

# **27th EUROPEAN SYMPOSIUM ON ULTRASOUND CONTRAST IMAGING**

**January 20&21 2022 - online**



## **27th EUROPEAN SYMPOSIUM Program**

### **WEDNESDAY, 19 January 2022**

**19.00 CET**      **Lobby will be open – Zoom Events**

### **THURSDAY, 20 January 2022**

**14.00 – 14.10 CET**      **Welcome by the chairs**

**14.10 – 15.05 CET**      **CLINICAL IMAGING.....** **Chair: Rik Vos/Folkert ten Cate**

14.10 Mengxing Tang  
14.30 Paul Sidhu  
14.50 Sylvain Bodard  
Fast super-resolution ultrasound .....  
Complex Renal Cysts and CEUS: The future for Bosniak Cyst Classification? .....  
Ultrasound Localization Microscopy of the human kidney graft on a clinical ultrasound scanner .....

**15.05 – 16.05 CET**      **CLINICAL THERAPY .....** **Chair: Annemien van den Bosch**

15.05 Tom Porter  
15.25 Sabrina Doelare  
15.45 Kullervo Hynynen  
Improvement in systolic function following sonothrombolysis applied after emergent percutaneous intervention in anterior ST segment elevation myocardial infarction .....  
Latest Updates on Microbubbles and Ultrasound Accelerated Thrombolysis for Peripheral Arterial Occlusions .....  
Enhanced delivery of trastuzumab to Her2-positive brain metastases .....

**16.05 – 16.30 CET**      **Break**

**16.30 – 18.00 CET**      **PARALLEL ORAL SESSIONS A (Imaging) and B (Biology/Clinical)**

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

**18.00 – 18.15 CET**      **Break**

**18.15 – 19.05 CET**      **THERAPY: Towards clinical use.....** **Chair: Klazina Kooiman**

18.15 Triantafyllos Stylianopoulos  
18.35 Jordan Joiner  
18.50 Philip Durham  
Monitoring tumor microenvironment modifications with contrast-enhanced ultrasound and shear wave elastography for optimized immunotherapy responses .....  
Low-intensity focused ultrasound enhances αCD40 antitumor effect in murine pancreatic tumors .....  
Reactive Molecule Capture in Intracranial Drug Depots Following Ultrasound Mediated Delivery .....

**19.05 – 19.10 CET**      **Adjourn**

**19:15 – 20.30 CET**      **Online Social event**

**Organised by:** **Rik Vos, Klazina Kooiman, Annemien van den Bosch, 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, 21 January 2022

**14.00 – 14.05 CET** Welcome by the chairs

**14.05 – 14.55 CET** **NANODROPLETS .....** Chair: Klazina Kooiman

14.05 Mark Borden  
14.25 Sophie Heymans  
14.40 Yosra Toumia  
Engineering Nanodrops for Ultrasound Imaging .....  
Acoustic modulation of the degree of superheat enables nanodroplet vaporization by protons at body temperature .....  
Ultrasound detection of Carbon-ion dose and range using activatable polymer-shelled perfluorobutane nanodroplets .....

**14.55 – 16.25 CET** **PARALLEL ORAL SESSIONS C (Technology) and D (Bubble and Droplet Technology)**   
The best presentation in each session will be awarded with the ESUCI Research Award supported by

**16.25 – 16.45 CET** Break

**16.45 – 17.45 CET** **COMPETITION: IMAGING AND/OR TREATMENT OF INFECTIONS .....** Chair: Nico de Jong

16.45 Joop Kouijzer  
17.00 Gareth LuTheryn  
17.15 Kirby Lattwein  
17.30 Virginie Papadopoulou  
Vancomycin-decorated microbubbles for treatment and ultrasound molecular imaging of *Staphylococcus aureus* biofilms .....  
Bactericidal and Anti-biofilm effects of Ultrasound-Responsive Nitric Oxide Microbubbles on *Pseudomonas aeruginosa* Biofilms  
Ultrasound-activated microbubbles for the treatment of fibrin-based biofilms .....  
Ultrasound-stimulated phase-change contrast agents to eradicate methicillin-resistant *Staphylococcus aureus* biofilm infections in a diabetic wound model .....

**17.45 – 18.25 CET** **PARALLEL PITCH SESSIONS I & II**

**18.25 – 18.35 CET** Break

**18.35 – 19.30 CET** **ADVANCED CONTRAST IMAGING .....** Chair: Annemien van den Bosch/Folkert ten Cate

18.35 Erik Groot Jebbink  
18.55 Guillaume Lajoinie  
19.15 Olivier Couture  
High-frame-rate, contrast enhanced, ultrasound for blood flow quantification in patients with vascular disease.....  
AI-based Microbubble super-resolution from raw ultrasound data .....  
3D transcranial Ultrasound Localization Microscopy for early discrimination between ischemic and hemorrhagic stroke .....

