

2014 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM

CHICAGO, ILLINOIS, USA

September 3 - 6, 2014

## STUDENT PAPER COMPETITION FINALISTS

**PA-1** *Comparison of tumor microvasculature assessment via Ultrafast Doppler Tomography and Dynamic Contrast Enhanced Ultrasound*

**Charlie Demene**<sup>1</sup>, Thomas Payen<sup>2</sup>, Alexandre Dizeux<sup>2</sup>, Jean Luc Gennisson<sup>1</sup>, Lori Bridal<sup>2</sup>, Mickaël Tanter<sup>1</sup>

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**PA-2** *Ultrasound Quantification of Molecular Marker Concentration in Large Blood Vessels*

**Shiyang Wang**<sup>1</sup>, F William Mauldin Jr<sup>1</sup>, Alexander L Klibanov<sup>1,2</sup>, John A Hossack<sup>1</sup>

<sup>1</sup>Biomedical Engineering, University of Virginia, Charlottesville, Virginia, USA,

<sup>2</sup>Division of Cardiovascular Medicine, University of Virginia, Charlottesville, Virginia, USA

**PA-3** *Ultrafast Plane Wave Imaging Based Pulsed Magnetomotive Ultrasound*

**Pei-Hsien Ting**<sup>1</sup>, Yi-Da Kang<sup>2</sup>, San-Yuan Chen<sup>2</sup>, Meng-Lin Li<sup>1,3</sup>

<sup>1</sup>Dept. of Electrical Engineering, National Tsing Hua University, Hsinchu, Taiwan,

<sup>2</sup>Department of Materials Science and Engineering, National Chiao Tung University, Taiwan,

<sup>3</sup>Institute of Photonics Technologies, National Tsing Hua University, Taiwan

**PA-4** *Ultrafast vaporization dynamics of photoacoustic polymeric microcapsules*

**Guillaume Lajoinie**<sup>1</sup>, Erik Gelderblom<sup>1</sup>, Ceciel Chlon<sup>2</sup>, Marcel Böhmer<sup>2</sup>, Nico De Jong<sup>3</sup>, Wiendelt Steenbergen<sup>4</sup>, Srirang Manohar<sup>4</sup>, Michel Versluis<sup>1</sup>

<sup>1</sup>Physics of Fluids, University of Twente, Netherlands,

<sup>2</sup>Philips Research Laboratories Europe, High Tech Campus, Netherlands,

<sup>3</sup>Biomedical Engineering, Thoraxcenter, Erasmus mc, Netherlands,

<sup>4</sup>Biomedical Photonic Imaging Group, University of Twente, Netherlands

**PA-5** *Pharmacodynamic analysis for efficient drug delivery through the FUS-induced BBB opening in Non-Human Primates in vivo*

**Gesthimani Samiotaki**<sup>1</sup>, Shih-Ying Wu<sup>1</sup>, Maria Eleni Karakatsani<sup>1</sup>, Matthew Downs<sup>1</sup>, Sachin Jambawalikar<sup>2</sup>, Elisa Konofagou<sup>1,2</sup>

<sup>1</sup>Biomedical Engineering, Columbia University, USA,

<sup>2</sup>Department of Radiology, Columbia University, USA

**PA-6** *Estimation of arterial wall motion using ultrafast imaging with transverse oscillations*

**Sebastien Salles**<sup>1</sup>, Simon Lai<sup>2</sup>, Damien Garcia<sup>3</sup>, Alfred Yu<sup>2</sup>, Didier Vray<sup>1</sup>, Hervé Liebgott<sup>1</sup>

<sup>1</sup>CNRS UMR 5220, INSERM U1044, Université de Lyon, Insa de Lyon, France,

<sup>2</sup>Biomedical Ultrasound Laboratory, University of Hong Kong, China, People's Republic of,

<sup>3</sup>RUBIC, CRCHUM, University of Montreal, Department of radiology, Canada

**PA-7** *Application of Air-Coupled Ultrasound to Full-Scale Concrete Columns Using Tomography*  
**Hajin Choi**<sup>1</sup>, John S. Popovics<sup>2</sup>

<sup>1</sup>University of Illinois at Urbana-Champaign, Champaign, IL, USA,

<sup>2</sup>Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

**PA-8** *Microparticle manipulation and whole blood pre-treatment in surface acoustic wave counterflow devices*

**Marco Travaglini**<sup>1,2</sup>, Richie Shilton<sup>2</sup>, Marco Pagliazzi<sup>1</sup>, Ilaria Tonazzini<sup>1</sup>, Fabio Beltram<sup>1,2</sup>, Marco Cecchini<sup>1</sup>

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<sup>2</sup>Center for Nanotechnology Innovation @ NEST, Istituto Italiano di Tecnologia, Pisa, Italy

**PA-9** *Hardware-Software Co-design of 3D Data Compression for Real-Time Ultrasonic Imaging Applications*

**Pramod Govindan**<sup>1</sup>, Jafar Saniie<sup>1</sup>

<sup>1</sup>Electrical and Computer Engineering, Illinois, Institute of Technology, USA

