

# THE 30<sup>TH</sup> EUROPEAN SYMPOSIUM ON ULTRASOUND CONTRAST IMAGING

January 16-17, 2025  
Rotterdam



Erasmus MC



## WEDNESDAY, 15 January 2025

17.30 – 19.30 Welcome Drinks at the conference location: Mainport Hotel, Leuvehaven 77, Rotterdam  
+ Registration

## THURSDAY, 16 January 2025

08.00 – 09.00 Registration

### Oral program

09.00 – 09.10 Introduction and opening ..... Klazina Kooiman & Rik Vos

09.10 – 10.35 **CLINICAL IMAGING** ..... Chairs: Folkert ten Cate & Ton van der Steen  
Michel Versluis (Inv.) Blood flow quantification: not just bloody pipe flow .....  
Lucy Wei (Inv.) Super-resolved human brain tumor vasculature imaging .....  
Thierry Bettinger BR55: Progress Update on the First Ultrasound Molecular Imaging Agent in Clinical Trials .....  
Matthieu Toulemonde Enhanced super-resolution imaging in patients through non-rigid registration of multiple high frame rate acquisitions .....  
Maoyao Li Assessing Testicular Microcirculation in Azoospermia Patients Using Ultrasound Localization Microscopy for Spermatogenic Insights .....

10.35 – 12:05 Coffee & parallel poster sessions

12:05 – 12.40 **30<sup>th</sup> ESUCI ANNIVERSARY LECTURE** ..... Chair: Annemien van den Bosch  
Nico de Jong & Peter Burns Keep on vibrating: 30 years of bubbles.....

12.40 – 14.00 LUNCH

14.00 – 14.30 **KEYNOTE LECTURE** ..... Chair: Klazina Kooiman  
Natalasha Sheybani (Inv.) Engineering Next-Generation Cancer Immunotherapy Paradigms with Microbubble-Assisted Focused Ultrasound .....

14.30 – 15.35 **NEW DIRECTIONS** ..... Chairs: Liza Villanueva & Olivier Couture  
David Maresca (Inv.) From echogenic biomolecules to ultrasound imaging of cellular function.....  
Jonathan Kopechek Sonoporation-mediated intracellular loading of protective compounds in red blood cells for long-term dry storage .....  
Jingwen Zhu Examining Brain Responses to Rat Ultrasonic Vocalizations with 3D Ultrasound Localization Microscopy .....  
Soufiane El Kadi Assessment of infarct characteristics and left ventricular function on serial CMR in STEMI patients treated with post-PCI sonothrombolysis .....

15.35 – 16:10 Intermission

16.10 – 17:20 **BUBBLE TECHNOLOGY AND IMAGING** ..... Chairs: Dan Adam & Michel Versluis  
Eleanor Stride (Inv.) Pop goes the theory! challenges in classifying cavitation .....  
Giulia Guerriero Ultrasound-driven microbubble dynamics near tissue-mimicking soft substrates .....  
Simona Turco (Inv.) Contrast ultrasound quantification in female organs.....  
Tyler Gildemeister Spatially compounded volumetric ultrasound localization microscopy for visualization and analysis of kidney structure validated against light sheet microscopy.....

18.30 – 22.30 **EVENING PROGRAM: docks at Boompjeskade, 5 min walk from Mainport hotel**  
**Meet outside Mainport hotel at 18:30 to walk to the ship together. Ship departs at 19:00 so be on time!**

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## FRIDAY, 17 January 2025

07.30 – 08.00 Registration

### Oral program

08.00 – 09.20 PARALLEL SHORT ORAL SESSIONS

09.20 – 09.40 Intermission

09.40 – 11.00 THERAPY: TOWARDS CLINICAL USE ..... Chairs: Eleanor Stride & Mark Borden

Mike Averkiou (Inv.) Modulating liver cancer vasculature with a clinical scanner and approved contrast agents: are we ready for clinical translation? .....

Davindra Singh Delivery of miR-1 to the heart in-vivo using clinical contrast ultrasound for the treatment of pathological hypertrophy .....

Jacob Mattern Phase change contrast agents composed of low boiling point perfluorocarbon mixtures enable sub-focal ultrasound mediated blood brain barrier opening .....

Muhammed Wahab Amjad Ultrasound Targeted Nitrofatty Acid Microbubbles (NFABs) Mitigate the Progression of Myocardial Fibrosis .....

