



Welcome

MSW 2016 is the 11th workshop and is held 22 years after the first workshop in 1994. We are happy to invite you to Lund!

MSW is the meeting place for those interested in Micro- and Nanosystems in Scandinavia. Participants will get a good insight in ongoing research and development.

Jonas Tegenfeldt
Chairman of MSW 2016

Keynote and Invited Speakers



Exhibition

Our exhibitors will showcase their products and services in the poster area of the conference venue.

Bergman Labora AB and Nikon

Zeiss

LRI and Olympus

Mengel Engineering and LabSmith

Local organizing Committee

Jonas Tegenfeldt, Division of Solid State Physics
Thomas Laurell, Department of Biomedical Engineering
Christelle Prinz, Division of Solid State Physics
Heiner Linke, Division of Solid State Physics

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Congress Secretariat

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Program

Tuesday, May 17, 2016

9.00 Registration opens

9:45 Opening of MSW 2016 (Jonas Tegenfeldt)

10:00 KEYNOTE (Chair: Thomas Laurell)

- “High selectivity single-cell protein assays enabled by microfluidic design”, Amy Herr, Berkeley, CA

10:40 Session 1 – Fluidics, materials and cells (Chair: Jonas Tegenfeldt)

- “Synthetic Microfluidic Paper for capillary driven microfluidics”, *Jonas Hansson, Tommy Haraldsson, and Wouter van der Wijngaart*, KTH, Stockholm
- “Soft, Stretchable and Sticky PDMS”, *S. H. Jeong, K. Hjort, and Z. G. Wu*, Huazhong University of Science and Technology; Uppsala University, Uppsala
- “Viability and cell division in droplet microfluidics based cell culture from single CHO cells depends on droplet size”, *Prem Kumar PR, Helene Andersson-Svahn and Håkan N. Jönsson*, KTH, Stockholm
- “Particle Enrichment In Droplet Acoustofluidics”, *A. Fornell, ... and M. Tenje*, Lund University, Lund; SciLife, KTH, Stockholm; Uppsala University, Uppsala

12:00 Lunch followed by dessert at the poster session

13:30 INVITED (Chair Peter Enoksson)

- “THz MEMS – Micromachining enabling new solutions at millimeter and submillimeter frequencies”, *Joachim Oberhammer*, KTH, Stockholm

14:00 Session 2 – Fabrication, materials and characterization (Chair Heiner Linke)

- “Crack-junctions: crack-defined electronic nanogaps”, *V. Dubois, F. Niklaus, and G. Stemme*, KTH, Stockholm
- “In Operando X-Ray Characterization of Electrically Induced Strain and Bending in Nanowire Devices”, *J. Wallentin, M. Osterhoff, and T. Salditt*, University of Göttingen, Göttingen, Lund University, Lund
- “Gap adapters for screw redundant high frequency measurements”, *Sofia Rahiminejad, ... Peter Enoksson*, Chalmers University of Technology, Gothenburg

15:00 Refreshments

15:15 Panel discussion – How to transform needs to products (Chair: Klas Hjort)

- Ebba Fähræus, CEO Lund Life Science Incubator
- Assoc Prof Christoph Langhammer, Chalmers
- Prof Amy Herr, Berkeley University
- Prof Andreas Hierlemann, ETH Zürich

16:15 Poster session and snacks

18:45 Bus transport to Grand Hotel (details announced separately)

19:15 Banquet at Grand Hotel

Wednesday, May 18, 2016

9:00 KEYNOTE (Chair Christelle Prinz):

- “Highly integrated CMOS microsystems to interface with neurons at subcellular resolution”, *Andreas Hierlemann*, ETH, Zürich

9:40 Session 3a – Tissue Engineering and Viability (Chair: Christelle Prinz)

- “Ultrasonic tissue micro-engineering”, *K. Olofsson, ... and M. Wiklund*, KTH, Stockholm
- “Acoustic Separation, Enrichment And Microchip PCR Detection of Bacteria from Blood”, *P. Ohlsson, ... T. Laurell*, Skåne University Hospital, Lund; University of Turku, Turku; Diagnostica OY; Turku University Hospital, Turku; Lund University, Lund

10:20 Poster session and refreshments

11:00 INVITED (Chair: Sampo Tukkanen)

- “Single Particle Plasmonic Nanospectroscopy”, *Christoph Langhammer*, Chalmers, Gothenburg

Session 3b – Plasmonics and sensors (Chair: Göran Stemme)

- “Opto-fluidics and Localized Surface Plasmon Resonance (LSPR) Biosensing: Multiplexing and Miniaturization”, S. S. Acimovic and Mikael Käll, Chalmers, Gothenburg
- “Plasmonic Nanopores For Single-Molecule DNA Sensing”, Nicoli, D. Vershueren, ... and M.P. Jonsson, TU Delft, Delft, University of Illinois at Urbana Champagne; Linköping University, Linköping

