

ANNUAL SYMPOSIUM PROGRAM BOOK

ISTU 2025

24th Annual International Symposium
for Therapeutic Ultrasound
Banff, Alberta, Canada
June 21-24, 2025



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ULTRASOUND
FOUNDATION



HOTCHKISS
BRAIN INSTITUTE



UNIVERSITY OF
CALGARY



Welcome to the 24th Annual International Symposium for Therapeutic Ultrasound!

We are excited to welcome you in person and virtually as scientists, engineers, clinicians and industry from around the world gather together in Banff, Canada for ISTU 2025.

On behalf of the [Local Organizing Committee](#) from the Hotchkiss Brain Institute, Cumming School of Medicine, University of Calgary, and the ISTU Board of Directors, it is our great honor to host this year's meeting in a spectacular setting right in the heart of Banff, surrounded by the beauty of the mountains while experiencing a world class conference location at the [Banff Centre for Arts and Creativity](#), Canada's leading arts and cultural organization based in the Canadian Rockies.

Whether you are attending in person or virtually, you will have full access to the Virtual Platform! There will be no live streamed content on the platform so you can watch the content anytime that works with your schedule. Presentations with pre-recorded content will be available on June 20th. Some sessions will be recorded live in Banff and put on the platform within 24 hours of the session. **Content will be available for 6 months post-conference.** Use the platform to:

- Connect with presenters through the chat function, or leave them a message on the discussion board of their presentation
- Watch recorded video content from oral and poster presenters
- View posters by in-person and virtual presenters
- Visit Exhibition Booths from all of our sponsors, and request meeting times

Since the establishment of our Society in 2001, ISTU has laid the foundation for the continuous improvement and advancement of therapeutic ultrasound technology by providing the means for the international community in ultrasound to come together once every year to collaborate and share knowledge.

ISTU 2025 will continue this tradition, and we sincerely hope this symposium will inspire new ideas and encourage innovations throughout all the different facets of this exciting and ever changing field.

Local Organizing Committee Members

The 2025 Annual Symposium is proudly hosted by our Local Organizing Committee.



Co-Chair

Samuel Pichardo, Ph.D.

MR Guided FUS
Program Co-Lead: Technical
Associate Professor
Radiology and Clinical Neurosciences,
Hotchkiss Brain Institute
Cumming School of Medicine,
University of Calgary

Samuel Pichardo is an Associate Professor in the Department of Radiology and the Department of Clinical Neurosciences at the University of Calgary. His research focuses on the development of therapeutic ultrasound technologies, with a particular interest in neuromodulation. In his free time, Samuel enjoys gaming and contributing to collaborative research initiatives.

Co-Chair

Laura Curiel, Ph.D., PEng

Associate Professor
Associate Head Undergraduate
Dept of Biomedical Engineering
University of Calgary



Laura Curiel is an Associate Professor in the Department of Biomedical Engineering at the University of Calgary. Her research focuses on non-invasive therapeutic ultrasound devices and applications. Outside of her academic and entrepreneurial work, Laura enjoys reading, supporting innovation initiatives, and mentoring the next generation of engineers and scientists.

Local Committee Members

Carly Pellow

Postdoctoral Fellow
University of Calgary

Carly Pellow is a Postdoctoral Fellow at the University of Calgary, working under the supervision of Dr. Bruce Pike and Dr. Samuel Pichardo. Her research focuses on developing non-invasive ultrasound-based therapies for neurological applications. Outside of her research, Carly enjoys hiking in the Rockies, engaging in science outreach, and exploring creative hobbies.

Terra Fairbanks

MSc Student in Neuroscience
University of Calgary

Terra Fairbanks is an MSc Student in Neuroscience at the University of Calgary under the supervision of Dr. Fady Girgis and Dr. Bruce Pike. Her research investigates transcranial ultrasound neuromodulation in humans and its effect on cognitive and motor behaviour. In her free time, Terra enjoys adventuring in the Canadian Rockies, volunteering in her community, and teaching Irish dance.

Scientific Committee Members

- Adam Maxwell, Ph.D., (USA) Virginia Tech
- David Melodelima, Ph.D., (FRANCE), INSERM
- W. Apoutou N'Djin, Ph.D., (FRANCE), LabTAU
- Antonios Pouliopoulos, Ph.D., (UK), King's College London

Congratulations!