**19.30 – 19.40 CET** **ANNOUNCEMENT OF WINNERS**

**19.40 – 19.45 CET** **ADJOURN AND CLOSING**

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**THURSDAY, 20 January 2022**

## Parallel oral sessions Thursday

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

**Thursday 16.30-18.00**

### SESSION A: IMAGING.....

- |                           |   |
|---------------------------|---|
| A1) Abderrahmane Aissani  | Ultrasound Localization Microscopy of slow-moving microbubbles using Amplitude Modulation on Long Ensembles sequences ..... |
| A2) Jair Castillo         | Effect of Microbubble and Acoustic Radiation Force Parameters on avß3-Microbubble Targeting .....                           |
| A3) Chuan Chen            | The unique second-wave phenomenon in contrast-enhanced ultrasound imaging with nanobubbles .....                            |
| A4) Peiran Chen           | Solid renal cell cancer localization by contrast-ultrasound dispersion imaging .....  |
| A5) Antoine Coudert       | Transcranial and volumetric ultrasound localization microscopy with diverging waves.....                                    |
| A6) Lance De Koninck      | Improved tissue signal suppression through phase segmentation during amplitude modulation with Sonazoid .....               |
| A7) Jonah Harmon          | Quantitative nonlinear ultrasound localization microscopy .....   |
| A8) Baptiste Heiles       | 3D Nonlinear Sound-Sheet Imaging of Acoustic Biomolecules .....   |
| A9) Megan Morris          | Super-resolution ultrasound and MRI imaging for monitoring breast tumour response to radiotherapy .....                     |
| A10) Geraldi Wahyulaksana | Porcine myocardial perfusion imaging with high frame rate contrast schemes .....  |

**Thursday 16.30-18.00**

### SESSION B: BIOLOGICAL / CLINICAL .....

- |                       |  |
|-----------------------|--|
| B1) Matthew Bourn     | Microfluidic Vasculature Networks for the Evaluation of Microbubble-Mediated Delivery of Targeted Liposomes .....                    |
| B2) Grace Conway      | Ultrasound-Targeted Microbubble Cavitation Increases Blood Brain Barrier Permeability in an in vitro System.....                     |
| B3) Soufiane El Kadi  | Feasibility of sonothrombolysis in the ambulance for ST-elevation myocardial infarction .....  |
| B4) Alexandre Helbert | Sonopermeation improves the therapeutic efficacy of Caelyx in a preclinical chemo-induced breast tumor model .....                   |
| B5) Bram Meijlink     | The OrganoPlate® as vessel-on-a-chip model to investigate microbubble-mediated drug delivery mechanisms .....                        |
| B6) Anurag Paranjape  | Multi-Cellular Human Brain Spheroid Model to Study Sonoporation-Induced Drug Payload Penetration Beyond the Blood-Brain Barrier..... |
| B7) Dawid Przystupski | Application of calcium sonoporation to effective apoptosis induction in gastrointestinal cancer cells .....                          |
| B8) Sepideh Jahangiri | Ultrasound Targeted Microbubble Cavitation improves aPDL1 Cancer Immunotherapy in a mouse colon adenocarcinoma model.....            |
| B9) Simon Michon      | Anti-Cancer Provascular Therapy using Ultrasound Microbubbles and Nitrites to Increase Radiotherapy Efficacy .....                   |
| B10) Davindra Singh   | Ultrasound-assisted miR-1 delivery towards the treatment of hypertrophic cardiomyopathy .....  |

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FRIDAY, 21 January 2022

## Parallel oral sessions Friday

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

**Friday 14.55 – 16.25**

### SESSION C: TECHNOLOGY .....

- |                             |   |
|-----------------------------|---|
| C1) Gonzalo Collado-Lara    | Proton range verification with superheated droplets: influence of droplet size, concentration, and proton fluence on the range verification precision .....   |
| C2) Hongchen Li             | 20 Mfps interleaved ultra-high-speed imaging by coupling two Shimadzu HPV-X2 cameras .....  |
| C3) Marianna Horn           | Environmental contrast enhanced ultrasound imaging: visualizing perfusion changes in rainbow trout bowel after induction of inflammation .....                |
| C4) Connor Krolak           | Evaluation and early detection of hepatocellular carcinoma with quantitative contrast-enhanced ultrasound .....   |
| C5) Alina Kuliesh           | A physics-informed simulation framework for ultrasound localization microscopy .....  |
| C6) Shouqiang Li            | Delineation of right and left regional ventricular function with selective microvascular enhancement following perfluoropane droplet activation imaging ..... |
| C7) Agisilaos Matalliotakis | Multiple scattering inside a population of nonlinear oscillating microbubbles excited by a cloud of acoustic point sources .....                              |
| C8) Romain Melich           | In vivo circulation of fluorescent lipid-coated perfluorocarbon nanodroplets determined using three detection methods .....                                   |
| C9) Sander Spiekhout        | Acoustical Sizing of Individual Microbubbles using an 'Acoustical Camera' .....   |
| C10) Martin van den Broek   | Transient disruption of a blood-brain barrier on-chip using ultrasound and monodisperse microbubbles .....  |

