ABOUT UITC

The annual International Symposium on Ultrasonic Imaging and Tissue Characterization has long been recognized as one of the world's leading forums concerned with ultrasonic technology for medical applications. Forty-six technical contributions will be presented this year. Many of the presentations will deal with clinical evaluation of novel methodologies and instrumentation for tissue characterization.

The program includes technical sessions on ultrasonic measuring techniques, quantitative ultrasound, photoacoustic imaging, Doppler techniques, ultrasound-guided intervention, and ultrasound imaging. In a special session to be held on Friday morning, NIH representatives will respond to questions regarding research-funding opportunities in the face of budget constraints at NIH.

The Symposium provides a forum for discussion of new directions in state-of-the-art technology and research opportunities in ultrasonic and photoacoustic imaging and characterization of tissues. The meeting affords physicians, engineers and physical scientists a unique venue for sharing their contributions to this important area of technology development related to disease detection, diagnosis, staging, treatment planning and treatment monitoring.

CONFERENCE CHAIRS
Marie Muller
North Carolina State University
Jonathan Mamou
Weill Cornell Medicine

EXECUTIVE & FOUNDING CHAIR
Melvin Linzer

CHAIRS EMERITUS
Timothy J. Hall
University of Wisconsin
Ernest J. Feleppa
Riverside Research (retired)

THANK YOU TO OUR SPONSORS

Verasonics.com Acoustical Society of America Scintica
07:30 – 08:30  Coffee and Pastries

08:30 – 09:45  Ultrasound Imaging  

**Moderator: R. Bouchard**

08:30  Better attenuation imaging with full angular spatial compounding  
Mingrui Liu*, James W. Wiskin, Michael L. Oelze

08:45  3D Ultrafast ultrasound beamformer for plane wave imaging  
Zhengchang Kou*, Michael L. Oelze

09:00  Limited-aperture diverging-wave transmit schemes to maximize field-of-view and image quality  
Kashta Dozier-Muhammad*; Carl Herickhoff

09:15  Exploiting single and multiple scattering to accurately localize pulmonary nodules in inflated lung tissue and relationship to staple lines for safe and faster pulmonary nodule resection  
Thomas Egan*, Roshan Roshankhah, John Blackwell, Haley Geithner, Marie Muller

09:30  3D Diffractive acoustic tomography  
Luca Menozzi*, Tri Vu, Aidan J Canning, Harshal Rawtani, Carlos Taboada, Marie Elise Abi Antoun, Chenshuo Ma, Jesse Delia, Van Tu Nguyen, Soon-Woo Cho, Jianing Chen, Theresa Charity, Yirui Xu, Phuong Tran, Jun Xia, Gregory M. Palmer, Tuan Vo-Dinh, Liping Feng, Junjie Yao

09:45 – 10:15  Coffee break

10:15 – 11:45  Elasticity I  

**Moderator: C. Hoerig**

10:15  Shear wave elasticity imaging via propagation invariant acoustic beams  

10:30  Deep tissue transient elastography with focused shear waves  

10:45  3D Rotational shear wave elasticity imaging (3D-RSWEI) in multimodality anisotropic phantoms  

11:00  Viscoelasticity estimation using physics-informed neural network for breast shear wave elastography  
Tuhin Roy*, Elisa Konofagou

11:15  High-resolution estimation of shear wave speed and trajectory in arbitrarily sampled wavefields  
Wren E. Wightman*, Derek Y. Chan, Shruthi Srinivasan, Ned C. Rouze, Kathryn R. Nightingale

11:30  Towards 3D imaging with shear wave elastography  
Abdelrahman Elmeliegy, Matthew W. Urban, Lynn Munday, Murthy N. Guddati*
01:15 – 01:30  
**Musculoskeletal**

**Moderator: K. Nightingale**

01:15  
Wearable ultrasound system using time delay spectrometry for musculoskeletal imaging  
Ahmed Bashatah*, Biswarup Mukherjee, Afsana Rima, Shriniwas Patwardhan, Paul Otto, Robert Sutherland, Erica L. King, Brandon Lancaster, Abhishek Aher, Gabriel Gibson, Laura De Marzi, Zahra Taghizadeh, Samuel Acuna, Parag V. Chitnis, Siddhartha Sikdar

01:30  
First evaluation of an integrated sonomyographic prosthesis in individuals with congenital limb difference  
Zahra Taghizadeh*, Afsana Hossain Rima, Ahmed Bashatah, Gabriel Gibson, Abhishek Aher, Brian Monroe, Siddhartha Sikdar

01:45  
Simultaneous musculoskeletal assessment with real time ultrasound (SMART-US) for rehabilitation monitoring after injury  
Erica L. King*, Morgan Lamarre, Gabriel Gibson, Ahmed Bashatah, Theodore Croy, Margaret T. Jones, Qi Wei, Siddhartha Sikdar, Parag V. Chitnis

02:00  
Quantifying fatty infiltration in muscle using single and multiple scattering quantitative ultrasound methods.  
Haley Geithner*, Kate Saul, Marie Muller