Annual Award Winners



Gail ter Haar, Ph.D.

Therapy Ultrasound
Physics Department
The Institute of Cancer Research

*“Nice idea, it will never work”
– proving the sceptics wrong’*

The President’s Award



Douglas Miller, Ph.D.

Research Professor Emeritus,
Basic Radiological Sciences Division,
Department of Radiology,
University of Michigan Medical School

*“Appraisal of Cavitation and Gas Body
Activation in Therapeutic Ultrasound”*

**The William and Francis Fry
Honorary Fellowship
for Contributions to
Therapeutic Ultrasound**



Himanshu Shekhar, Ph.D.

Associate Professor, Electrical Engineering
Indian Institute of Technology (IIT)
Gandhinagar, Medical Ultrasound
Engineering (MUSE) Lab

*“Musings in therapeutic
ultrasound: From bubbles
to beamforming and beyond”*

**The Frederic Lizzi
Early Career Award**

*This year’s Frederic Lizzi
Early Career Award Session
is brought to you by Onda.*



Ying Meng, M.D., Ph.D.

Sunnybrook Research Institute
University of Toronto

*“MR-guided focused
ultrasound in neurologic
applications,
the past and future”*

**Early Career Clinical
Investigator Award**

**ISTU 2025: Banff, Canada
Annual Symposium
Program Schedule**

Time		Saturday, June 21	Sunday, June 22	Monday, June 23	Tuesday, June 24				
Start	End								
7:45	8:00		Breakfast / Exhibits	Breakfast / Exhibits	Breakfast / Exhibits				
8:00	8:15		Opening Remarks						
8:15	8:30			Annual ISTU Awards: Fry, Lizzi, & Early Clinical Awards	Neuromodulation (Clinical)				
8:30	8:45		Plenary Talks						
8:45	9:00			ISTU General Assembly					
9:00	9:15			Coffee Break / Exhibits	Coffee Break / Exhibits				
9:15	9:30								
9:30	9:45		Coffee Break / Exhibits						
9:45	10:00								
10:00	10:15		ISTU and FUS Foundation Brain Clinical Session	Student Award Talks	ISTU and FUS Foundation Body Clinical Session				
10:15	10:30								
10:30	10:45								
10:45	11:00								
11:00	11:15	Registration and Info Desk	Registration and Info Desk	Registration and Info Desk	Registration and Info Desk				
11:15	11:30					Exhibits	Brain Clinical Panel	Student Award Posters Pitch	Body Clinical Panel
11:30	11:45								
11:45	12:00								
12:00	12:15						Student Award Posters Pitch		
12:15	12:30					Education 1: Passive Acoustic Imaging	Posters / Exhibits - Day 1	Lunch	Posters / Exhibits - Day 3
12:30	12:45								Lunch
12:45	13:00								
13:00	13:15								
13:15	13:30								
13:30	13:45	Education 2: US Tech Imaging and Therapy; Metrology							
13:45	14:00								
14:00	14:15	Coffee Break / Exhibits	Brain (Preclinical)	Emerging Technology & Applications					
14:15	14:30								
14:30	14:45								
14:45	15:00	Education 3: Functional and Pre-Clinical Imaging							
15:00	15:15								
15:15	15:30								
15:30	15:45								
15:45	16:00	Student Mentorship							
16:00	16:15								
16:15	16:30								
16:30	16:45								
16:45	17:00								
17:00	17:15								
17:15	17:30								
17:30	17:45								
17:45	18:00								
18:00	18:15	ISTU Student Social at the Rose & Crown	Welcome Reception at the Banff Centre for Arts & Creativity	Gala Dinner Event at the Banff Gondola Summit					
18:15	18:30								
18:30	18:45								
18:45	19:00								
19:00	19:15								
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20:45	21:00								
21:00	21:15								
21:15	21:30								
21:30	21:45								
21:45	22:00								

