IEEE 2021 LAUS

2021 UFFC Latin America Ultrasonics Symposium
October 4-5, 2021

LAUS 2021 SYMPOSIUM PROGRAM

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2021 IEEE LAUS Welcome Message

Dear Latin America Ultrasonics Symposium Colleagues,

We warmly welcome you to participate in the 2021 IEEE Latin America Ultrasonics Symposium (LAUS) held virtually. In this time of pandemia, the event's virtual format allows us to reconnect, learn from each other's research and create new collaborations. This event focuses on training young scientists, and consolidating collaborative research within Latin America as well as with other countries from other regions. The complementary expertise of different research groups and local resources has the potential to maximize the impact and scope of research done in Latin America.

We received abstracts from Latin America (63%) and other institutions worldwide. The research interests in the region include Biomedical Ultrasonics (56%), followed by Transducers, Sensors, and Actuators (13%), Nondestructive Evaluation (12%), and Physical Acoustics (9%), and others. This symposium focuses on facilitating networking and exchanging ideas and technical content within our local community but also welcomes members from all regions interested in collaboration with Latin American groups and institutions. We hope this event will help forge collaborations where complementary expertise and local resources can maximize the impact and breadth of research done in Latin America. Our plenary sessions will highlight long histories of collaboration with institutions from Latin America and other parts of the world. These joint talks show some successful cases of collaboration on how to perceive these goals and expand such experiences. During the symposium we will have a panel where we invited different funding source institutions. They will introduce and discuss financial support opportunities to facilitate international collaboration.

All sessions were planned to promote all forms of equality, and the participation of early-career researchers is recognized as key for the initiative's continued success. Similarly, industry participation and entrepreneurship are highly encouraged to boost innovations and meaningful technological developments in the context of Latin America. Our technical program includes activities such as the Women in Engineering panel to introduce women leaders from industry and academia at different stages of their careers. The Meet the Labs in Latin America panel is another networking activity planned to increase the visibility of the research developed in our region to the ultrasound community. The panel includes invited speakers, at different career stages, from seven different countries. Finally, recognizing the participation of students for the continued success of our initiative, the Student Paper Competition with ten finalists and the Student Pitch Competition were planned to highlight the high-quality work done by our young members.

Our efforts include registration fees at a minimum operating cost to encourage the participation of the registrants from Low to Middle-Income Countries (LMIC). Spanish and Portuguese native speakers were allowed to record the paper presentations in their own language and the pre-recorded videos will have subtitles. The event meets a long-standing demand within IEEE UFFC society – allowing more significant participation of regions around the globe beyond the US, Europe, and Asia (Pacific). This effort counts with the generous support of our Patrons, and of course, all of the other organizers and the attendees' devotion and constant effort making this conference happen despite the unpredictable world situation.

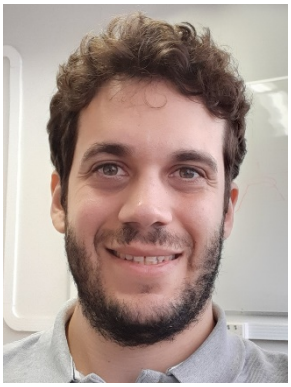
We are very much looking forward to meeting you all virtually and welcoming you to the 2021 IEEE LAUS in October.

Sincerely,

General Co-Chair
Hermes Kamimura

General Co-Chair
Roberto Lavarello

Technical Program Co-Chair
Theo Z. Pavan



Technical Program Co-Chair
Miguel Bernal

2021 IEEE LAUS Plenary Speakers

Monday, October 4
8:15 am - 9:00 am (UTC-5)

Dr. Mickael Tanter

Dr. Carlos A. Negreira

Highlighting a decades lasting French-Uruguayan collaboration in Biomedical ultrasonics

For more than two decades, the Ultrasonic Acoustics Laboratory (LAU-FCIEN-Uruguay), the Langevin Institute (CNRS/ ESPCI PSL Paris France) and the Institute of Physics for Medicine (Inserm/CNRS/ESPCI PSL Paris France) have been collaborating on multiple research projects in biomedical ultrasound ranging from shear wave elastography to ultrafast imaging and neuroscience. In this talk, a brief summary is given of the LAU's scientific activities. One of the most recent topics of collaboration between Physics for Medicine and the LAU is also described, namely the study of vascular dynamics in mouse brains in order to analyze neurodegenerative diseases. Finally, recent developments of Physics for Medicine team in Ultrafast Ultrasound, neurofunctional Ultrasound and Ultrasound Localization Microscopy imaging methods will also be described.

Monday, October 4
1:15 pm - 2:00 pm (UTC-5)

Dr. Koen W.A van Dongen **Dr. Ana Beatriz Ramirez Silva**

Imaging and Full-waveform, From First Principles to Full Implementation

Acoustics are frequently used as a non-invasive imaging technique, mainly because the employed wave field is harmless and the required instrumentation is relatively cheap as compared to other imaging modalities. Reconstructions from the object of interest are obtained using a wide variety of imaging methods. The simplest one is in literature referred to as Synthetic Aperture Focussing Technique (SAFT). With this method, the boundaries of the objects / artefacts are reconstructed by constructive and destructive interference of the recorded wave-fields that are back-projected into the domain of interest. Although this method yields sharp images for wide-band signals it comes with limitations. SAFT only construct reflectivity images that do not reveal any quantitative information about the actual medium properties. In addition, the resulting images tend to degrade when the data exhibits many multiples or (large) phase shifts caused by significant speed of sound variations in the media. To overcome aforementioned limitations, a variety of reconstruction methods have been introduced with increasing complexity. Among the most complex ones are full-waveform inversion. These methods use the acoustic wave equation to reconstruct the unknown medium properties from the wave field measured at the boundary of the domain of interest. During our presentation, we will explain the fundamentals of full-waveform inversion. In addition, we show several techniques that can be used to regularize the inverse problem. These methods have been developed in close collaboration between the universities in Netherlands and Colombia.

Tuesday, October 5
8:00 am – 8:35 am (UTC-5)

Dr. Ximena Wortsman

Top Advances on Dermatologic Ultrasound: Results of the Development of High and Ultrahigh Frequency Ultrasound

This lecture aims to show the technological advances of ultrasound in high and ultra-high frequency that have allowed the support of the clinical diagnosis, monitoring, and treatment of common dermatologic conditions in daily practice.

The presentation is well supported by clinical, ultrasonographical, and histological images that provide the reader a better understanding of these applications. The current needs to develop more technological applications in this field are discussed.

2021 IEEE LAUS Invited Speakers

Raul Esquivel

Institute of Physics of the National University of Mexico (UNAM)

Quantitative Medical Ultrasound Research in Mexico

Raul Esquivel-Sirvent is a full-time researcher at the Institute of Physics of the National University of Mexico (UNAM), in Mexico City. After completion of his B.Sc in Physics degree from UNAM, he obtained his M. Sc and Ph. D at Ohio University working in ultrasound propagation in disordered media, followed by a postdoctoral position in Geophysics studying ultrasound propagation in rocks.

