

26th EUROPEAN SYMPOSIUM ON ULTRASOUND CONTRAST IMAGING

January 14&15 2021 - Online



26th EUROPEAN SYMPOSIUM Program:

THURSDAY, 14 January 2021

13.00 CET	Webportal will be open – see your emails from EventsAIR for webportal login, after you have registered
14.00 – 14.10 CET	Welcome by the chairs
14.10 – 15.30 CET	CLINICAL IMAGING & THERAPY Chair: Annemien van den Bosch
14.10 Tom Porter	Immediate Improvement in Systolic Function Following Sonothrombolysis Applied After Emergent Percutaneous Coronary Intervention in Anterior ST Segment Elevation Myocardial Infarction.....
14.35 Pavel Taimr	Performance of CEUS versus MRI and value of point shear wave elastography for diagnosis hepatocellular adenoma and focal nodular hyperplasia.....
15.00 Stefan Engelhard	Ultrasound velocimetry in the diseased aorto-iliac tract: a clinical feasibility study.....
15.15 Zhiyang Jin	Genetically Encoded Acoustic Biosensors for Ultrasonic Imaging of Intracellular Enzyme.....
15.30 – 15.50 CET	DISCUSSION PANEL.....Chair: Olivier Couture
15.50 – 16.15 CET	Break
16.15 – 17.30 CET	PARALLEL ORAL SESSIONS A (Technology imaging) and B (Technology other) <i>The best presentation in each session will be awarded with the ESUCI Research Award supported by Bracco</i>
17.30 – 17.45 CET	Break
17.45 – 18.55 CET	THERAPY: Towards clinical use..... Chair: Klazina Kooiman
17.45 Hong Chen	Microbubbles-enabled sonobiopsy for noninvasive diagnosis of brain tumors.....
18.10 Paul M. Johnson	Non-invasive receptor-specific millimeter-precision manipulation of brain circuits.....
18.25 Joop Kouijzer	Vancomycin-targeted microbubbles for the treatment of <i>Staphylococcus aureus</i> biofilms under flow.....
18.40 Alexandre Helbert	Ultrasound molecular imaging for the guidance of ultrasound triggered release of liposomal doxorubicin and its treatment monitoring in an orthotopic prostatic tumor model in rat.....
18.55 – 19.00 CET	Adjourn
19:00 – 20.15 CET	Online pubquiz –Zoom link will be provided

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

Scientific board: Mike Averkiou, Mark Borden, Paolo Colonna, Olivier Couture, Beat Kaufmann, Eleanor Stride.



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FRIDAY, 15 January 2021

13.00 CET	Webportal will be open
14.00 – 14.05 CET	Welcome by the chairs
14.05 – 15.15 CET	BUBBLE TECHNOLOGY Chair: Klazina Kooiman
14.05 Eleanor Stride	Which came first, the bubble or the droplet? (and other vaporisation questions)
14.30 Gonzalo C. Lara	Super-localization of superheated nanodroplet vaporization during proton irradiation using high frame-rate differential imaging
14.45 Benjamin van Elburg	Dilatational surface tension curves of monodisperse microbubbles with a tuned shell stiffness
15.00 Simone Langeveld	Lipid handling and phase distribution affect the acoustic behavior of DSPC-based microbubbles
15.15 – 15.35 CET	BREAK-OUT ROOMS
15.35 – 15.50 CET	Break
15.50 – 16.35 CET	COMPETITION: ARTIFICIAL INTELLIGENCE Chair: Nico de Jong
15.50 Jihwan Youn	Task-Adaptive Beamforming for Microbubble Localization using Deep Learning
16.05 Ben Luijten	Microbubble Localization in High-Clutter Environments using Fullwave Simulations and Model-Based Deep Learning
16.20 Nathan Blanken	Contrast-enhanced single-RF-line simulations and super-resolution microbubble detection using deep learning
16.35 – 16.40 CET	Break
16.40 – 18.05 CET	PARALLEL ORAL SESSIONS C (Biology/Clinical) and D (Bubble technology) <i>The best presentation in each session will be awarded with the ESUCI Research Award supported by Bracco</i>
18.05 – 18.15 CET	Break
18.15 – 18.55 CET	ADVANCED CONTRAST IMAGING Chair: Rik Vos
18.15 Pengfei Song	Challenges and Opportunities in Microbubble Localization for Super-Resolution Microvascular Imaging
18.40 Arthur Chavignon	3D Transcranial Ultrasound Localization Microscopy in rat with a multiplexed matrix probe
18.55 – 19.05 CET	ANNOUNCEMENT OF WINNERS
19.05 – 19.30 CET	ADJOURN AND CLOSING

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THURSDAY, 14 January 2021

Parallel oral sessions Thursday

The best presentation in each session will be awarded with the ESUCI Research Award supported by Bracco