Saturday, June 21

Start - End Time	Session Title	Location
11:00 AM - 4:15 PM	Registration / Information Desk	Registration: Main Entrance
11:00 AM - 12:00 PM	Exhibits	Exhibit Area: Room 203
12:00 - 1:00 PM	Education 1: Passive Acoustic Imaging	Room 101, 103, & 105
	Constantin C. Coussios, Ph.D., Institute of Biomedical Engineering: <i>Passive Acoustic Mapping for Cavitation Imaging in Patients</i>	
	Costas Arvanitis, BSc, MSc, Ph.D., Georgia Institute of Technology: <i>Spatiotemporal Monitoring and Control of Microbubble Dynamics</i>	
1:00 PM - 2:00 PM	Education 2: US Tech Imaging and Therapy; Metrology	Room 101, 103, & 105
	Keith Wear, BS, MS, Ph.D., Research Physicist: <i>Hydrophone Measurement Methodology for Therapeutic Ultrasound</i>	
	Jeremy Brown, Ph.D., Dalhousie University: <i>Miniature Ultrasound Technology for Precision Imaging and Therapy</i>	
2:00 PM - 2:30 PM	Coffee Break / Exhibits	Exhibit Area: Room 203
2:30 PM - 3:30 PM	Education 3: Functional and Pre-Clinical Imaging	Room 101, 103, & 105
	G. Bruce Pike, Ph.D., University of Calgary: <i>Functional MRI</i>	
	Jean Provost, Ph.D., Polytechnique Montréal: <i>Advanced Small Animal Ultrasound Imaging</i>	
3:30 PM - 4:15 PM	Student Mentorship Session	Room 101, 103, & 105
4:30 PM - 8:00 PM	Calling All Students! ISTU Student Social: Organizers will lead a walk to the Rose & Crown, leaving the Banff Centre at 4:15 PM. Enjoy free appetizers, plus a \$10 drink ticket provided by ISTU for all student attendees.	Rose & Crown Pub

Sunday, June 22

7:45 AM - 8:15 AM	Breakfast	Vistas Restaurant (Lloyd Hall)
7:45 AM - 8:15 AM	Exhibits	Exhibit Area: Room 203
7:45 AM - 5:45 PM	Registration / Information Desk	Registration: Main Entrance
8:00 AM - 5:45 PM	Future of Therapeutic Ultrasound Poster Session (available for the duration of the meeting)	Poster Hall: Room 205
8:15 AM - 8:30 AM	Opening Remarks	Room 101, 103, & 105
8:30 AM - 9:30 AM	Plenary Talks	Room 101, 103, & 105
	Robert Chen, MA, MBBChir, MSc, FRCPC, Krembil Research Institute and University of Toronto; <i>Transcranial Ultrasound Neuromodulation for Movement Disorders</i>	
	Francesco Prada, M.D., Istituto Neurologico C. Besta; <i>Cerebral Ultrasound Imaging and Therapy</i>	
9:30 AM - 10:00 AM	Coffee Break / Exhibits	Exhibit Area: Room 203
10:00 AM - 11:15 AM	Brain Clinical Session: Brought to you by FUS Foundation and ISTU	Room 101, 103, & 105
11:15 AM - 12:00 PM	Brain Clinical Panel: Brought to you by FUS Foundation and ISTU	Room 101, 103, & 105
12:00 PM - 12:15 PM	Student Award Posters Pitch: Session 1	Room 101, 103, & 105
12:15 PM - 1:45 PM	Lunch	Vistas Restaurant (Lloyd Hall)
12:15 PM - 1:45 PM	Exhibits	Exhibit Area: Room 203
12:15 PM - 1:45 PM	Posters: Day 1	Poster Hall: Room 201 & 205
1:45 PM - 2:45 PM	Brain (Preclinical)	Parallel Session 1: Room 101 & 103
1:45 PM - 2:45 PM	Emerging Technology & Applications	Parallel Session 2: Room 105
2:45 PM - 3:45 PM	Thermal Therapy	Parallel Session 2: Room 105
2:45 PM - 3:45 PM	Physics/Modeling	Parallel Session 1: Room 101 & 103
3:45 PM - 4:15 PM	Coffee Break / Exhibits	Exhibit Area: Room 203
4:15 PM - 4:45 PM	The President's Award	Room 101, 103, & 105
	Gail ter Haar, Ph.D., The Institute of Cancer Research; ‘ <i>“Nice idea, it will never work” – proving the sceptics wrong</i> ’	
4:45 PM - 5:45 PM	Women in Therapeutic Ultrasound	Room 101, 103, & 105
5:45 PM - 7:15 PM	Welcome Reception: Brought to you by Verasonics	Kinnear Centre Patio