Dr. Esquivel-Sirvent research focuses on wave propagation in random media and heat transport in mesoscale systems. Most recently his research projects include several topics in quantitative medical ultrasound both experimentally and numerical simulations including quantitative ultrasound of breast lesions, characterization of contrastants for ultrasonic imaging and applications of homogenization models to describe wave propagation in tissue.

David Espindola

Universidad de O'Higgins

Nonlinear Elastic Wave Propagation in Soft Solids and Super-Resolution Images

Dr. David Espíndola was born in Chillán, Chile, in 1986. He received the Ph.D. degree in physics from the Universidad de Santiago de Chile, Santiago, Chile, in 2012. As part of his Ph.D. dissertation, he studied the interaction wave-particle in granular materials. He pursued post-doctoral research at the Institut d'Alembert, Sorbonne Université, Paris, France, where he started conducting research on medical ultrasound. He also held a post-doctoral position with The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, where he also was a Research Assistant Professor. He is currently an Associate Professor at the Instituto de Ciencias de la Ingeniería at the Universidad de O'Higgins in Chile. His research interests are the linear and nonlinear elastic wave propagation in soft materials, ultrasound super-resolution imaging and the elasto-acoustics in complex medium.

Joao Luis Ealo Cuello

Universidad del Valle

Teaching about ultrasonic waves in a non-acoustician country: From vortex beams in air to waves in plant leaves

Joao Ealo is professor at the School of Mechanical Engineering of the Universidad del Valle, Cali, Colombia, since 2002. He received the B.Sc. in Mechanical Engineering from the University of Ibagué, Colombia, in 1998, and the M.Sc. in Industrial Control Systems from the University of Valladolid, Spain, in 2000. In 2009, He obtained a doctorate degree in Mechanical Engineering from the Polytechnic University of Madrid, Madrid, Spain, supported by the Institute for Industrial Automation of the Spanish Research Council (CSIC) and the Universidad del Valle. In 2010 founded the Laboratory in Vibrations and Acoustics (LaVA), through which he conducts research and development activities along with his students and collaborators. Current research interests at LaVA are aimed to: a) exploring different transducers technologies to be used in air-coupled ultrasonic applications, such as acoustic imaging, non-destructive testing, robot navigation, particle manipulation, etc.; b) material characterization through non-contact ultrasonic techniques, this includes laser-based ultrasound and ultrasonic spectroscopy; c) modeling, fabrication and characterization of electromechanical-acoustic sources;d) Vibration and acoustics in industrial environments; d) vibroacoustic characterization of Colombian autochthonous musical instruments and e) acoustic vortex beams.

Diego Dumani

University of Costa Rica

Biomedical ultrasound and photoacoustic imaging at the University of Costa Rica: present and future perspectives

Dr. Dumani received B.Sc. and Lic. in Electrical Engineering (UCR), M.Sc. in Biomedical Engineering (UT Austin), and Ph.D. in Biomedical Engineering (Georgia Tech and Emory). Additionally, he was a postdoctoral researcher in imaging and nanomedicine for diagnostics and image-guided therapy at Georgia Tech and Emory.

Currently, he is an Associate Professor of Electrical Engineering at the University of Costa Rica, where he manages the Biomedical Engineering Research Lab. His research interests include the development of imaging solutions for diagnosis and therapy monitoring of disease, using ultrasound, photoacoustics, and nanoscale contrast agents.

Jose Henrique Araujo Lopes de Andrade

Federal University of Alagoas

Acoustics and Ultrasonics Trends at the Federal University of Alagoas

Professor J. Henrique Lopes leads the Acoustic and applications research group in the Federal University of Alagoas. This research group was founded in 2020 and has 4 academic members of staff, 7 undergraduate, 2 master degrees and 1 Phd students. He has experience in acoustic radiation force and torque generated by ultrasound fields and its applications in acoustic tweezers and acoustic levitation. Recently he has worked in the subwavelength focusing beam generation using spherical objects like lenses to high resolution ultrasound imaging. Furthermore, a new research interest has emerged in the group about high power transducers for applications in bio-antifouling. Currently, is an effective member of the Postgraduate programme of the Physical Institute at Federal University of Alagoas.

Antonio Adilton Carneiro

Universidade de São Paulo

Research and opportunities together with the Group of Medical Instrumentation and Ultrasound Innovation at the University of São Paulo-campus of Ribeirão Preto, SP, Brazil.

Antonio Adilton O Carneiro received the B.Sc. degree in Physycs from the Universidade Federal da Bahia, Salvador, Ba, Brazil, and the M.Sc. and Ph.D degree in Physics Applied to Medicine and Biology from the Universidade de São Paulo, Ribeirao Preto, SP, Brazil, in 1997 and 2001, respectively. He did postdoctoral fellowship at the Faculty of Medicine of the Universidade de São Paulo between 2002 and 2003; He was a visiting researcher at the University of Wisconsin, Madison-WI, in 2004 and at Mayo Clinic Foundation, in Rochester, MN, in 2006. He is currently a Full Professor at the Universidade de São Paulo; vice president of the Brazilian Society of Biomedical Engineering; Coordinator of the Group of Innovation in Biomedical Instrumentation and Ultrasound; Member of the board of the Brazilian Society of Biomedical Engineering; the Brazilian Society of Physics, and the Brazilian Association of Medical Physics. He teaches Basic Physics, Ultrasound in Biomedicine; Medical Instrumentation and Entrepreneurship courses at the undergraduation and graduation level. His main areas of research are in biomedical instrumentation, development of theranostic systems involving ultrasound, magnetism and optics, and development of tissue-mimicking phantoms for surgical training.

Roberto Lavarello

Pontificia Universidad Católica del Perú

Ultrasonic imaging and tissue characterization at the Laboratorio de Imágenes Médicas in Peru

Roberto Lavarello received his B.Sc. degree in Electronics Engineering from the Pontificia Universidad Católica del Perú in 2000, and his M.Sc. and Ph.D. degrees in Electrical and Computer Engineering from the University of Illinois at Urbana-Champaign in 2005 and 2009, respectively. He is currently a full professor at the Department of Engineering of the Pontificia Universidad Católica del Perú and the director of the Medical Imaging Laboratory, the M.SC. in Biomedical Engineering, and the Ph.D. in Engineering programs from the same institution. His research is primarily focused on the reconstruction and processing of images for the non-invasive assessment of pathological conditions. He is a senior member of IEEE and a former Fulbright scholarship recipient. He served as an Associate Editor for the IEEE Transactions on Biomedical Engineering (2010-2012) and is currently an Associate Editor for the IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control and the IEEE Transactions on Medical Imaging, and an editorial board member for the IEEE Open Access Journal of Engineering in Medicine and Biology. He has served as IEEE EMBS Peru Section Chapter chair (2014-2016) and is currently the R9 representative at the IEEE EMBS AdCom (2017-2022), the chair-of the IEEE Transactions on Medical Imaging Steering Committee, the chair of the the IEEE International Symposium on Biomedical Imaging Steering Committee, the co-chair of the backscatter coefficient group of the the AIUM/QIBA Pulse-Echo Quantitative Ultrasound Biomarker committee. and a member of the IEEE EMBS Technical Committee on Biomedical Imaging and Image Processing, the IEEE SPS Technical Committee on Bio Imaging and Signal Processing, and the Technical Program Committee of the IEEE International Ultrasonics Symposium.