Albert Poortinga Ultrasound-triggered drug release in vivo from antibubble-loaded macrophages .....

11.00 – 12.15 Coffee & parallel poster sessions

12.15 – 13.30 LUNCH

13.30 – 14.00 KEYNOTE LECTURE DUTCH HEART FOUNDATION ..... Chair: Rik Vos

Jean Provost (Inv.) Imaging the heart microvasculature using dynamic Ultrasound Localization Microscopy .....

14.00 – 14.15 Intermission

14.15 – 15.45 COMPETITION ..... Chairs: Nico de Jong & Peter Burns

Payton Martinez Targeted Inhibition of Somatosensory Cortex with Ropivacaine-Loaded Sono-sensitive Liposomes and Microbubbles .....

Guy Gouarin Innovative microfluidic preparation of monodisperse sonoresponsive peptidic nanoparticles for ultrasound-guided gene delivery .....

Andrew Weitz An Inhalable Ultrasound Contrast Agent Optimized for In Vivo Tracheal Enhancement .....

Macy Vreman Control of lipid phase separation in the shell of monodisperse microbubbles .....

Damien Batchelor Sucrose: The Sweet Solution to Nanobubble Characterisation and Long-Term Stability .....

Yuchen Wang Mechanistic insights into shear and normal stress influences on sonoporation in microbubble-mediated drug delivery .....

15.45 – 15.55 CLOSING REMARKS ..... Klazina Kooiman & Rik Vos

15.55 ANNOUNCEMENT OF THE WINNERS OF THE COMPETITION AND POSTER PRIZES

+ FAREWELL DRINKS

Organised by: Rik Vos, Klazina Kooiman, Annemien van den Bosch, Folkert ten Cate, Nico de Jong

Scientific board: Mike Averkiou, Mark Borden, Olivier Couture, Beat Kaufmann, Eleanor Stride, Flordeliza Villanueva

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## Poster sessions THURSDAY, 16 January 2025

Thursday 10.10 – 11.40

**POSTER SESSION A: ULTRASOUND IMAGING AND IMAGING THERAPY** ..... Chair: *Olivier Couture*

**Location: Main Lecture room with 2-minute poster pitches starting at 10.10**

- A1) Jelle Plomp Contrast imaging behind the plaque: improved ultrasound blood flow quantification using an iterative scheme for active attenuation correction .....
- A2) Florian Delberghe Quantitative Analysis of Peri-lesion Enhancement for Characterization of Breast Tumors .....
- A3) Biao Huang Narrow diverging beam transmission for transthoracic cardiac myocardial microvasculature imaging .....
- A4) Kathyne Jayne Bautista In vivo optimization of dual-frequency transducers towards clinical acoustic angiography .....
- A5) Guillaume Lajoinie Delay-encoded cascaded waves for nonlinear contrast imaging .....
- A6) Yichuang Han Echo-particle tracking velocimetry for quantification of high velocity flows .....
- A7) Connor Krolak Evaluation of cavitation-induced tumor vascular disruption with a new quantitative perfusion method: time-area curve - TAC analysis .....
- A8) Hermen de Roo Estimating ultrasound-triggered local drug delivery with neural networks .....

Thursday 10.10 – 11.40

**POSTER SESSION B: THERAPY** ..... Chair: *Liza Villanueva*

**Poster room "Maas" with 2-minute poster pitches starting at 10.10**

- B1) Aya Ben Issa Targeted Biofilm Disruption in Bone Infections Using Ultrasound-Activated Microbubbles for enhanced Antibiotic Delivery .....
- B2) Sepideh Jahangiri UTMC-Triggered ATP Release Enhances Vascular Inflammation and Boosts Immune Checkpoint Blockade Efficacy .....
- B3) Dawid Przystupski Breaking Through with Ultrasound: TP53-Driven Efficacy of Calcium Sonoporation in Pediatric Rhabdomyosarcoma Cells....
- B4) Zoe Katz Ultrasound-microbubble treatment prolongs cell viability in hypoxic environments .....
- B5) Sam Sloan Determining The Effects of Cell Cytoskeleton In Microbubble-Mediated Drug Delivery Using High-Speed Imaging and Digital Image Correlation .....
- B6) Jorinde Kortenbout Contrast-enhanced ultrasound imaging for predicting treatment response in colorectal cancer patients .....
- B7) Karen EA Permeabilization of an in vitro "blood-brain barrier" model using microbubble-assisted ultrasound .....
- B8) Sofie Snipstad Monodisperse microbubbles for drug delivery across the blood brain barrier .....
- B9) Phillip Durham Focused ultrasound blood-brain barrier disruption to improve gene therapy delivery for treating Angelman syndrome .....

