

**Program for the 5th annual workshop**  
arranged by the  
**Norwegian PhD Network on Nanotechnology for Microsystems**  
Quality Hotel Tønsberg  
16. - 18. June 2014

**Monday 16 June**

10:00	Registration opens
<b>11:30 12:30</b>	<b>Lunch</b>
12:30 12:40	Welcome: Jostein Grepstad, NTNU

**Oral session 1: Microsystems assembly and packaging**

Chair: Erik Folven, NTNU	
12:45 13:15	Thomas Brunswiler, IBM Research - Zürich  <i>Applied Self-Assembly to Perform Electrical and Thermal Interconnects by Capillary Bridging</i>
13:15 13:30	Hoang-Vu Nguyen, HBV <i>Assembly of multiple chips on flexible substrate using anisotropic conductive film for medical imaging applications</i>
13:30 13:45	Nishant Malik, UoO <i>Hermeticity and reliability characterization of Al-Al thermocompression bonding</i>
13:45 14:00	Åsmund Sandvand, HBV <i>Finite element modelling of influence of bonding material distribution in precision piezoresistive MEMS pressure sensors</i>
14:00 14:15	Per Øhlckers, HBV <i>Flip-chip assembly of a photodiode for cryogenic operation in a Josephson array voltage standard</i>
<b>14:15 14:30</b>	<b>Coffee break</b>

**Oral session 2: Microsystems applications**

Chair: Kari Schjøberg-Henriksen, SINTEF	
14:30 15:00	Oliver Kieler, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany <i>The PTB Josephson arbitrary waveform synthesizer</i>
15:00 15:15	Marit Ulset Sandsaunet, UoO <i>A predictable photodiode cryogenic radiometer for measuring fundamental constants</i>
15:15 15:45	Fayçal Riad Hamou, SINTEF <i>Multiphysics modeling &amp; simulation of microsystems at SINTEF ICT - MiNaLab</i>
15:45 16:00	Frank Karlsen, HBV <i>Development of interfaces for integrated and smart micro- or nanofabricated sensors into complex liquid applications</i>
16:00 16:15	Enver Alagoz, UoB <i>A feasibility study of thin silicon pad detectors for microbeam radiation therapy beam monitoring</i>
16:15 16:35	Poster Slam
<b>16:35 17:00</b>	<b>Coffee break and afternoon snack</b>

**Poster session**

Chair: Nils Høivik, HBV	
17:00 19:00	Poster session
<b>19:30</b>	<b>Dinner at the hotel</b>

## Tuesday 17 June

### Oral session 3: CMOS circuits for sensors and MEMS

Chair: Carsten Wulff, NTNU	
09:00	09:30 Pieter Harpe, Technische Universiteit Eindhoven <i>Low-power ADC design in scaled technologies</i>
09:30	09:45 Amir Hasanbegovic, UoO <i>Supply voltage dependency on the single event upset susceptibility of temporal dual-feedback flip-flops in a 90 nm process</i>
09:45	10:00 Ye Xu, NTNU <i>A 7-bit 40MS/s single-ended asynchronous SAR ADC in 65nm CMOS</i>
10:00	10:30 Marius Grannæs, Silicon Labs <i>Trade-offs in process selection for low-power microcontroller design</i>
<b>10:30</b>	<b>11:00 Coffee break</b>

### Oral session 4: Photovoltaics and energy harvesters

Chair: Martin Greve, UiB	
11:00	11:30 Einar Halvorsen, HBV <i>Performance limits for vibration energy harvesters</i>
11:30	11:45 Vårin Renate Holm <i>An all metal solar cell</i>
11:45	12:00 Fredrik Martinsen, NTNU <i>Silicon-core glass fibres as microwire radial-junction solar cells</i>
<b>12:00</b>	<b>13:00 Lunch</b>