Nicolás Benech

Universidad de la República in Uruguay

General View of our Lab which includes Ultrasound Elastography, Thermal Therapy and Physical Acoustics

Nicolás Benech is a professor at the Instituto de Física, Facultad de Ciencias, Universidad de la República in Uruguay. He completed his PhD Thesis in 2008 about time reversal of shear waves in soft solids and noise correlation based elastography. Since then, he has published several papers in this subjects. Since 2017 he led a team working in surface wave elastography applied to agrifoods and regenerative medicine. He holds a national patent in this area. His research interests are ultrasound elastography, surface wave elastography and physical acoustics which include wave propagation in complex media and time-reversal through random media. He has collaborations with research groups in France (LIA, LabTau), Brazil (UFRJ), USA (Verasonics) and Mexico (UNAM, CINVESTAV).

2021 IEEE LAUS Women in Engineering

Carolina Amador Carrascal

Carolina received her professional degree in Biomedical Engineering from the Escuela de Ingeniería de Antioquia, Medellín, Colombia, in 2006 and her Ph.D. in Biomedical Sciences at Mayo Clinic College of Medicine in Rochester, MN, USA in 2011. In 2014 she received the title of Assistant Professor of Biomedical Engineering and Research Associate in the Department of Physiology and Biomedical Engineering at Mayo Clinic College of Medicine in Rochester, MN, USA. In 2017, she joined Philips Research North America as a Senior Scientist in the Ultrasound Innovation Department. Over the course of her 15-year scientific career, she has contributed as the author of 20+ peer-reviewed publications, 2 book chapters, and 3 patents in the United States. Currently, she is Associate Director of the clinical development department of the Emergency Care business group at Philips North America. Carolina was recognized in 2017 by the MIT Technology Review as one of the innovators under 35 years of age in Latin America and received a special recognition as Pioneer of the year for her contributions in the area of standardization of the non-invasive method of ultrasound to diagnose liver fibrosis.

Ana B. Ramirez

Ana B. Ramirez received the B.E.E degree from the Universidad Industrial de Santander (UIS), Colombia; and the PhD degree in Electrical Engineering from University of Delaware, USA. She is currently Full Professor of the Electrical, Electronics and Communications Engineering department at Universidad Industrial de Santander, in Colombia. Her fields of interest include acoustic signal processing applied to medical and geophysical data. Her active fields of research are full waveform inversion of medical and geophysical data, and compressive sensing and sparse signal processing. She has published more than 20 papers in the areas of interest. Also, she has led several research projects funded by UIS, Colciencias, Ecopetrol and the US Research Army Lab.

Gabriela Torres

Gabriela Torres received a B.Sc. degree in electrical engineering from Pontificia Universidad Catolica del Peru, Lima, Peru, in 2015, and a Ph.D. degree from the Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, and the North Carolina State University, NC, USA, in 2021.

She received the UNC Graduate School Impact Award for her research on carotid plaque ultrasound in 2021, was a finalist in the IEEE IUS Student Paper Competition in 2019, and achieved first place in the IEEE EMBC Student Paper Competition in 2017. She also served as student representative in the IEEE UFFC Administrative Committee during 2017 and 2018.

She is currently a Senior Ultrasound Systems Engineer at Siemens Healthineers – Ultrasound Division, WA, USA. Her research interests include acoustic radiation force imaging methods and cardiovascular elasticity imaging.

Luciana Cabrelli

I'm Luciana Cabrelli, I'm 36 years old and I'm a bachelor in Medical Physics from Unifeb. I came to Ribeirão Preto (a countryside city of Sao Paulo State) to start my graduation and I finished my Ph.D in the end of 2020 at USP (University of Sao Paulo). I've been working with phantoms for image guided procedures, specially ultrasound and photoacoustic imaging, since my master (at 2013). I had an opportunity in 2019 to be part of Gphantom's team as a product developer, and that's my currently position.

Andrea Pulido

Andrea Pulido was born in Bogota - Colombia; she holds a bachelor's degree in Computer Science Engineering. Andrea developed a passion for the research field during her bachelor studies. So she decided to continue her studies with a master's degree in Biomedical Engineering at Universidad Nacional de Colombia. After graduation, she moved into the business industry and started working as a Java developer for four years.

Currently, she is a doctoral candidate in Biomedical Sciences at KU Leuven - Belgium in Cardiovascular Imaging and Dynamics unit. Her research focuses on cardiac motion estimation using echocardiography and deep learning.

Danay Valenzuela Rodriguez

Medical Degree for General Medicine and Surgery from Universidad Autónoma, Madrid, Spain and a post-doc Specialty on Echocardiography from Univ. Hosp. of Treviso, Italy.

Linked to the industry, always within the Medical & Research Ultrasound field, since more than 20 years.

At the moment works full time within Philips Healthcare (Ultrasound Global Business Group), leading a vast geography that includes Europe & Latin-America, as the responsible for Clinical & Strategic Marketing, focusing on Echo-Cardiography solutions.

Vast experience as a multi-lingual scientific & industry speaker, on a variety of international congresses, conferences and clinical meetings; as well as a proven expertise on development and management of communication channels between technology applied to clinical practice.

2021 IEEE LAUS Student Paper Competition

(UTC -5)
Sunday, October 3

Session 1

10:00 – Contrast-Enhanced Ultrasound Imaging of Tumor Xenografts with Correlation to Intratumoral Pressure After Vascular-Disrupting Treatment
Dominique James

10:25 – Selection of Bone fragility-Related Features Obtained with Bi-Directional Axial Transmission, Through a Machine Learning Strategy
Diego Miranda

10:50 – Ultrafast Ultrasound Doppler and Confocal Microscopy Correlative approach: Blood Flow and Vascular Structure in Adult Wild Type Mice
Maximiliano Anzibar Fialho

11:15 – A Pulsed Magnetomotive Ultrasound Imaging System for Magnetic Nanoparticle Detection
Ernesto Edgar Mazon

11:40 – Chemotherapeutic Response Monitoring of a Murine Breast Cancer Using Harmonic Motion Imaging and Functional Ultrasound
Niloufar Saharkhiz

Session 2

10:00 – Noninvasive Ultrasound for Lithium-Ion Batteries State Estimation
Simon Montoya-Bedoya

10:25 – Dielectric Optical Interfaces in Total Internal Reflection for Ultrasound Detection
Edison Carrillo

10:50 – A Numerical Simulation Study of Acoustofluidic Cylindrical Micro-Resonators
Alisson Marques

11:15 – Ultrasonic multiple-Backscattering Sensor for Monitoring of water-in-Crude Oil emulsions: Temperature Effect
Alberto Duran

11:40 – Ultrasonic Wave Propagation for Smart agriculture: an Arabica Coffee Case of Study
David Alejandro Collazos-Burbano

2021 IEEE LAUS Technical Program

8:00 AM – 8:15 AM
Opening Session

8:15 AM – 9:00 AM
Plenary Talk: Highlighting a decades lasting French-Uruguayan collaboration in Biomedical ultrasonics
Dr. Mickael Tanter and Dr. Carlos A. Negreira