12:30 Lunch followed by dessert at the poster session

14:00 Session 4 – Information and Energy (Chair: Robin Ras)

- “Parallel Biocomputational Devices Based On Molecular Motors In Nanostructures”, F. W. Lindberg, ... H.Linke, Lund University, Lund and coworkers
- “Fungal foraging in microfluidic artificial soil environments”, K. Aleklett, ... and E.C. Hammer, Lund University, Lund
- “The Smart Mems Piezo Based Energy Harvesting With Integrated Supercapacitor And Packaging”, C. Rusu, ... T. Ebefors, Acreo Swedish ICT and coworkers

15:00 Refreshments

15:15 Concluding lecture (Chair: Cristina Rusu)

- “Dynamics of magnetic droplets on superhydrophobic surfaces”, Robin H. A. Ras, Department of Applied Physics, Aalto University, Helsinki

15:45 Prize ceremony (Chair: Jonas Tegenfeldt)

- BergmanLabora/Nikon prize for best poster presentation
- LRI/Olympus prize for most innovative work
- The Zeiss prize for best imaging

16:00 Adjourn (poster lounge open and available until 19:00 for final discussions and for removal of posters and exhibits)

Posters

1. IMPROVED TUNGSTEN NANOFABRICATION FOR HARD X-RAY ZONE PLATES, Parfeniukas *et al.*
2. METAL-ASSISTED CHEMICAL ETCHING OF SILICON FOR HARD X-RAY ZONE PLATE FABRICATION, Giakoumidis *et al.*
3. LOW-POWER MEMS TUNABLE PHOTONIC RING RESONATORS, Errando-Herranz *et al.*
4. FABRICATION OF HIGH ASPECT RATIO THROUGH SILICON VIAS (TSVS) USING WIRE BONDING, Schröder *et al.*
5. THROUGH-GLASS-VIA ENABLING LOW LOSS HIGH-LINEARITY RF COMPONENTS, Liljeholm *et al.*
6. THE MODEL FOR CAPACITIVE CHARGING OF CONDUCTING POLYMERS, Volkov *et al.*
7. SMART DESIGN FOR MEMS PIEZOELECTRIC HARVESTER, Vyas *et al.*
8. SUPERCAPACITOR BASED ON CARBON NANO-STRUCTURES AS ELECTRODE MATERIALS, Saleem *et al.*

9. CELLULOSE DERIVED NANOMATERIALS AND THEIR APPLICATION IN SUPERCAPACITORS, Kuzmenko *et al.*
10. PD DECORATION OF ON-CHIP GROWN ZNO NANORODS FOR ETHANOL DETECTION, Jiao *et al.*
11. DESIGN AND INTEGRATION OF A MID-IR ABSORBER INTO A MEMBRANE BASED THERMOPILE DETECTORS, Ashraf *et al.*
12. SIGNAL PROCESSING WITH APPLICATION TO A MEMS-GYROSCOPE BASED COMPUTER HEAD MOUSE, Du *et al.*
13. DIAMOND WAVEGUIDES FOR MID-IR SENSING, Malmström *et al.*
14. FABRICATION OF SUSPENDED ALL-METAL SENSOR ELEMENTS IN CERAMIC LAMINATES, Stureson *et al.*
15. PIEZO SENSORS FROM NANOCELLULOSE, Rajala *et al.*
16. DEVELOPMENT OF DRY STATE ON-CHIP MICROACTUATORS BASED ON POLYPYRROLE, Zhong *et al.*
17. HYBRID MATERIAL SOFT MICROACTUATORS, Zondaka *et al.*
18. EASY PATTERNING AND FABRICATION OF CONDUCTING POLYMER MICROACTUATORS, Tyagi *et al.*
19. SUPERHYDROPHOBIC PDMS FOR CAPILLARY SELF-ALIGNMENT, Chang *et al.*
20. SYNTHESIS AND SUBSEQUENT INVESTIGATION OF THERMRESPONSIVE COLLOIDAL MOLECULES USING DROPLET-BASED MICROFLUIDICS, Peng *et al.*
21. CROSS-LINKED GELATIN/AGAROSE CONJUGATE AS A THERMOSTABLE AND BIOCOMPATIBLE MICROFLUIDIC MATERIAL, Jocic *et al.*
22. CONSTRUCTION OF ORGANIZED MACROSCOPIC PROTEIN MATERIALS THROUGH SELF- ASSEMBLY OF AMYLOID FIBRILS, Solin *et al.*
23. SPATIAL AND CHEMICAL PATTERNING OF HYALURONIC ACID USING UV LITHOGRAPHY, Sjögren *et al.*
24. FABRICATION OF A SILICON-GLASS MICROFLUIDIC DEVICE FOR GENERATION OF SUB 100-MICROMETER-SIZED DROPLETS, Ohlin *et al.*
25. NUMERICAL MODELING AND EXPERIMENTAL VALIDATION FOR THE DETECTION OF OPTIMAL FOCUSING FREQUENCIES IN ACOUSTOPHORESIS, Garofalo *et al.*
26. LONG-TERM STORAGE OF PICOLITRE LIQUID VOLUMES IN POLYMER MICROFLUIDIC DEVICES, Guo *et al.*
27. A MICROSTRUCTURED OPTICAL FIBER FOR OPTOFLUIDICS, Etchevery *et al.*
28. HIGH PRESSURE GLASS DEVICES FOR CO₂ and H₂O, Andersson *et al.*
29. AUTOMATED CONTACT ANGLE MEASUREMENTS ON FIBERS USING A MICROROBOTIC PLATFORM AND COMPUTER VISION, Hirvonen *et al.*
30. TWO-DIMENSIONAL POLARIZATION MICROSCOPY OF POLYMER CHAIN ORGANIZATION IN CONJUGATED POLYMERS FOR ORGANIC ELECTRONICS, Täuber *et al.*
31. AGGREGATION OF MONO-STAINED PROTEINS VISUALIZED EX VIVO BY 2D POLARIZATION MICROSCOPY, Täuber *et al.*