02:15  
Development of a multimodal ultrasound-based imaging biomarker for myofascial pain  

02:15 – 02:45  
**Coffee break**

02:45 – 03:45  
**QUS Methods**

**Moderator: J. Mamou**

02:45  
Evaluation of multiple scattering in glass bead tissue mimicking phantoms and the impact on QUS feature estimation  
Jonathan H. Hale*, Hayley Whitson, Timothy Hall, Kevin Eliceiri, Ivan Rosado-Mendez

03:00  
Towards real-time backscatter coefficient estimation through automatic tumor segmentation  
Yuning Zhao*, Zhengchang Kou, Conn Louie, Rita J. Miller, Gregory J. Czarnota, Michael L. Oelze

03:15  
A systematic assessment of the effects of depth-dependent power loss on speckle statistics estimation  
Alexandra Christensen*, Ivan M. Rosado-Mendez, and Timothy J. Hall

03:30  
Test-retest repeatability of Quantitative Ultrasound in the neonatal brain: comparison of non-regularized vs regularized parameter estimators  
Laura Castaneda-Martinez*, Amber Posell, McKenzie Jolicoeur, Chris Ikonomidou, Jens C. Eickhoff and Ivan M. Rosado-Mendez
03:45 – 05:30  **QUS Applications**

**Moderator: M. Oelze**

**03:45**  Characterization of muscle microstructure in the rabbit anal sphincter complex using the angular dependence of integrated backscatter
Sarah E. Wayson*, Diane Dalecki, Nicole A. Wilson

**04:00**  Using quantitative ultrasound to characterize angiogenesis: preliminary work in phantoms
Parniyan Norouzzadeh*, Halston Deal, Michael Daniele, Marie Muller

**04:15**  Quantitative ultrasound to characterize white adipose tissue in-vivo
Cameron Hoerig*, Kemi Babagbemi, Michele Drotman, Kristy Brown, Jonathan Mamou

**04:30**  Quantitative ultrasound assessment of in vivo lymph node metastasis using a clinical scanner
Elmira Ghahramani*, Cameron Hoerig, Kirk Wallace, Maoxin Wu, and Jonathan Mamou

**04:45**  Quantitative ultrasound assessment of vitreous echodensities using double Nakagami distribution
Ladan Yazdani*, Cameron Hoerig, Justin H. Nguyen, Jonathan Mamou, J. Sebag, Jeffrey A. Ketterling

**05:00**  High-frequency quantitative ultrasound to predict myopia progression in vivo
Cameron Hoerig*, Quan V. Hoang, and Jonathan Mamou

**05:15**  Ultrasonic Characterization of Printed Hydrogel Lung Phantoms
Lily Denney*, Haley Geithner, Henry Ware, Tom Egan, Marie Muller

---

**THURSDAY, May 30**

**07:45 – 08:45**  **Coffee and Pastries**

**08:45 – 10:00**  **Contrast and Markers**

**Moderator: M. Muller**

**08:45**  Evaluating the performance of a bioabsorbable material, applied surface modifications, and autoclave sterilization on in vivo doppler twinkling: a pilot pig study
Benjamin G. Wood*, Gina K. Hesley, Matthew W. Urban, Susheil Uthamaraj, Tom Meier, Christine U. Lee

**09:00**  Large-aperture arrays and null subtraction imaging for use in abdominal ultrasound
Mick Gardner*, Michael Oelze

**09:15**  Adaptive ultrasound sequence for activation and monitoring of phase-changing nanodroplets
Charles R. Dyall*, Dmitry Nevozhay, Trevor M. Mitcham, Yunyun Chen, Stephen Lai, Konstantin Sokolov, Richard R. Bouchard

**09:30**  Photoacoustic-based PAtrace biodistribution assessment with independent cryo-fluorescence tomography validation
Cayla Wood, Claire Jones, Ananth Soundaram, Sangheon Han, Riley Watson, Jennifer Meyer, Jason Cook, Amit Roy, Julie-Anne Burdick, Konstantin Sokolov, Richard R Bouchard*
09:45 Advancing near-infrared photoacoustic imaging with novel ICG-based contrast agents
Marzieh Hanafi*, Giovanni Giammanco, Shristi Singh, Remi Veneziano, Parag Chitnis.