9:00 AM – 9:15 AM
Break

9:15 AM - 10:45 AM UTC-5 (Bogotá Time)
A1L-A: Ultrasound Image Acquisition & Beamforming
Session Chair(s): João Machado (Universidade Federal do Rio de Janeiro)

9:15 AM
8035: FPGA-Based Reception Board of 64-Channels Ultrasound Research Platform
Tiago Dezotti{1}, Amanda Costa Martinez{1}, Amauri Amorin Assef{2}, Joaquim Miguel Maia{2}, Eduardo Tavares Costa{1}
{1}UNICAMP, Brazil; {2}UTFPR, Brazil

9:30 AM
8046: Low Complexity Adaptive Beamformer Using Data Covariance Matrix for Ultrasound Plane Wave Imaging
Acácio Zimbico{1}, Fábio Schneider{3}, Joaquim Maia{3}, Larissa Neves{3}, Amauri Assef{3}, Felipe Ribas{3}, Eduardo Costa{2}
{1}UEM/DEEL, Brazil; {2}UNICAMP, Brazil; {3}UTFPR, Brazil

9:45 AM
8032: Implementation of Eigenspace Beamformer Combined with Generalized Sidelobe Canceler and Filters for Generating Plane Wave Ultrasound Image
Larissa Comar Neves{2}, Joaquim Miguel Maia{2}, Acácio José Zimbico{1}, Felipe Meira Ribas{2}, Amauri Amorin Assef{2}, Fábio Kurt Schneider{2}, Eduardo Tavares Costa{3}
{1}Eduardo Mondlane University, Brazil; {2}Federal University of Technology (UTFPR), Brazil; {3}State University of Campinas, Brazil

10:00 AM
8045: Improving the Image Resolution in Diverging Wave Compounding Using the Sparse Arrays Method Combined with the Minimum Variance
Acácio Zimbico{2}, Fábio Schneider{4}, Joaquim Maia{4}, Larissa Neves{4}, Amauri Assef{4}, Felipe Ribas{4}, Nivaldo Schiefler Jr.{1}, Eduardo Costa{3}
{1}IFSC, Brazil; {2}UEM/DEEL, Brazil; {3}UNICAMP, Brazil; {4}UTFPR, Brazil

10:15 AM
8090: Adaptive Realization Based on One Transmission and Reception of Simultaneous Subband Compound of Harmonics
Jie Zheng{2}, Norio Tagawa{2}, Masasumi Yoshizawa{1}, Takasuke Irie{3}
{1}Tokyo Metropolitan College of Industrial Technology, Japan; {2}Tokyo Metropolitan University, Japan; {3}Tokyo Metropolitan University and Microsonic Co, Ltd., Japan

10:30 AM
8017: Performance Assessment of Side Lobe Suppression Filters Based on Ground Truth Ultrasound Image
Mok Kun Jeong{1}, Sung Jae Kwon{1}, Min Joo Choi{2}
{1}Daejin University, Korea; {2}Jeju National University, Korea

9:15 AM - 10:45 AM UTC-5 (Bogotá Time)
A1L-B: Physical Acoustics
Session Chair(s): Joao Luis Ealo Cuello (Universidad del Valle), Aline Carvalho da S. Xavier (Universidad de O'Higgins)

9:15 AM
8043: Time Reversal Focusing of an Ultrasonic Nonlinear Wave
Gonzalo Garay, Yamil Abraham, Nicolás Benech, Carlos Negreira
Instituto de Física, Facultad de Ciencias, UdelaR, Uruguay

9:30 AM
8048: Simulation of Temperature Distribution During HIFU Therapy Using Physics Based Deep Learning Method
Yuzhang Wang, Mohamed Almekkawy
The Pennsylvania State University, United States

9:45 AM
8025: Migration Methods with Curved Coordinate Systems
Sergio Sanes Negrete{2}, Juan Carlos Muñoz Cuartas{2}, Koen W.A. Van Dongen{1}
{1}TU Delft, Netherlands; {2}Universidad de Antioquia, Colombia

10:00 AM
8007: Surface Wave Characterization in Soft Solid Using Ultrafast Ultrasound Imaging
Héctor Alarcón, David Espindola
Universidad de O'Higgins, Chile

10:15 AM
8093: On the Feasibility of Using Ultrasonic Grating Vortex Beams to Induce Rotation on Absorbent Disks
Ruben Muelas, Jhon Pazos-Ospina, Joao Ealo
Universidad del Valle, Colombia

10:30 AM
8068: A Numerical Simulation Study of Acoustofluidic Cylindrical Micro-Resonators
Alisson Marques, Glauber Silva
Federal University of Alagoas, Brazil

10:45 AM – 11:00 AM
Break

11:00 AM - 12:15 PM UTC-5 (Bogotá Time)
A2L-A: Ultrasound-based Therapy & Neuromodulation
Session Chair(s): Elisa E. Konofagou (Columbia University)

11:00 AM
8039: FUS Median Nerve Stimulation for Pain Mitigation
Stephen Lee, Hermes Kamimura, Elisa Konofagou
Columbia University, United States

11:15 AM
8028: Spatio-Temporal Description of Focused Ultrasound (FUS)-Evoked Local Field Potentials: an Ex Vivo Study on a Mouse Hippocampal Model
Ivan Suarez-Castellanos{3}, Elena Dossi{2}, Jérémy Vion-Bailly{3}, Lea Salette{2}, Jean-Yves Chapelon{3}, Alexandre Carpentier{1}, Gilles Huberfeld{1}, William Apoutou N'Djin{3}
{1}AP-HP, France; {2}College de France, France; {3}INSERM, France

11:30 AM
8006: Non-Invasive Ultrasound Therapy of Calcified Aortic Stenosis First-In-Human Study
Mathieu Pernot{4}, Guillaume Goudot{3}, Alexander Ijsselmuiden{2}, Selina Vlieger{2}, Mathieu Cyrille Remond{1}, Daniel Suarez Escudero{1}, Mickael Tanter{4}, Benjamin Bertrand{1}, Emmanuel Messas{3}
{1}Cardiawave SA, France; {2}Cardiovascular department, Amphia Hospital, Breda, Netherlands; {3}Hopital européen Georges Pompidou, France; {4}Physics for Medicine Paris, France

11:45 AM
8021: Significance of Thermal and Non-Thermal Effects in LIPUS-Induced Drug Release from Gold Nanoparticle Drug Carriers
Tyler Hornsby, Anshuman Jakhmola, Michael Kolios, Jahan Tavakkoli
Ryerson University, Canada

12:00 PM
8081: Chemotherapeutic Response Monitoring of a Murine Breast Cancer Using Harmonic Motion Imaging and Functional Ultrasound
Niloufar Saharkhiz{2}, Stephen Lee{2}, Xiaoyue Judy Li{2}, Hermes A. S. Kamimura{2}, Saurabh Singh{1}, Indranil Basu{1}, Chandan Guha{1}, Elisa E. Konofagou{2}
{1}Albert Einstein College of Medicine, United States; {2}Columbia University, United States