### Oral Session 5: Nanomaterials science

Chair: Bjørn Torger Stokke, NTNU	
13:00	13:30 Chang-Beom Eom, Univ. of Wisconsin-Madison <i>Giant piezoelectricity on Si for hyper-active MEMS</i>
13:30	13:45 Eirik Torbjørn Skjønsvell, NTNU <i>Examining densification during stress in microsized systems with nanometer resolution by X-ray coherent diffraction imaging</i>
13:45	14:00 Federico Mazzola, NTNU <i>Unconventional hybrid superconductors? A novel manipulation of manybody interactions</i>
14:00	14:15 Magnus Moreau, NTNU <i>Oxygen defect ordering in LSMO-based brownmillerite structures</i>
14:15	14:30 Ingrid Hallsteinsen, NTNU <i>Magnetic properties of (111)-oriented thin film oxides</i>
14:30	14:45 Magnus Nord, NTNU <i>Comparison of (001) and (111) LSMO/STO interface using TEM</i>
14:45	15:00 Erik Folven, NTNU <i>Tuning the switching properties of AFM/FM nanomagnets</i>
<b>15:00</b>	<b>15:20 Afternoon snack</b>
<b>16:00</b>	<b>Boat trip to Østre Bolæren with guided tour and dinner</b>

## Wednesday 18 June

### Oral session 6: Photonic micro- and nanosystems

Chair: Sabrina Eder, UiB	
09:00	09:30 Olav Solgaard, Stanford University <i>In-vivo imaging with dual axis confocal microscopes</i>
09:30	09:45 Jon Olav Grepstad, SINTEF <i>Finite-size limitations on the strength of guided resonances in 2D photonic crystals</i>
09:45	10:00 Nadeem Akram, HBV <i>Transistor vertical cavity surface emitting laser: A new kind of three-terminal semiconductor laser: first in the world operating at room temperature</i>
10:00	10:15 Dmitry Klimentov, NTNU <i>Emission decay and energy transfer in Yb/Tm Y-codoped fibers based on nano-modified glass</i>
10:15	10:30 Justin Wells, NTNU <i>Beyond nanoscale engineering - silicon based quantum electronics at the atomic limit?</i>
<b>10:30</b>	<b>10:45 Coffee Break</b>

### Oral session 7: Microsystem industries

Chair: Kristin Imenes, HBV	
10:45	11:15 Øyvind Andreassen, Kongsberg NorSpace <i>Satellite electronics, use of nanotechnologies, examples from local industry</i>
11:15	11:45 Stein Ivar Hansen, MTI <i>Making it big with small technology</i>
11:45	12:00 Windup: Jostein Grepstad, NTNU
<b>12:30</b>	<b>13:30 Lunch</b>

## Poster session

Monday 16 June, 17:00 - 19:00

### Nanomaterials science

1	Naureen Akthar, UoB <i>Ultra-thin functional hybrid films</i>
2	Sigurd Rolland Pettersen, NTNU <i>Simultaneous investigation of conductive and mechanical properties of individual, silver coated polymer particles</i>
3	Stanislav Polyakov, NTNU <i>Cu<sub>2</sub>O based solar cells</i>
4	Vinh Cao Duy, HBV <i>Study of the adhesion strength of gold coated polymer spheres on In-coated pads</i>
5	Ying Zhao, HBV <i>Fabrication and morphology study of TiO<sub>2</sub> nanotubes (TNTs) and their application for photoelectrical devices</i>

### Microsystems fabrication

6	Giang Nghiem, HBV <i>Novel particles technology for display interconnects</i>
7	Jonas Ribe, NTNU <i>Patterning polydimethylsiloxane by dry etching using metal hard masks</i>
8	Lars Holhjem, HBV <i>Electrode compositions for laser patterned conductometric sensors</i>
9	Thanh-Nam Tran, NTNU <i>Precise etching of AlGaAsSb ridge waveguide by in situ reflectance monitored ICP-RIE</i>
10	Thi-Thuy Luu, HBV <i>Solid liquid interdiffusion (SLID) wafer-level bonding for MEMS packaging and encapsulation</i>

### Medical MEMS

11	Ahn-Tuan Thai Nguyen, HBV <i>A multi-functional implantable heart monitoring accelerometer device</i>
12	Asmat Nawaz, HBV <i>Thermal simulation of a non-invasive blood glucose sensor</i>
13	Fjodors Tjulkins, HBV <i>A heart monitoring system based on a 3-axis MEMS accelerometer - encapsulation and integration</i>

### Micro- and nanofluidics

14	Stamatina Karakitsiou, UoB <i>Design of equipment to study diffusion in nanopores</i>
15	Xinyan Zhao, HBV <i>Real-time evaluating devices on contaminants in municipal water system</i>

### Microsystems applications

16	Christian Bjørge Thoresen, HBV <i>Tangible user interface for capacitive touch screens</i>
17	Srinivasa Kuppireddi, UoO <i>Novel resonator fabrication for nanoelectrode gaps</i>