10:00 – 10:30 Coffee break

10:30 – 11:45 Elasticity II

10:30 Single track location shearwave spectroscopy & imaging for biomechanical characterization of tissues
Siladitya Khan, Fan Feng*, Stefanie Hollenbach, Marvin Doyley, Stephen McAleavey

10:45 Ultrasound thermal strain imaging for characterizing atherosclerosis plaques
Ran Wei*, Zhiyu Sheng, Mengyue Chen, Tara Danielle Richards, Matthew Wielgat, Dhanansayan Shanmuganayagam, Alan M Watson, Julie A, Phillipi, Edith Tzeng, Xuecang Geng, Xiaoning Jiang, Kang Kim

11:00 Vector flow and adaptive wall shear stress imaging on heterogeneous pulsatile flow phantoms
Pengcheng Liang*, Elisa Konofagou

11:15 Frequency dependent crystalline lens elastography
François Legrand*, Alice Ganeau, Gabrielle Laloy-Borgna, Cyril Lafon, Maxime Lafond, Stefan Catheline

11:30 Twin peak method for measuring shear viscoelasticity of soft tissues
Shuvrodeb Adhikary*, Matthew W. Urban, Murthy N. Guddati

12:00 – 01:30 Lunch

01:30 – 02:15 Clinical

01:30 Point-of-Care ultrasound in the emergency room
Jason Nomura

02:15 – 02:45 Coffee break

02:45 – 03:45 Quantitative Ultrasound Simulations

02:45 Backscatter coefficient estimation: history, challenges, and opportunities
Aiguo Han*

03:00 Open-source GPU-based acoustic simulator for fast and accurate simulation of acoustic scattering
Zixuan Tian*, Yun Jing, Aiguo Han

03:15 Simulation of ultrasonic scattering from scatterer size distributions using Field II
Hayley Whitson*, Ivan Rosado-Mendez Jonathan Hale Timothy Hall
03:30 Using SimSonic as a tool for simulating ultrasound backscatter
Brett Austin McCandless*, Marie Muller

03:45 – 05:00 Hands-on Simulation
Moderator: I Rosado-Mendez

08:00 – 09:00 Coffee and Pastries

09:00 – 10:00 Vascular Imaging and Super-resolution
Moderator: S. Sikdar

09:00 Super-resolution ultrasound imaging for assessing vasa vasorum in rabbit atherosclerotic plaques
Zahra Hosseini*, Qiyang Chen, Tara Richards, Megan Smith, Julie Phillippi, Alan Watson, Kang Kim

09:15 Simulation of a novel 2D array transducer design for transcranial doppler signal acquisition
Farraday Johnson*, Carl D. Herickhoff

09:30 StaBle: Staggered PRF with double transmission for high-frame-rate vector doppler imaging
Geraldi Wahyulaksana*, Colin K.L. Phoon, Glenn I. Fishman, Jeffrey A. Ketterling

09:45 Addressing the challenges in the development of a calibrated microflow phantom: evaluation of the acoustic properties of blood-mimicking fluids and channel diameter
Lizbeth Ayala-Dominguez*, Laura Castaneda-Martinez, Mehdi Zeighami, Cristel Baiu, Ivan Rosado-Mendez

10:00 – 10:30 Coffee break

10:30 – 12:00 Funding Opportunities
Moderator: T. Hall

Presentations followed by questions and discussion panel:
Alvin Yeh, Ph.D., Program Director at NIGMS
Carolina Salvador Morales, Ph.D., Program Director at NCI
Andrew Wolfe, Ph.D., Scientific Review Officer
Elizabeth O’Hare, Ph.D., Director, Government Relations at RSNA
REGISTRATION
Advance registration is requested to complete meeting arrangements. All registration fees help to defray the costs of conducting the Symposium. Early bird registration fees ($550) are guaranteed until May 7th, 2024. Registration fees on or after May 7 are $590. The graduate student fee for those who identify their school and advisor and provide the advisor's contact information is $350 ($380 on or after May 7). Postdoctoral fellows must pay the regular registration fee. Details on registration are available on the UITC Symposium website.

HOTEL
The Westin Arlington Gateway is the venue for all meeting activities. It is a four-star luxury hotel located in Arlington, VA. The meeting will take place in a beautiful, large ballroom. Very-high ceilings and absence of support pillars provide unrestricted views of the large projector screen. The hotel is surrounded by a large number of restaurants. Amenities include an indoor heated pool and whirlpool, a 24-hour fitness center, a Starbucks and a 24-hour business center. Free WiFi and printer are provided in the hotel lobby. For additional information, see the hotel reservation page. Hotel room rates are guaranteed through May 7, 2024. Information on how to book your room is available on the UITC Symposium website.

TRANSPORTATION
The hotel is near the Washington Metro subway stop in Ballston, placing it within minutes of downtown Washington, Capitol Hill and National Airport. There is now a direct link between Dulles Airport and the Ballston stop on the Washington Metro subway. Bus service to New York City is available nearby at the Rosslyn Metro stop. The New York City buses cost as little as $50 each way and feature free WiFi and electrical outlets. The hotel is also serviced by shuttle service from National and Dulles Airports. Hotel valet parking is also available.

EXHIBITS
A limited amount of exhibit space for commercial scientific equipment is available just outside the meeting ballroom. Contact Mel Linzer for more information on exhibit options.

SOCIAL PROGRAM
A continental breakfast will be served each morning before sessions. Coffee and tea will be available during the morning sessions and coffee, tea and cold drinks at mid-afternoon breaks.

CASUAL DRESS CODE
Dress code is casual, e.g., no ties or jackets for men. Casual dress will make all of us more comfortable, simplify our packing and help maintain an atmosphere of open and informal dialog at the Symposium.