11:00 AM - 12:15 PM UTC-5 (Bogotá Time)
A2L-B: NDE/Industrial Applications 1
Session Chair(s): Nicolás Benech (Instituto de Física, Facultad de Ciencias), Joaquim Miguel Maia (Federal University of Technology - Paraná)

11:00 AM
8027: Classification Functions and Optimization Algorithms for Debonding Detection in Adhesively Bonded Lap-Joints Through Ultrasonic Guided Waves
Mohsen Barzegar, Dario Pasadas, Artur Ribeiro, Helena Ramos
Instituto de Telecomunicacoes, Portugal

11:15 AM
8088: Numerical Investigation of the Propagation Characteristics of Shear Horizontal Guided Modes in Coated Pipes
Christiano Nascimento, Lucas Martinho, Alan Kubrusly
Pontificial Catholic University of Rio de Janeiro, Brazil

11:30 AM
8044: Improving vibro-acoustography Images Using 2D Wavelet Transform
Bruno Marció{2}, Guilherme Braz{1}, Antonio Adilton Carneiro{1}, Rodolfo Flesch{3}
{1}Universidade de São Paulo, Brazil; {2}Universidade Federal de Mato Grosso, Brazil; {3}Universidade Federal de Santa Catarina, Brazil

11:45 AM
8015: Method to Depress Trailing Excitation Signal in Acoustic Well Logging
Kai Zhang{1}, Xuelian Chen{1}, Kun Zhang{2}
{1}China University of Petroleum, China; {2}Shandong Deyuan electric technology Co., Ltd, China

12:15 PM – 1:15 PM
Panel: Funding Opportunities & Collaboration in LatAm (Round Table)
Matthew Eames (Focused Ultrasound Foundation), Ana Vasquez (ANII), & Sofia El Mhassani (CNRS)

1:15 PM – 2:00 PM
Plenary Talk: Imaging and Full-waveform, From First Principles to Full Implementation
Dr. Koen W.A van Dongen and Dr. Ana Beatriz Ramirez Silva

2:00 PM – 2:15 PM
Break

2:15 PM - 3:45 PM UTC-5 (Bogotá Time)
A3L-A: Vascular Ultrasound & Super Resolution Imaging
Session Chair(s): Kenneth Hoyt (University of Texas at Dallas)

2:15 PM
8019: Comparison of Localization Methods in Super Resolution Imaging
Aline Xavier{1}, Gianmarco Pinton{2}, David Espindola{1}
{1}Instituto de Ciencias de la Ingeniería, Universidad de O'Higgins, Rancagua, Chile, Chile; {2}Joint Department of Biomedical Engineering, University of North Carolina, United States

2:30 PM
8055: Ultrafast Ultrasound Doppler and Confocal Microscopy Correlative approach: Blood Flow and Vascular Structure in Adult Wild Type Mice
Maximiliano Anzibar Fialho{4}, Mariana Martínez{1}, Lucía Vázquez{1}, Miguel Calero{2}, Mikael Tanter{3}, Carlos Negreira{4}, Nicolás Rubido{5}, Alejandra Kun{1}, Javier Brum{4}
{1}Instituto de investigaciones biológicas Clemente Estáble, Uruguay; {2}Instituto de Salud Carlos III, CIBERNED, Spain; {3}Physics for Medicine Paris, Inserm, CNRS, ESPCI, France; {4}Universidad de la República, Uruguay; {5}University of Aberdeen, Aberde

2:45 PM
8051: Wall-Less Vascular Phantom for Ultrasound and Photoacoustic Imaging Using glycerol-in-SEBS Gel
Luciana C. Cabrelli, João H. Uliana, Luismar B. Da Cruz Junior, Luciano Bachmann, Antonio A. O. Carneiro, Theo Z. Pavan
USP, Brazil

3:00 PM
8056: 3D-Printed high-Resolution Phantom Microvasculature Enables Measurement of microbubble Acoustic Backscattering
Roger Domingo-Roca, Mairi Sandison, Richard O'Leary, Joseph Jackson-Camargo, Helen Mulvana
University of Strathclyde, United Kingdom

3:15 PM
8003: Experimental Study of the Relationship Between Microbubble Size and Spatiotemporal Pulse Sequencing During Super-Resolution Ultrasound Imaging
Katherine Brown, Kenneth Hoyt
University of Texas at Dallas, United States

3:30 PM
8012: Contrast-Enhanced Ultrasound Imaging of Tumor Xenografts with Correlation to Intratumoral Pressure After Vascular-Disrupting Treatment
Dominique James{2}, Jane Song{2}, Junjie Li{2}, Flemming Forsberg{1}, Kibo Nam{1}, Kenneth Hoyt{2}
{1}Thomas Jefferson University, United States; {2}University of Texas at Dallas, United States

2:15 PM - 3:45 PM UTC-5 (Bogotá Time)
A3L-B: Transducers, Sensors & Actuators
Session Chair(s): Ricardo Tokio Higuti (Universidade Estadual Paulista), Nicolás Perez Alvarez (Universidad de la República)

2:15 PM
8009: Using Ultrasonic Oscillating Temperature Sensors to Measure Aggregate Temperatures in Liquid and Gaseous Media
Alexander Kalashnikov, Ali Elyounsi
Sheffield Hallam University, United Kingdom

2:30 PM
8011: A Performance Evaluation of class-B Amplifiers for Driving Piezoelectric Transducers
Francisco Ramos, Francisco Arnold
Unicamp, Brazil

2:45 PM
8022: Focal Size Reduction and Displacement in a single-Element Biaxial Ring Transducer at 510 Khz and 1.66 MHz
Sagid Delgado, Laura Curiel, Samuel Pichardo
University of Calgary, Canada

3:00 PM
8069: A New Fitness Function for Sparse Linear Array Evaluation Based on the Point Spread Function
Julio Cesar Souza{2}, Vander Teixeira Prado{3}, Óscar Martínez-Graullera{1}, Ricardo Tokio Higuti{2}
{1}Conselho Superior de Investigações Científicas - CSIC, Spain; {2}Universidade Estadual Paulista - UNESP, Brazil; {3}Universidade Tecnológica Federal do Paraná - UTFPR, Brazil

3:15 PM
8072: Ultrasonic multiple-Backscattering Sensor for Monitoring of water-in-Crude Oil emulsions: Temperature Effect
Alberto Duran{2}, Ediguer E. Franco{1}, Nicolás Pérez{3}, Marcos S. G. Tsuzuk{2}, Flávio Buiochi{2}
{1}Autonomous University of the West, Colombia; {2}University of Sao Paulo, Brazil; {3}University of the Republic of Uruguay, Uruguay

3:30 PM
8074: Development of an Adjustable Measuring Cell for Ultrasonic Characterization of water-in-Crude Oil Emulsions
Carlos Reyna{2}, Ediguer Franco{1}, Alberto Duran{2}, Marcos Tsuzuki{2}, Flávio Buiochi{2}
{1}Universidad Autónoma de Occidente, Colombia; {2}UNIVERSIDADE DE SãO PAULO, Brazil