Thursday 16.15-17.30

SESSION A: TECHNOLOGY IMAGING Chair: Rik Vos

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|--------------------------|--|
| A1) Elizabeth B. Herbst | Enhanced visualization of ultrasound contrast agents using normalized singular spectrum area and singular value thresholding |
| A2) Robert C. Hurt | Improved Acoustic Reporter Genes for Sensitive and Specific Imaging of Gene Expression..... |
| A3) Ting-Yu Lai | Contrast enhanced ultrasound with optimized aperture patterns |
| A4) Vincent Hingot | Measuring resolution in Ultrasound Localization Microscopy |
| A5) Luxi Wei | <i>In Vivo</i> Volumetric Vasculature Imaging Using a Sparse Spiral Array..... |
| A6) Sophie V. Heymans | Passive detection and super-localization of acoustic signatures from PVA-PFB nanodroplets vaporized by protons..... |
| A7) João M. Ribeiro | Motion compensation for high-frame-rate contrast enhanced ultrasound imaging: a simulation study..... |
| A8) Geraldi Wahyulaksana | The influence of motion on contrast detection for ultrafast imaging: quantification and compensation..... |

Thursday 16.15-17.30

SESSION B: TECHNOLOGY OTHER..... Chair: Nico de Jong

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|-----------------------------|--|
| B1) Ilaria Angelini | Ultrasound Frequency-Dependent Targeting: A Step Toward Multi-Color Ultrasound Molecular Imaging |
| B2) Gazendra Shakya | Effects of primary and secondary radiation forces on endoskeletal droplets under standing surface acoustic waves |
| B3) Agisilaos Matalliotakis | Propagation of medical ultrasound through a cluster of nonlinear microbubbles including multiple scattering effects |
| B4) Peiran Chen | In-silico simulations of the microbubble flow through microvascular networks mimicked by porous media |
| B5) Sander Spiekhout | Observations of monodisperse microbubble resonance by an 'Acoustical Camera' |
| B6) Chuan Chen | Pharmacokinetic maps of PSMA-targeted nanobubbles in subcutaneous mouse tumors |
| B7) Jonathan A. Kopechek | Ultrasound contrast agents enhance trehalose delivery to erythrocytes in vitro for dry storage at ambient temperatures |
| B8) Marie Amate | Microbubbles and ultrasound therapy improves antibody distribution in a 4T1 mouse tumor model |

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Parallel oral sessions Friday

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Friday 16.40-18.05

SESSION C: BIOLOGY/CLINICAL..... Chair: Klazina Kooiman

- C1) Jia-Ling Ruan Ultrasound-Mediated Gemcitabine Delivery Improves Chemoradiation Therapy in Muscle-Invasive Bladder Cancer
- C2) Sara B. Keller Safety of image-guided ultrasound cavitation treatment for liver cancer in an *in vivo* porcine model
- C3) Jonathan P. May Nanodroplet triggered drug release for bone fracture healing
- C4) Charis Rousou The effects of ultrasound and microbubbles in the paracellular permeability of an *in vitro* blood retinal barrier model
- C5) Matthew D. Bourn High-throughput Microfluidics for Evaluating Microbubble Enhanced Delivery of Cancer Therapeutics in Spheroid Cultures .
- C6) Simone Langeveld Engulfment of targeted microbubbles affects the acoustic response and sonoporation threshold
- C7) Anurag N. Paranjape A transwell-based system to investigate the pathways involved in sonoporation-mediated enhancement of endothelial permeability
- C8) Thiruganesh Ramasamy STAT3 decoy oligonucleotide-carrying microbubbles with pulsed ultrasound for enhanced therapeutic effect in head and neck tumors.....
- C9) Francois Yu The effect of the pulse length sonoreperfusion therapy.....

Friday 16.40-18.05

SESSION D: BUBBLE TECHNOLOGY..... Chair: Rik Vos

- D1) Ksenia Loskutova Assessment of the Mechanical Properties of Cellulose Nanofiber-Stabilized Droplets Using Acoustophoresis
- D2) Claire Rabut Ultrafast nonlinear imaging of biomolecular acoustic reporters and simultaneous Doppler measurements.....
- D3) Anish Silwal Endoskeletal Drops for Photoacoustics
- D4) Alec Thomas Therapeutic magnetic microbubbles for the treatment of pseudoaneurysms
- D5) Sarah Cleve Towards high-production rate synthesis of monodisperse ultrasound contrast agents: understanding the local flow field
- D6) Charlotte Nawijn Comparison of nonlinear pulsing schemes for contrast plane wave imaging using monodisperse microbubbles
- D7) Qiang Wu Investigation of the acoustic vaporization threshold of lipid-coated perfluorocarbon nanodroplets using simultaneous high-speed optical imaging and acoustic methods
- D8) Michael L. Calvisi A novel model for lipid-encapsulated microbubbles using transient network theory
- D9) John Pacella Design and testing of a novel nitro-fatty acid microbubble for the treatment of ischemia-reperfusion injury using ultrasound-targeted microbubble cavitation

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