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## Parallel short oral sessions FRIDAY, 17 January 2025

08.00 – 09.20

**PARALLEL SHORT ORAL SESSION I: BIOLOGY/CLINICAL** ..... *Chair: Klazina Kooiman*

### Main lecture room

- |      |                   |  |
|------|-------------------|--|
| I.1) | Fabrice Micaletti | Inner ear drug delivery using microbubble-assisted ultrasound in sheep model .....   |
| I.2) | Marie Amate       | Role of Pannexin-1 and Vesicular Pathways in ATP Release Induced by Ultrasound-Targeted Microbubble Cavitation in Cultured Endothelial Cells .....               |
| I.3) | Clément Gakuba    | 3D Contrast enhanced acoustic angiography and perfusion imaging following aneurismal subarachnoid hemorrhage .....   |
| I.4) | Lance de Koninck  | Simultaneous PCD and CEUS to monitor microbubble cavitation treatments in an animal tumor model .....  |
| I.5) | Damien Batchelor  | Microbubble Mediated Removal of S. Aureus Biofilms .....   |
| I.6) | Kelly van Treeck  | Quantifying cavitation behavior of activated nanodroplets in antibiotic treatment of methicillin-resistant Staphylococcus aureus biofilms in murine wounds ..... |
| I.7) | Kyle Hazel        | Focused Ultrasound and Microbubble-Mediated Delivery of CRISPR-Cas9 Ribonucleoprotein to Human Induced Pluripotent Stem Cells .....                              |

08.00 – 09.20

**PARALLEL SHORT ORAL SESSION II: TECHNOLOGY** ..... *Chair: Rik Vos*

### Poster room "Maas"

- |       |                  |   |
|-------|------------------|---|
| II.1) | Rienk Zorgdrager | Waveform-Specific Performance of Deep Learning-Based Super-Resolution for Ultrasound Contrast Imaging .....   |
| II.2) | Myrthe Boone     | A Comparison of Phase Aberration Correction Schemes for 3D Super-resolution Transcranial Ultrasound Imaging of Mice ...                             |
| II.3) | John Hossack     | Progressive Separation of Targeted MBs Signals using Progressive Burst Sequence: A Feasibility Study .....  |
| II.4) | Ferenc Kandi     | Visualizing variations in fibroid vascularization patterns using contrast-ultrasound dispersion imaging .....                                       |
| II.5) | Sae Jang         | Evaluating tissue stiffness of capillaries using MBs as in vivo mechanical probes: a proof-of-concept study .....                                   |
| II.6) | Sophie Heymans   | Comparison of volumetric active and passive Ultrasound Localization Microscopy for proton range verification with radiosensitive nanodroplets ..... |
| II.7) | Olivier Couture  | Transcranial volumetric ultrasound localization microscopy in ischemic stroke patients: proof of concept .....                                      |

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## Poster sessions FRIDAY, 17 January 2025

Friday 11.00 – 12.15

**POSTER SESSION C: MICROBUBBLE PRODUCTION AND PHYSICS** ..... Chair: *Tim Segers*

**Main lecture room with 2-minute poster pitches starting at 11.00**

C1) Anne Lassus	Development of a cationic monodisperse bubbles formulation for optimum plasmid loading .....
C2) Asli Akin	Design and Optimization of Albumin Microbubbles for Delivery of Small Protein Molecules .....
C3) Pascal Poc	Enzymatic surface modification of lipid-based microbubbles and nanodroplets enables versatile, functional protein attachment.....
C4) Andréa Feasson	Do ultrasound contrast agents swim by buckling during insonification in the kHz range? .....
C5) Max Au-Yeung	Quantitative Acoustic Cavitation Characterisation using Multi-resolution Analysis and K-Means .....
C6) Dariusz Kosk	Perfusion chamber for the investigation of microbubble response to ultrasound in bone fractures .....
C7) Kaleb Vuong	Microbubble-Enhanced Heating in Tissue Mimicking Fluid and Gel Phantoms .....
C8) Hidde Sikkema	Monodisperse microbubble sizing by optical attenuation spectroscopy .....
C9) Costas Arvanitis	Data-driven microbubble dynamics characterization and control for targeted drug delivery in the brain .....

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