8:45 AM
8052: Shear Wave elastography Based on Noise correlation: from 1D to 3D Shear Elasticity
Miguel Bernal{3}, Javier Brum{1}, Ron Daigle{2}, Carlos Negreira{1}, Nicolas Benech{1}
{1}Instituto de Física, Facultad de Ciencias, UdelaR, Uruguay; {2}Verasonics Inc., United States; {3}Verasonics SAS, Medellín, Colombia

3:45 PM – 4:00 PM
Break

4:00 PM – 5:40 PM
Invited Talks (Meet the Labs in Latin America - Networking event)

5:40 PM – 5:50 PM
Day 1 Closing Remarks & Student Awards

Tuesday, October 5

8:00 AM – 8:35 AM
Plenary Talk - Top Advances on Dermatologic Ultrasound: Results of the Development of High and Ultrahigh Frequency Ultrasound
Dr. Ximena Wortsman

8:35 AM – 8:45 AM
Break

8:45 AM - 9:45 AM UTC-5 (Bogotá Time)
B1L-A: Ultrasound Elastography
Session Chair(s): Benjamín Castañeda Aphan (Pontificia Universidad Católica del Perú)

8:45 AM
8058: A Diffraction Correction to Quantify Shear Wave Attenuation in Transverse Isotropic tissues: Preliminary Results
Eliana Budelli{1}, Javier Brum{2}, Patricia Lema{1}, Carlos Negreira{2}
{1}Instituto de Ingeniería Química. Facultad de Ingeniería. Universidad de la República., Uruguay; {2}Laboratorio de Acústica Ultrasonora. Facultad de Ciencias. Universidad de la República, Uruguay

9:00 AM
8080: Effects of Macromolecule functionalization on the Mechanical Properties of PVA Hydrogels
Liliana Maria Arroyave Muñoz{1}, Sergio Estrada Mira{1}, Luz Marina Restrepo Múnera{1}, Claudia Patricia Ossa Orozco{1}, Miguel Bernal Restrepo{2}
{1}University of Antioquia, Colombia; {2}Verasonics S.A.S, Colombia

9:15 AM
8066: Measuring Tissue Elastic Properties Using Physics Based Neural Networks
Aishwarya Mallampati, Mohamed Almekkawy
The Pennsylvania State University, University Park, United States

9:30 AM
8077: Recent Clinical Applications of Shear Wave Elastography in Uruguay
Agustin Arruti{1}, Vera De Mora{2}, Andrea Tavitian{1}, Federico Avondet{1}, Liliana Servente{1}, Mariela Garau{1}, Javier Brum{3}
{1}Hospital de Clinicas, Facultad de Medicina, UdelaR, Uruguay; {2}Hospital de ClinicasHospital de Clinicas, Facultad de Medicina, UdelaR, Uruguay; {3}Laboratorio Acustica Ultrasonora. Insituto de Fisica. Facultad de Ciencias. UdelaR, Uruguay

8:45 AM - 9:45 AM UTC-5 (Bogotá Time)
B1L-B: Clinical Applications of Ultrasound
Session Chair(s): Lauren Wirtzfeld (FUJIFILM VisualSonics)

8:45 AM
8047: Simulation of Pulmonary Ultrasound Artifacts
Ariane Sanches, Lucas Cesar Zeni, Felipe Grillo, Jorge Elias Jr., Aron Ferreira, Theo Pavan, Adilton Carneiro
University of São Paulo, Brazil

9:00 AM
8005: Classifying Liver Steatosis and Fibrosis Using Machine Learning Approaches on Ultrasound radio-Frequency Signals
Lukas Brausch, Holger Hewener, Steffen Tretbar
Fraunhofer IBMT, Germany

9:15 AM
8034: Selection of Bone fragility-Related Features Obtained with Bi-Directional Axial Transmission, Through a Machine Learning Strategy
Diego Miranda, Rodrigo Olivares, Roberto Munoz, Jean-Gabriel Minonzio
Escuela de Ingeniería en Informática, Universidad de Valparaíso, Chile

9:45 AM – 10:45 AM
Student Pitch Competition

10:45 AM - 12:15 PM UTC-5 (Bogotá Time)
B2L-A: Novel Ultrasound Imaging Methods & Tissue Characterization
Session Chair(s): Ivan M. Rosado Mendez (University of Wisconsin-Madison)

10:45 AM
8057: A Pulsed Magnetomotive Ultrasound Imaging System for Magnetic Nanoparticle Detection
Ernesto Edgar Mazon{1}, Saeideh Arsalani{1}, João Henrique Uliana{1}, Antonio Adilton Oliveira Carneiro{1}, Alexandre José Gualdi{2}, Theo Zeferino Pavan{1}
{1}Universidade de São Paulo, Brazil; {2}Universidade Federal de São Carlos, Brazil

11:00 AM
8002: Classification of Thyroid Nodules in H-Scan Ultrasound Images Using Texture Analysis and Principal Component Analysis
Mawia Khairalseed{4}, Rosa Laimes{1}, Joseph Pinto{1}, Jorge Guerrero{1}, Himelda Chavez{1}, Claudia Salazar{1}, Kevin Parker{3}, Roberto Lavarello{2}, Kenneth Hoyt{4}
{1}Oncosalud, Peru; {2}Pontificia Universidad Católica del Perú, Peru; {3}University of Rochester, United States; {4}University of Texas at Dallas, United States

11:15 AM
8020: Nonlinearity Parameter Estimation Method in pulse-Echo Using a Reference Phantom
Andres Coila, Michael Oelze
University of Illinois at Urbana-Champaign, United States

11:30 AM
8062: Real Time Waveguide Parameter Estimation Using Sparse Multimode Disperse Radon Transform
Claudio Araya{4}, Alejandro Martinez{4}, Donatien Ramiandrisoa{1}, Dean Ta{2}, Kailiang Xu{2}, Axel Osses{3}, Jean-Gabriel Minonzio{4}
{1}Bleu Solid, France; {2}Fudan University, China; {3}Universidad de Chile, Chile; {4}Universidad de Valparaiso, Chile

11:45 AM
8004: Information Theoretical Measures from Ultrasound Data for Human Motion Understanding
M. Hassan Jahanandish{2}, Lokesh Basavarajappa{1}, Kenneth Hoyt{2}
{1}University of Texas at Da, United States; {2}University of Texas at Dallas, United States

12:00 PM
8076: Use of Acoustic Spectroscopy in the Evaluation of Osteoporosis
Guilherme Braz, Paulo Agnollitto, Maecello Nogueira-Barbosa, Adilton Carneiro
University of São Paulo, Brazil

10:45 AM - 12:15 PM UTC-5 (Bogotá Time)
B2L-B: NDE/Industrial Applications 2
Session Chair(s): Eduardo Tavares Costa (University of Campinas), Amauri Amorin Assef (Federal University of Technology - Paraná)

10:45 AM
8053: Noninvasive Ultrasound for Lithium-Ion Batteries State Estimation
Simon Montoya-Bedoya{1}, Miguel Bernal{2}, Laura A Sabogal-Moncada{1}, Hader V Martinez-Tejada{1}, Esteban Garcia-Tamayo{1}
{1}Grupo de Investigación Energía y Termodinámica (GET), Universidad Pontificia Bolivariana, Colombia; {2}Verasonics SAS, Medellín, Colombia