**Friday 14.55 – 16.25**

### SESSION D: BUBBLE AND DROPLET TECHNOLOGY .....

- |                              |   |
|------------------------------|---|
| D1) Damien Batchelor         | The Influence of Nanobubble Size and Stability on In Vitro Ultrasound Mediated Sonoporation .....                               |
| D2) Fabio Domenici           | Microdroplet-DNA assemblies for tailored coalescing interaction and tumour cells transfection .....                             |
| D3) Dragana Dubey            | Encoding stimulus-responsiveness into microbubbles through lipid shell crosslinking .....                                       |
| D4) Una Goncin               | Ultrasound molecular imaging using an anti-P-selectin aptamer for imaging bowel inflammation .....                              |
| D5) Mohammed Soheb Anwar     | Fibrin-Targeted Phase Shift Microbubbles Outperformed Fibrin-Targeted Microbubbles in Microvascular Obstruction Treatment ..... |
| D6) J. Angel Navarro-Becerra | In vivo Pharmacokinetics of Microbubble Volume Dose: A Direct Blood Characterization Study .....                                |
| D7) Charlotte Nawijn         | Shell characterization of single microbubbles using a novel stress-strain analysis .....  |
| D8) Antoine Presset          | First in-vivo metabolomics characterization of acoustically-mediated blood-brain barrier opening .....                          |
| D9) Pedro N. Azevedo         | Freeze-dried Monodisperse Microbubbles as Ultrasound Contrast Agent .....   |
| D10) Guowei Wang             | Ultrasonic Cavitation-Assisted and Acid-Activated Transcytosis of Liposomes for Universal Active Tumor Penetration .....        |

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FRIDAY, 21 January 2022

## PARALLEL PITCH SESSIONS I & II

**Friday 17.45 – 18.25**

### SESSION I - TECHNICAL.....

- I.1) Muhammad Wahab Amjad Development and Characterization of Nitro-Fatty Acid Microbubbles (NFABs) for the Treatment of Microvascular Obstruction
- I.2) Christopher Campbell Evaluating the Stability of Perfluorocarbon Nanodroplets for Antimicrobial Therapies.....
- I.3) Georges Chabouh Can Ultrasound Contrast Agents swim? .....
- I.4) Peiran Chen Investigating microvascular phantom and case materials for ultrasound perfusion imaging.....
- I.5) Gwennou Coupier Refined models for oscillations of ultrasound contrast agents in the spherical and buckled configurations .....
- I.6) Yi Huang Normalized Singular Spectrum Area Measurement of Simulated Microbubble Signals in a Vessel Phantom.....
- I.7) Boudewine Ossenkoppele Volumetric Imaging of Microbubbles Using a Sparse Array and Deep Learning based Adaptive Beamforming .....
- I.8) Alexis Vivien Size-Dependance of Microbubble Cavitation Threshold.....

**Friday 17.45 – 18.25**

### SESSION II - BIOLOGICAL / CLINICAL.....

- II.1) James Bezer Microbubble dynamics in brain microvessels.....
- II.2) Christa Brown Smart biomaterials: Exploiting protein mechanics for ultrasound stimulated drug release .....
- II.3) Yanou Engelen High-intensity focused ultrasound to induce and boost anti-tumor immunity.....
- II.4) Stephanie He Ultrasound-mediated delivery of microRNA-126 to endothelial cells .....
- II.5) Melina Mühlenpfört Acoustic Cluster Therapy (ACT®) increases blood-brain barrier permeability and enhances accumulation of core-crosslinked polymeric micelles.....
- II.6) Oliver Pattinson Ultra-High Speed Quantification of Cell Strain During Cell-Microbubble Interactions .....
- II.7) Noboru Sasaki Ultrasound-assisted intravesical chemotherapy: preliminary safety results in a dog model.....
- II.8) Benjamin van Elburg On the size dependency of sonoporation efficiency: a monodisperse microbubble study .....

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