

**23<sup>rd</sup> EUROPEAN SYMPOSIUM ON ULTRASOUND CONTRAST IMAGING**  
**18-19 JANUARY 2018, Rotterdam, The Netherlands**

**WEDNESDAY, 17 January 2018**

- 11.00 – 15.00**      **Mini Symposium Unveils Confocal Microscope combined with Brandaris 128**  
**Location: Erasmus MC – 23<sup>rd</sup> floor, room Ee2389**  
**Registration to attend (in order to arrange access to the building): [m.pruijsten@erasmusmc.nl](mailto:m.pruijsten@erasmusmc.nl)**
- 10:30**              **Coffee**  
Chair: Klazina Kooiman
- 11:00              Ine Lentacker      A confocal's perspective on sonoporation (Ghent University, Belgium)
- 11:25              Liza Villanueva    An ultra-high-speed camera's perspective on sonoporation (University of Pittsburgh Medical Center, USA)
- 11:50              Michel Versluis    Future of ultra-high-speed camera's for microbubble research (University of Twente, the Netherlands)
- 12:15**              **Lunch sponsored by Nikon**  
Chair: Nice de Jong
- 13:00              Ayache Bouakaz    Clinical perspective on sonoporation (University Francois Rabelais, France)
- 13:25              Nikon                A1R confocal microscope
- 13:40              Klazina Kooiman    Future studies with confocal microscope combined with Brandaris 128 ultra-high-speed Camera (Erasmus MC, the Netherlands)
- 14:00              Unveiling of confocal microscope combined with Brandaris 128 by Prof.dr. Hans van Leeuwen, dean of Erasmus MC, followed by live demonstration
- 15:00**              **Adjourn**
- 18.00 – 20.00**      **Registration - Welcome Drinks [1<sup>st</sup> floor, Hilton hotel Rotterdam]**

**THURSDAY, 18 January 2018**

**Oral program**

- 08.00 – 09.00**      **Registration**
- 09.00 – 09.10**      **Introduction and opening**.....*Olivier Couture*
- 09.10 – 10.40**      **ULTRAFAST / HIGH-RESOLUTION IMAGING**..... *Chairpersons: Rik Vos and Olivier Couture*
- Paul Dayton      Superharmonic Ultrasound Imaging and Acoustic Angiography .....
- Pengfei Song      Towards super-resolution imaging under clinical settings: initial experience in animals and humans .....
- Matthew Bruce    High(er) frequency contrast enhanced ultrasound (CEUS) .....
- Anastasiia Panfilova    On what dynamic contrast-enhanced ultrasound tells us about the underlying vascular architecture .....
- Baptiste Heiles    Volumetric ultrafast Ultrasound Localization Microscopy using a 32x32 Matrix Array.....
- 10.40 – 11.10**      **Intermission**
- 11.10 – 12.25**      **CEUS - Imaging I** ..... *Chairpersons: Otto Kamp and Folkert ten Cate*
- Francois Tranquart    Kupffer cell imaging with Sonazoid during liver contrast-enhanced ultrasound examination .....
- Stefan Engelhard    Ultrasound Particle Image Velocimetry in the Abdominal Aorta: first results in humans and comparison with Phase Contrast Magnetic Resonance Imaging .....
- Daisy Liu            Changes in renal perfusion precede increased urinary protein excretion caused by weight gain and normalize after weight-loss in dogs.....
- Lynda Juffermans    The use of contrast-enhanced ultrasound in the assessment of uterine fibroids – a feasibility study .....
- 12.25 – 12.40**      **David Cosgrove Memorial Lecture** ..... *Chairperson: Nico de Jong*
- Rob Eckersley
- 12.40 – 13.45**      **LUNCH**

**THURSDAY, 18 January 2018**

## Oral program

<p><b>13.45 – 14.15</b> Peter Burns</p>	<p><b>Dutch Heart Foundation lecture</b> .....<i>Chairperson: Liza Villanueva</i>          Contrast Ultrasound in the Coming Decade .....</p>
<p><b>14.15 – 15.45</b> Beat Kaufmann Steven Freear Samir Cherkaoui</p> <p>Jiaqi Zhu Inés Beekers</p>	<p><b>MICROBUBBLES: IMAGING AND THERAPY</b> ..... <i>Chairpersons: Mike Averkiou and Ayache Bouakaz</i>          Ultrasound molecular imaging of cardiovascular disease .....          Subharmonic Imaging of Liposome-loaded Microbubbles .....          Anti-Inflammatory Therapeutic Treatment Monitoring in Swine Model of Inflammatory Bowel Disease using          Dual-Selectin-Targeted Contrast-Enhanced Ultrasound Imaging.....          High frame rate contrast enhanced ultrasound imaging of lymph node in vivo .....          Microbubble – cell interactions revealed with combined confocal microscopy and BrandaRis 128 ultra-high speed imaging.....</p>
<p><b>15.45 – 16.15</b></p>	<p><b>Intermission</b></p>
<p><b>16.15 – 17.45</b> Thomas Porter</p> <p>Hong Chen Liza Villanueva Jean-Michel Escoffre Filip Istvanic</p>	<p><b>THERAPY - I</b> <i>Chairpersons: Klazina Kooiman and Margaret Wheatley</i>          Delayed Enhancement Ultrasound Imaging with Acoustically Activated Definity Droplets in Detecting and          Quantifying Myocardial Infarct Size.....          Microbubble perivascular pump effect for enhancing the local delivery efficiency of intranasally-administered agents .....          Sonodynamic therapy using protoporphyrin IX encapsulated microbubbles inhibits tumor growth.....          New insights in the role of ROS in mechanisms of sonoporation-mediated gene delivery .....          Sonoreperfusion of Microvascular Obstruction: a Step towards Clinical Translation .....</p>
<p><b>18.30 – 22.30</b></p>	<p><b>EVENING PROGRAM (Incl. Dinner buffet)</b></p>

