{3}, Mengyue Chen{2}, Ashley Ashley Cornett{1}, Greyson Stocker{1}, Paul A. Dayton{3}, Zhen Xu{1}, Xiaoning Jiang{2} *{1}Department of Biomedical Engineering, University of Michigan, United States; {2}Department of Mechanical and Aerospace Engineering, NC State University, United States; {3}Joint Department of Biomedical Engineering, UNC at Chapel Hill and NC State University, United States*

Floorplan


YellowKnife (Room 1)
Vancouver (Room 2)
Calgary (Room 3)
Winnipeg (Room 4)
Montreal (Room 5)
Halifax (Room 6)
Toronto (Room 7)
511AE
511CF
512AF
512CH
513AB
513EF
514ABC
515
510
IEEE
UFFC
IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society

Notes