32. SYNTHESIS AND CHARACTERIZATION OF THE LAWNMOWER: AN ARTIFICIAL PROTEIN-BASED, BURNED-BRIDGES MOLECULAR MOTOR, Verardo *et al.*
33. FLUORESCENT HETEROSTRUCTURE NANOWIRES FOR BIOLOGICAL APPLICATIONS, Adolfsson *et al.*
34. OSTE+ FOR NEURAL PROBES, Ejserholm *et al.*
35. PARTICLE SEPARATION AND DIFFUSION BASED LIMITATION, De Andres Gonzalez *et al.*
36. SIZE-INDEPENDENT DENSITY FRACTIONATION WITH DETERMINISTIC LATERAL DISPLACEMENT, Holm *et al.*
37. HYDRODYNAMIC MICROFLUIDIC TRAPS FOR STUDYING MALARIA INFECTIONS IN RED BLOOD CELLS, Ström *et al.*
38. PARTICLE SEPARATION BY A COMBINATION OF MICROFLUIDICS AND ELECTROKINETICS, Ho *et al.*
39. MICROFLUIDIC SEPARATION OF DNA, Kühnlein *et al.*
40. SURFACE BASED PARTICLE SORTING, Tran *et al.*
41. PARTICLE SORTING IN DLD ARRAYS USING ASYMMETRIC POST SHAPES, Punyani *et al.*
42. IMPEDANCE MEASUREMENTS AND ACOUSTIC TRAPPING IN A MICROFLUIDIC CHANNEL, Johannesson *et al.*
43. ACOUSTIC SEPARATION OF MIXED PARTICLE SUSPENSIONS USING AN IMPROVED MICROFLUIDIC-BASED MULTIPLE OUTLET CHIP, Urbansky *et al.*
44. ACOUSTIC CAPTURE OF MICROVESICLES FROM PLASMA, Evander *et al.*
45. ACOUWASH AND ACOUTRAP – AUTOMATED PLATFORMS FOR ACOUSTIC SEPARATION AND TRAPPING, Ohlsson *et al.*
46. THOUSANDFOLD ENRICHMENT OF CELLS USING AN ACOUSTOFLUIDIC DEVICE, Jakobsson *et al.*
47. INTEGRATION OF ACOUSTO- AND DIELECTROPHORESIS FOR TUMOR CELL SEPARATION AND CONCENTRATION FOLLOWED BY SINGLE CELL TRAPPING, Antfolk *et al.*
48. CELL SEPARATION BASED ON ACOUSTIC PROPERTIES, Augustsson *et al.*
49. A 3D MICROFLUIDIC LIQUID CAGE COLLECTOR FOR AIRBORNE PARTICLES, Ladhani *et al.*
50. SYSTEM FOR SINGLE CELL ISOLATION FROM MICROWELLS, Verron *et al.*
51. MICROFLUIDIC SAMPLE CONCENTRATOR, Cruz *et al.*
52. ELASTO-INERTIAL MICROFLUIDICS FOR BACTERIA SEPARATION FOR SEPSIS DIAGNOSTICS, Faridi *et al.*
53. LDH BASED NEONATAL DIAGNOSTICS ON A LOW-COST SLIPDISC BASED SAMPLE PREPARATION PLATFORM, Banerjee *et al.*
54. ACOUSTOPHORESIS: USING SOUND TO SEPARATE PARTICLES, Forsal *et al.*