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**FRIDAY, 19 January 2018**

**07.30 – 08.00 Registration**

**Poster sessions**

**07.30 – 09.00**

**MODERATED POSTER SESSION A: BIOLOGY** ..... Moderator: Klazina Kooiman

- A1) Filip Plazonic      Ultrasound-activated microbubbles enhance the activity of low-concentration gentamicin against *Pseudomonas aeruginosa* biofilms .....
- A2) Virginie Papadopoulou      Short and long-term effects of oxygen microbubble administrations in a rat fibrosarcoma model and radiotherapy sensitization .....
- A3) Mukesh Punjabi      Contrast enhanced ultrasound molecular imaging (CEUMI) of atherosclerosis: Development of a clinically translatable ..... tracer for targeting of vascular cell adhesion molecule 1 (VCAM-1)
- A4) Silke Roovers      Interactions of drug-loaded microbubbles and ultrasound with a soft tissue environment .....
- A5) Sophie Morse      On the safety of brain drug delivery using Rapid-Short Pulse (RaSP) sequences.....
- A6) Sandeep Kasoji      Early assessment of tumor response to radiation therapy using super-harmonic contrast enhanced microvascular ultrasound imaging.....
- A7) Samantha Fix      Accelerated clearance of ultrasound contrast agents containing polyethylene glycol (PEG) is associated with a PEG-specific immune response .....
- A8) Shashank Sirsi      Monitoring and Control of Liposomal Doxorubicin in Tumors using Ultrasound Contrast Agents .....

**07.30 – 09.00**

**MODERATED POSTER SESSION B: TECHNOLOGY** ..... Moderator: Rik Vos

- B1) Massimo Mischi      Exploiting Microbubble Flow Dynamics to Improve Super-resolution Ultrasound imaging.....
- B2) Takeshi Okada      Experimental study on acoustic effects of an elastic wall on translational dynamics of an oscillating bubble .....
- B3) Mengxing Tang      3D Flow Reconstruction Based on Multiple 2D Contrast Enhanced High-Frame-Rate Ultrasound Measurements .....
- B4) Nadir Cohen/Dan Adam      Semi-Automatic Segmentation of the LV Cavity in Contrast Enhanced Echocardiographic Clips .....
- B5) Alec Thomas      Shell Mechanics of Lung Surfactant Microbubbles .....
- B6) Vincent Hingot      Incompressible perfusion time of microbubbles in capillaries drives the fundamental compromise between spatial resolution and acquisition time in Ultrasound Localization Microscopy.....
- B7) Kai Riemer      Mapping blood flow and wall shear stress in the rabbit abdominal aorta in vivo using native blood speckle and microbubble contrast agent.....
- B8) Sara Keller      High Resolution Ultrafast Imaging of Microbubble Activity During Sonoporation .....

**Wednesday–Friday**

**POSTER SESSION C: NEW DIRECTIONS I** ..... Election by the audience

- C1) Daisy Liu      Long-term variability of renal perfusion parameters measured by contrast-enhanced ultrasound in healthy dogs.....
- C2) Dongwon Lee / Kang Changsun      Molecularly Engineered H<sub>2</sub>O<sub>2</sub>-Activatable Nanoparticles for Contrast-enhanced Photoacoustic Imaging of Thrombosed Vessels .....
- C3) Ryo Suzuki      Cancer therapy by the combination of ultrasound contrast imaging agent and non-focused ultrasound induce cancer immune response.....
- C4) Olga Koshkina      Perfluorocarbon-loaded Polymeric Nanoparticles with Multi-domain Structure for Multiscale In Vivo Imaging with Ultrasound and 19F MRI .....
- C5) Guillaume Lajoinie      Laser-activated microparticles: multimodal contrast imaging .....
- C6) Shashank Sirsi      Development of “Microbubble Clusters”: Potential New Applications in Ultrasound Imaging and Drug Delivery.....
- C7) Damiano Palmieri      Polymer/lipid hybrid shelled microdroplets behave as attractive ultrasound and photo-thermal phase-change integrated systems .....
- C8) Hongjian Chen      Polymer Microbubbles as Dual Modal Contrast Agent for Ultrasound and Computed Tomography.....
- C9) Elliott Teston      A versatile and robust microfluidic device for simple or multiple emulsion production .....
- C10) Estelle Beguin      Interplay between functionalising and stabilising lipid microbubbles for magnetic targetin .....