**PA-10** *Cavity modes and optomechanic interactions in phoxonic crystals*

**Said El-Jallal**<sup>1,2</sup>, Mourad Oudich<sup>3</sup>, Yan Pennec<sup>1</sup>, Bahram Djafari-Rouhani<sup>1</sup>, Abdelkader Makhoute<sup>4</sup>, Jordi Gomis-Bresco<sup>5</sup>, Daniel Navarro-Urrios<sup>5</sup>, Alejandro Martínez<sup>6</sup>, Clivia Sotomayor<sup>5,7</sup>

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**PA-11** *Multiple shear wave roundtrips liquid sensor by c-axis parallel oriented ZnO film/silica glass pipe structure*

**Shoko Hiyama**<sup>1</sup>, Takahiko Yanagitani<sup>2</sup>, Shinji Takayanagi<sup>1</sup>, Yoshiya Kato<sup>1</sup>, Mami Matsukawa<sup>1</sup>

<sup>1</sup>Wave electronics research center, Laboratory of Ultrasonic Electronics, Doshisha University, Kyotanabe, Japan,

<sup>2</sup>Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan

**PA-12** *Non-linear cavitation cloud oscillations in high intensity focused ultrasound*

**Keith Johnston**<sup>1</sup>, Bjoern Gerold<sup>1</sup>, Sandy Cochran<sup>1</sup>, Alfred Cuschieri<sup>1</sup>, Paul Prentice<sup>1</sup>

<sup>1</sup>Institute for Medical Science and Technology, University of Dundee, Dundee, United Kingdom

**PA-13** *Ultrasonic assembly of short fibre reinforced composites*

**Marc-S Scholz**<sup>1</sup>, Bruce W Drinkwater<sup>2</sup>, Richard S Trask<sup>1</sup>

<sup>1</sup>ACCIS, Department of Aerospace Engineering, University of Bristol, Bristol, United Kingdom,

<sup>2</sup>Department of Mechanical Engineering, University of Bristol, Bristol, United Kingdom

**PA-14** *Design of High Q Thin Film Bulk Acoustic Resonator Using Dual-Mode Reflection*

**Ngoc Nguyen**<sup>1</sup>, Agne Johannessen<sup>1</sup>, Ulrik Hanke<sup>1</sup>

<sup>1</sup>Micro and Nano Systems Technology, Buskerud and Vestfold University College, Borre, Vestfold, Norway

**PA-15** *Influence of Dissipated Power Distribution on BAW Resonators' Behavior*

**Andreas Tag**<sup>1</sup>, Dominik Karolewski<sup>2</sup>, Bernhard Bader<sup>3</sup>, Maximilian Pitschi<sup>3</sup>, Robert Weigel<sup>1</sup>, Amelie Hagelauer<sup>1</sup>

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<sup>3</sup>Cellular · Systems, Acoustics, Waves Business Group, TDK Corporation, Munich, Germany

**PA-16** *Chip Scale Reconfigurable Phased- Array Sonic Communication*

**Jason Hoople**<sup>1</sup>, Justin Kuo<sup>2</sup>, Serhan Ardanuç<sup>2</sup>, Amit Lal<sup>2</sup>

<sup>1</sup>Electrical and Computer Engineering, Cornell University, USA,

<sup>2</sup>Cornell University, USA

**PA-17** *Dual frequency transducers for super harmonic intravascular ultrasound imaging*

**Jianguo Ma**<sup>1</sup>, Karl Heath<sup>2</sup>, Yang Li<sup>3</sup>, Paul Dayton<sup>2</sup>, Qifa Zhou<sup>3</sup>, Kirk Shung<sup>3</sup>, Xiaoning Jiang<sup>1</sup>

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<sup>2</sup>UNC/NCSU Joint Department of Biomedical Engineering, University of North Carolina, Chapel Hill, North Carolina, USA,

<sup>3</sup>Department of Biomedical Engineering, University of Southern California, Los Angeles, California, USA

**PA-18** *An Ultrasound-Based Noninvasive Neural Interface to the Retina: Projection Algorithm and Frontend Integrated Circuit Architecture*

**Xun Wu**<sup>1</sup>, Mohit Kumar<sup>1</sup>, Omer Oralkan<sup>1</sup>

<sup>1</sup>Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, North Carolina, USA

**PA-19** *Improved Performance CMUT-on- CMOS Devices Using ALD Hafnium Oxide Insulation Layer*

**Toby Xu**<sup>1</sup>, Coskun Tekes<sup>1</sup>, F. Levent Degertekin<sup>1</sup>

<sup>1</sup>Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA,

**PA-20** *Integration of Pb(Zr,Ti)O<sub>3</sub>/ (PZT) Thin Films on a Complex Microfluidic System: Toward New Possibilities for Low Consumption Micropumps*

**Pierre-Henri Cazorla**<sup>1</sup>, Olivier Fuchs<sup>1</sup>, Martine Cochet<sup>1</sup>, Sandrine Maubert<sup>1</sup>, Gwenael Le Rhun<sup>1</sup>, Stephane Fanget<sup>1</sup>, Yves Fouillet<sup>1</sup>, Emmanuel Defay<sup>1</sup>

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