11:00 AM
8086: Ultrasound Simulation Technique As state-of-Health Estimation Method of lithium-Ion Batteries
Juan Pablo Gaviria Cardona, Michael Andrés Guzman de Las Salas, Nicolas Montoya Escobar, Juan Camilo Botero Arcila, Whady Felipe Florez Escobar, Raul Valencia Cardona
Universidad Pontificia Bolivariana, Colombia

11:15 AM
8087: Ultrasonic Wave Propagation for Smart agriculture: an Arabica Coffee Case of Study
David Alejandro Collazos-Burbano{2}, Joao Luis Ealo Cuello{2}, Mayo Villagrán-Múniz{1}
{1}Universidad Autónoma de México, Mexico; {2}Universidad del Valle, Colombia

11:30 AM
8089: Underwater Ultrasonic Spectroscopy for the Study of Coffee Leaves (Coffea arabica) Hydration in real-Time
Jose-Luis Castaño-Bernal{2}, Joao Ealo{2}, Enrique Franco{1}, David Collazos-Burbano{2}
{1}Universidad Autónoma de Occidente, Colombia; {2}Universidad del Valle, Colombia

11:45 AM
8041: Influence of Sample Geometry and Ultrasonic Transducer Center Frequency on Quantitative Pulsed Photoacoustic Spectroscopy
João Henrique Uliana, Antonio Adilton Oliveira Carneiro, Theo Zeferino Pavan
Department of Physics, FFCLRP - USP, Brazil

12:00 PM
8024: Ultrasonic Vegetation Index to Estimate Water Content in Plant Leaves: Preliminary Results Using Pulsed Photoacoustics
David Alejandro Collazos-Burbano{1}, Joao Luis Ealo Cuello{1}, Mayo Villagrán-Múniz{2}
{1}Universidad del Valle, Colombia; {2}Universidad Nacional Autónoma de México, Mexico

12:15 PM – 1:15 PM
Women in Engineering

1:15 PM - 2:45 PM UTC-5 (Bogotá Time)
B3L-A: Ultrasound Imaging with Contrast Mechanisms: Photoacoustic Imaging & Microbubbles
Session Chair(s): Diego Dumani Jarquín (University of Costa Rica)

1:15 PM
8036: Modeling Thermometry Image Perturbations During Photoacoustic imaging-Guided photothermal Therapy
Mauricio Cespedes Tenorio, Diego Dumani Jarquin
School of Electrical Engineering, University of Costa Rica, Costa Rica

1:30 PM
8040: Overcoming the Photoacoustic limited-View Problem via microbubble Induced Fluctuation Imaging
Marco Inzunza-Ibarra, Vyjayanthi Narumanchi, Jose Navarro-Becerra, Nick Bottenus, Todd Murray, Mark Borden
University of Colorado, United States

1:45 PM
8023: Multiangle long-Axis Lateral Illumination Photoacoustic Imaging to Evaluate Tumor Oxygenation
João Henrique Uliana{3}, Marina Ferreira Candido{2}, Maria Sol Brassesco{1}, Antonio Adilton Oliveira Carneiro{3}, Theo Zeferino Pavan{3}
{1}Department of Biology, FFCLRP-USP, Brazil; {2}Department of Molecular and Cellular Biology, FMRP - USP, Brazil; {3}Department of Physics, FFCLRP - USP, Brazil

2:00 PM
8016: Evaluating red-blood-Cell Degradation Using Photoacoustic spectroscopy: an in silico Study
Anuj Kaushik, Himanshu Shekhar
IIT Gandhinagar, India

2:15 PM
8050: In Vivo Pharmacokinetics of size-Selected microbubbles: a Direct Blood Characterization Study
Jose Navarro, Kang-Ho Song, Mark Borden
University of Colorado Boulder, United States

2:30 PM
8060: Acoustic Stability of LIPID-Shelled MICROBUBBLES on a Weekly Timescale
Daniella Jimenez, Antonios Pouliopoulos, Elisa Konofagou
Columbia University, United States

1:15 PM - 2:45 PM UTC-5 (Bogotá Time)
B3L-B: Acoustic Levitation, Transducers & Microfluidics
Session Chair(s): Karen Volke-Sepúlveda (Universidad Nacional Autonoma de Mexico), Marco Aurélio Brizzotti Andrade (Universidade de Sao Paulo)

1:15 PM
8031: Design and Construction of a Piezoelectric Transducer for Acoustic Levitation
Sílvio Vieira{2}, Marco Andrade{1}
{1}Universidade de São Paulo, Brazil; {2}Universidade Federal de Goiás, Brazil

1:30 PM
8065: Dielectric Optical Interfaces in Total Internal Reflection for Ultrasound Detection
Edison Carrillo{1}, Carlos Carreno Romano{1}, Francisco Veiras{2}, Ligia Ciocci Brazzano{2}
{1}Facultad de Ingeniería Universidad de Buenos Aires, Argentina; {2}Facultad de Ingeniería Universidad de Buenos Aires and CONICET, Argentina

1:45 PM
8071: Airborne High Power Vortex Beam Generation by Means of Ultrasonic Vibrations
Jhoan Acevedo-Espinosa, Jhon Pazos-Ospina, Joao Ealo
School of Mechanical Engineering, Universidad del Valle, Colombia

2:00 PM
8078: Superresolution Ultrasonic Transducer Based on a Core-Shell Lens
José Pereira Leão-Neto{1}, Everton Brito de Lima{1}, João Henrique Uliana{2}, Theo Pavan{2}, Glauber Tomaz Silva{1}, José Henrique Lopes{1}
{1}Federal University of Alagoas, Brazil; {2}University of São Paulo, Brazil

2:15 PM
8082: Acoustofluidic Levitation Device for Measuring Cell Density
Harrisson D.A. Santos{4}, Giclênio C. Silva{4}, Tiago F. Vieira{1}, Amanda E. Silva{2}, Ícaro B. Q. de Araújo{1}, Magna S. Alexandre-Moreira{2}, Carlos Jacinto{3}, Ueslen Rocha{3}, Glauber T. Silva{4}
{1}Institute of Computing, Federal University of Alagoas, Brazil; {2}Laboratory of Pharmacology, Federal University of Alagoas, Brazil; {3}Nanophotonics and Images Group, Institute of Physics, Federal University of Alagoas, Brazil; {4}Physical Acoustics G

2:30 PM
8083: Effect of Source Curvature on the Equilibrium Position of Ultrasonically Levitated Particles
Jhon Pazos-Ospina{1}, Jordan Estrada{2}, Victor Contreras{2}, Diego Baresch{3}, Joao Ealo{1}, Karen Volke{2}
{1}Universidad del Valle, Colombia; {2}Universidad Nacional Autónoma de México, Mexico; {3}Université de Bordeaux, France

2:45 PM - 3:45 PM UTC-5 (Bogotá Time)
B4P-C: Biomedical Poster Session
Session Chair(s): Nicolás Benech (Instituto de Física, Facultad de Ciencias), Antonio Adilton Carneiro (Universidade de São Paulo), Acácio Zimbico (UEM/DEEL)