Monday, June 23

7:45 AM - 8:15 AM	Breakfast	Vistas Restaurant (Lloyd Hall)
7:45 AM - 8:15 AM	Exhibits	Exhibit Area: Room 203
7:45 AM - 5:00 PM	Registration / Information Desk	Registration: Main Entrance
8:15 AM - 9:30 AM	ISTU Annual Awards	Room 101, 103, & 105
	The William and Francis Fry Honorary Fellowship for Contributions to Therapeutic Ultrasound	
	Douglas Miller, Ph.D., University of Michigan Medical School; "Therapeutic application of ultrasound cavitation nucleation for sonoporation gene transfection in tumor therapy and for microlesion induction in hypertrophic cardiomyopathy reduction"	
	The Frederic Lizzi Early Career Awards: Brought to you by Onda	
	Himanshu Shekhar, Ph.D., Indian Institute of Technology (IIT), Medical Ultrasound Engineering (MUSE) Lab; "Musings in Therapeutic Ultrasound: From Bubbles to Beamforming and Beyond"	
	The Early Career Clinical Investigator Award	
	Ying Meng, M.D., Ph.D., Sunnybrook Research Institute, University of Toronto; "MR-guided Focused Ultrasound in Neurologic Applications, the Past and Future"	
9:30 AM - 9:45 AM	ISTU General Assembly	Room 101, 103, & 105
9:45 AM - 10:15 AM	Coffee Break/Exhibits	Exhibit Area: Room 203
10:15 AM - 11:45 AM	Student Award Talks	Room 101, 103, & 105
11:45 AM - 12:00 PM	Student Award Posters Pitch: Session 2	Room 101, 103, & 105
12:00 PM - 1:30 PM	Exhibits	Exhibit Area: Room 203
12:00 PM - 1:30 PM	Lunch	Vistas Restaurant (Lloyd Hall)
12:00 PM - 1:30 PM	Posters: Day 2	Poster Hall: Room 201 & 205
1:30 PM - 2:30 PM	Drug Delivery	Parallel Session 2: Room 105
1:30 PM - 2:30 PM	Guidance & Monitoring	Parallel Session 1: Room 101 & 103
2:30 PM - 3:30 PM	Histotripsy	Parallel Session 1: Room 101 & 103
2:30 PM - 3:30 PM	Cavitation, Physics & Bioeffects	Parallel Session 2: Room 105
3:30 PM - 4:00 PM	Coffee Break/Exhibits	Exhibit Area: Room 203
4:00 PM - 5:00 PM	Hardware & Treatment Planning	Parallel Session 2: Room 105
4:00 PM - 5:00 PM	Immunotherapy	Parallel Session 1: Room 101 & 103
5:45 PM - 10:00 PM	Gala Event: Tickets are SOLD OUT. Please check with the Info Desk if you have a ticket you are not using or need one!	The Banff Gondola Summit

Tuesday, June 24

7:45 AM - 8:15 AM	Breakfast	Vistas Restaurant (Lloyd Hall)
7:45 AM - 8:15 AM	Exhibits	Exhibit Area: Room 203
7:45 AM - 3:15 PM	Registration	Registration: Main Entrance
8:15 AM - 9:30 AM	Neuromodulation (Clinical)	Room 101, 103, & 105
9:30 AM - 10:00 AM	Coffee Break/Exhibits	Exhibit Area: Room 203
10:00 AM - 11:15 AM	Body Clinical Session: Brought to you by FUS Foundation and ISTU	Room 101, 103, & 105
11:15 AM - 12:00 PM	Body Clinical Panel: Brought to you by FUS Foundation and ISTU	Room 101, 103, & 105
12:00 PM - 1:30 PM	Exhibits	Exhibit Area: Room 203
12:00 PM - 1:30 PM	Lunch	Vistas Restaurant (Lloyd Hall)
12:00 PM - 1:30 PM	Posters: Day 3	Poster Hall: Room 201 & 205
1:30 PM - 2:30 PM	Neuromodulation (Preclinical)	Room 101, 103, & 105
2:30 PM - 3:00 PM	Annual ISTU Debate: Transcranial Ultrasound Stimulation: Fake or Real?	Room 101, 103, & 105
	Fake: Elsa Fouragnan, Ph.D., Brain Research Imaging Center (BRIC), University of Plymouth, UK	
	Real: Kullervo Hynynen, Ph.D., Sunnybrook Research Institute, University of Toronto	
3:00 PM - 3:15 PM	Student Awards/Closing Remarks	Room 101, 103, & 105