**Wednesday–Friday**

**POSTER SESSION D: NEW DIRECTIONS II** ..... Election by the audience

- D1) Elizabeth Herbst / John Hossack      NSSA-Based Classification of Tissue and Adherent Microbubble Signals in a Mouse Tumor Model .....
- D2) Rogier. Wildeboer      Prostate cancer localization through convective-dispersion estimation in three-dimensional contrast ultra-sound .....
- D3) Thomas Lacour      Dynamics and vaporization threshold of bubble/droplet system within a nonlinear elastic shell during ADV: a model .....
- D4) Baudouin Denis de Senneville      Quantitative Contrast-Enhanced Ultrasound Imaging using a fluid dynamic model.....
- D5) Pilsu Kim      Evaluation of Accuracy of Passive Acoustic Mapping for Cavitation Monitoring in Therapeutic Ultrasound.....
- D6) Rachel Bott      Characterizing Microbubble Count and Size Distribution Using the Innovative Technique of MEMS Resonant Mass Measurement.....
- D7) Martynas Maciulevičius      The Analysis of Sonoporation Metrics.....
- D8) Elahe Moghimirad      Contrast enhanced ultrasound imaging: effect of flow on contrast measurements using plane wave versus focused transmissions.....
- D9) Ting-Yu Lai      Modeling the acoustic field produced by diagnostic ultrasound arrays in plane wave mode .....

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## Oral program

**09.00 – 10.30**      **BUBBLE TECHNOLOGY** ..... *Chairpersons: Paul Dayton and Mikhail Shapiro*

Margaret Wheatly Sophie Heymans	Evolution of a Polymer-shelled Ultrasound Contrast Agent .....
	Single-Element Transducer for Simultaneous Ultrasound Therapy and Monitoring of Microbubble-Seeded Acoustic Cavitation .....
Juan Rojas	Explaining The Differences in Vaporization Threshold of Low Boiling-Point Phase Change Contrast Agents Between in Vivo and In Vitro Activation .....
Tim Segers	Monodisperse Ultrasound Contrast Agents: Synthesis, Stability, Efficiency, and Dilatational Elasticity .....
Brandon Helfield	Investigating the accumulation of submicron phase-shift droplets in tumours .....

**10.30 – 11.00**      **Intermission**

**11.00 – 12.30**      **CEUS – Imaging II**..... *Chairpersons: Beat Kaufmann and Dan Adam*

James Choi	On contrast agents for elasticity imaging .....
Jeanot Victor	In vivo evaluation of monosize microbubbles: acoustic efficiency and safety .....
Arend Schinkel	Safety and feasibility of contrast echocardiography for the evaluation of patients with HeartMate 3 left ventricular assist devices
Virginie Papadopoulou	Nonlinear microbubble ultrasound imaging for improved decompression stress quantification in humans .....
Jason Voorneveld	High Frame Rate Echo-Particle Image Velocimetry for Estimating Flow Patterns in a Left Ventricular Phantom.....

**12.30 – 13.30**      **LUNCH**

**13.30 – 14.00**      **COEUR LECTURE** ..... *Chairperson: Peter Burns*

Mikhail Shapiro      Gas Vesicles: Acoustic Biomolecules for Ultrasound Imaging.....

**14.00 – 16.00**      **COMPETITION: DROPLETS**..... *Chairpersons: Nico de Jong and Mark Borden*

Yosra Toumia	A Versatile Chromo-responsive Photopolymerized Phase-Change Droplets as Contrast Agent for Ultrasound Imaging .....
Oliver Vince	Magnetically and biochemically targeted ultrasound-responsive nanodroplets for therapy of brain metastases .....
Kevin Haworth	Tunable Oxygen Scavenging Using Acoustic Droplet Vaporization .....
Catharina de Lange	Acoustic Cluster Therapy Microdroplets boost microbubbles enhanced drug delivery .....
Ge Zhang	Super-Localisation Ultrasound Imaging using Sparse Activation of Low-Boiling-Point Nanodroplets.....
Alexander Klibanov	Perfluorocarbon nanodroplets in liposomes: preparation and triggered contents release by ultrasound .....

**16.00 – 16.10**      **CLOSING REMARKS**..... *Nico de Jong*

**16.10**      **FAREWELL DRINKS**

**ANNOUNCEMENT OF THE WINNERS OF THE COMPETITION AND POSTER PRIZES**

**Organised by:**      **Nico de Jong, Folkert ten Cate, Rik Vos, Klazina Kooiman, and Arend Schinkel**

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