8008: Effect of Pore Fluid on Piezoelectric Signal in Cancellous Bone Generated by Ultrasound Irradiation: Experimental and Numerical Results
Atsushi Hosokawa
National Institute of Technology, Akashi College, Japan

8010: Rotation Elastogram Estimation Using Mechanical Assisted Spatial Compounding: a Simulation Study
Belfor Galaz{3}, Henriquez Teresa{3}, Espindola David{2}, Trejo Miguel{1}
{1}Universidad de Buenos Aires, Argentina; {2}Universidad de O'Higgins, Chile; {3}Universidad de Santiago de Chile, Chile

8013: Two-Dimensional Mapping of Optical Absorber Size Using Photoacoustic Graphic Equalization Imaging
Lokesh Basavarajappa{1}, Kenneth Hoyt{2}
{1}University of Texas at Da, United States; {2}University of Texas at Dallas, United States

8018: Simulation Assessment of Two Focused Ultrasound Sources for Neuromodulation
Patricia de Andrade{2}, Eduardo Costa{2}, Hermes Kamimura{1}
{1}Columbia University, United States; {2}Universit of Campinas, Brazil

8026: A Numerical Approach to the Magnetic Nanoparticle Hyperthermia
Alireza Ashofteh Yazdi{2}, Antonio Callejas{3}, Pablo Moreno{2}, Rafa Muñoz{1}, Juan Melchor{2}
{1}Department of Civil Engineering, 18071 Granada, Spain; {2}Department of Statistics and Operations Research, University of Granada, 18071 Granada, Spain; {3}Department of Structural Mechanics, University of Granada, 18071 Granada, Spain

8033: Minimum Variance Generalized Sidelobe Canceller and Eigenspace-Based Generalized Sidelobe Canceller Beamformer Combined with Frost Postfilter for Medical Ultrasound Imaging
Felipe Meira Ribas{2}, Joaquim Miguel Maia{2}, Larissa Comar Neves{2}, Amauri Amorin Assef{2}, Acácio José Zimbico{1}, Fábio Kurt Schneider{2}, Solivan Arantes Valente{4}, Eduardo Tavares Costa{3}
{1}Eduardo Mondlane University, Brazil; {2}Federal University of Technology - Parana (UTFPR), Brazil; {3}State University of Campinas, Brazil; {4}University Positivo (UP), Brazil

8037: Muscle-Computer Interface Using Portable Ultrasonography Device
César Millán-Castillo, Eduardo Gerardo Mendizabal-Ruiz, Hugo Abraham Vélez-Perez, Rebeca Del Carmen Romo-Vázquez
Departamento. de Ciencias Computacionales, CUCEI, Av. Revolución 1500, C.P. 44840, Guadalajara, Jal, Mexico

8042: A MATLAB GUI Interface for multi-Level Pulse Amplitude Modulation (PAM) Generation in Medical Ultrasound Research
Renan Antonio Correa Medeiros{1}, Amauri Amorin Assef{1}, Joaquim Miguel Maia{1}, Michel Andrey F. De S. Kohler{1}, Matheus Jose Da Silva Ruzyk{1}, Eduardo Tavares Costa{2}
{1}Federal University of Technology (UTFPR), Brazil; {2}State Univeristy of Campinas (Unicamp), Brazil

8049: Temperature Control of the Focal Point of Focused Ultrasound Excitation Using Neural Network Approach
Xilun Liu, Mohamed Almekkawy
Pennsylvania State University, United States

8059: Impact of Correlation Level of Eigenvectors on Mean Scatterer Spacing Estimation
Guillermo Cortela{4}, Christiano Bittencourt Machado{2}, Carlos Negreira{3}, Wagner C.A.Pereira{1}
{1}Biomedical Engineering Program, COPPE, UFRJ, Brazil; {2}Estácio de Sá University, Brazil; {3}U de la República, , Instituto de Física, Uruguay; {4}Universidad de la República, Instituto de Física, Uruguay

8064: Segmentation of Breast Ultrasound Images Using Densely Connected Deep Convolutional Neural Network and Attention Gates
Niranjan Thirusangu, Mohamed Almekkawy
The Pennsylvania State University, United States

8067: Propagation of Critically Refracted Longitudinal Ultrasonic Waves in Acrylic As a cortical-bone-Mimicking Phantom for Ultrasound Thermometry
Caroline Duderstadt, Sílvio Vieira
Universidade Federal de Goiás, Brazil

8070: Characterization of Acoustic and Mechanical Properties of tissue-Mimicking Materials by Ultrasound
Jheferson Gomes, Silvio Vieira
Goias Federal University, Brazil

8085: Comparison of Three Simulation Methods for RF Ultrasound Signal Envelope Detection
Matheus Jose Da Silva Ruzyk{2}, Amauri Amorin Assef{2}, Joaquim Miguel Maia{2}, Amanda Costa Martinez{1}, Lucas Ribeiro de Oliveira{1}, Eduardo Tavares Costa{1}
{1}UNICAMP, Brazil; {2}UTFPR, Brazil

8096: Comparative Analysis Between Standard Error of the Regression and Coefficient of Determination to Evaluate the Performance of the Shear Wave Speed Estimation Using Reverberant Shear Wave Elastography
Aldo Tecse, Stefano Romero, Benjamin Castaneda
Pontificia Universidad Católica del Perú, Peru

2:45 PM - 3:45 PM UTC-5 (Bogotá Time)
B4P-D: Industrial Applications, Transducer & Physical Acoustics Poster Session
Session Chair(s): Flávio Buiochi (Unversidade de São Paulo)

8029: Parametric Study of the Subwavelength Ultrasound Beam Generated by Core-Shell Lens
Gutemberg Da Silva Cardoso{1}, José Pereira Leão-Neto{2}, José Henrique Lopes{2}
{1}Federal University of Alagoas, Brazil; {2}Federal University of Alagoas/Campus Arapiraca, Brazil

8030: 3D Printed Acoustofluidic Resonators for Applications in Biospectroscopy
Giclênio Cavalcante, Marcos Sales, Ana Leite, Flávio D'Amato, Ueslen Rocha, Glauber Silva
Federal University of Alagoas, Brazil

8038: Enhancing Contrast of Magneto-Motive Ultrasound Imaging by Applying a Combination of Magnetic Nanoparticles with Gold Nanorods
Saeideh Arsalani{2}, Soudabeh Arsalani Arsalani{1}, Ernesto Mazon{2}, João Uliana{2}, Theo Pavan{2}, Oswaldo Baffa{2}, Antonio Adilton Carneiro{2}
{1}hysikalisch-Technische Bundesanstalt,, Germany; {2}University of Sao Paulo, Brazil

8073: Dynamical Characterization of a Power Ultrasonic Bath
Nicolás Pérez, Mariana Gonzalez, Eliana Budelli, Sofía Barrios, Patricia Lema
Facultad de Ingeniería, Uruguay

3:45 PM – 5:25 PM
Invited Talks (Meet the Labs in Latin America - Networking event)

5:25 PM – 5:35 PM
Closing Remarks of the Symposium

5:35 PM
Post Symposium Happy Hour