Important Information

Registration / Information Desk

Visit us by the main entrance on the ground floor of the Kinnear Centre Building. We're happy to help with anything you need. Our hours will be:

Saturday, June 21:	11am – 4:15pm
Sunday, June 22:	7:45am – 5:45pm
Monday, June 23:	7:45am – 5:00pm
Tuesday, June 24:	7:45am – 3:15pm

Speaker Preview Room 208

If you are presenting a talk, please make sure you preview your submitted slides. Speaker Preview Room hours will be:

Saturday, June 21:	11am – 5pm
Sunday, June 22:	7:00am – 2pm
Monday, June 23:	7:00am – 2pm
Tuesday, June 24:	7:00am – 2pm

Certificates of Attendance

Attendees will receive an email after the conference with a link to download a Certificate of Attendance if needed.

Lost & Found

Should you lose or find anything, please report to the Information Desk for assistance.

Evaluation Survey

Please take a moment to complete a very short Evaluation Survey. Your feedback is very important for the development of future ISTU programs.



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The **Focused Ultrasound Foundation** accelerates the development and adoption of the technology by:

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- **Overcoming barriers** to commercialization by partnering with stakeholders



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Apply for Research Funding

The Foundation funds **preclinical and clinical projects** that involve or advance noninvasive image-guided focused ultrasound.

Priority **indications** include:

- **neurodegenerative diseases**
- **cancer**
- **cancer immunotherapy**

Submit Online

All application materials should be submitted via **ProposalCentral**.

Priority **mechanisms of action** include:

- **immunomodulation**
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CHEN TIANQIAO
& CHRISSY
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Our vision is to reduce human suffering by supporting the development of transformative therapeutic ultrasound technology.

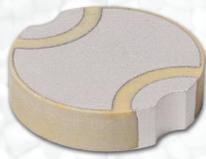
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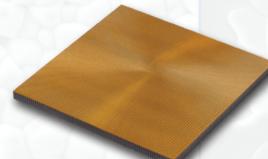
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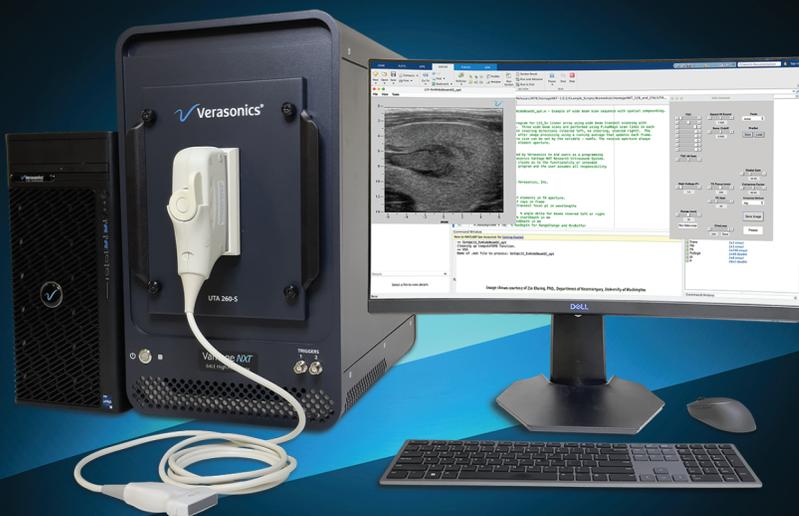
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Visit the Virtual Platform for more info!



INTERNATIONAL SYMPOSIUM FOR THERAPEUTIC ULTRASOUND

ISTU 26



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Registration Opens December 2025!