

PROGRAM MSW '04

MARCH 30 (TUESDAY)

9.00 Start of registration

Session 1: Setting the scene.

9.45 Welcome and opening of the workshop

10.00 INVITED: A vision of MEMS for the future, Kurt Petersen (Cepheid).

10.40 Ultrasonic particle switching in microfluidic channels, Filip Pettersson¹, Andreas Nilsson¹, Henrik Jönsson¹, Thomas Laurell² (¹ErySave AB, ²LTH)

10.55 ☕ Coffee

Session 2: Bio-MEMS and fluidics.

11.15 Strategies and implementations for integrated optical elements in bio/chemical microdevices, Jörg P. Kutter (MIC)

11.30 Micro-contact printed luminescent polymeric reporters for bioanalysis, Peter Åsberg, Peter Nilsson, Karin Enander, Olle Inganäs (LIU)

11.45 Flow sensor for dosing applications and microfluidics at SINTEF, Liv Furuberg¹, Dag Wang¹, Andreas Vogl¹, Lars Solli² (¹SINTEF, ²NTNU)

12.00 Microfluidic systems for sensitive protein analysis in small sample volumes, Karin Hermansson, Christian Vieider (Acreo)

12.15 Microfluidic nebulizer chip for mass spectrometry, Sami Franssila¹, Pekka Östman², Seppo Marttila¹, Tapio Kotiaho², Risto Kostianen² (¹HUT, ²Univ. of Helsinki)

12.30 ✕ Lunch

Session 3: Electro-mechanical MEMS.

13.45 SUMMIT – The VINNOVA competence center, Klas Hjort (UU)

14.00 High Resistivity (HiRes™) silicon for RF MEMS technology, Thomas Clausen, Jan Vedde, Leif Jensen (Topsil)

14.15 Processing and evaluation of RF-MEMS switches, Ros-Marie Lundh², Yangjian Chen¹, Shimul Chandra Saha¹, Peter Enoksson¹, Erik Kollberg¹, Piotr Starski¹, Niklas Rorsman¹, Anders Demeryd² (¹CTH, ²Ericsson Microwave AB, ³Ericsson AB)

14.30 Summit RF MEMS packaging, Anders Thorsén (Acreo)

14.45 A splitted micro mirror for scanning applications, Hector B. Soosaipappu (Vestfold Univ. Collage)

15.00 ☕ Coffee

Session 4: Applications, visions and posters.

15.30 INVITED: The LEGO Mindstorms concept, Tormod Askildsen (LEGO Community Development)

16.10 Micro system technology at Imego Institute, Cristina Rusu (Imego)

16.25 Late news contribution: Ion track enabling of microsystems in printed circuits boards, Mikael Lindeberg, Marek Skupinski, Hanna Yousef and Klas Hjort (UU)

16.35 Short poster presentations

17.10 Poster session

19.00 ✕ Dinner

POSTERS

- A capillary filling microsystem for solid-phase extraction and dispensing of proteomic samples, Simon Ekström, Lars Wallman (LTH)
- Computed electro-mechanical behavior of long, narrow silicon mirrors, Klaus Magnus Johansen¹, Oddvar Søråsen¹, Liv Furuberg², Andreas Vogl², Chris Merville³, Stein Ivar Hansen³, Hans Brudal⁴ (¹Univ of Oslo, ²SINTEF, ³SensoNor, ⁴MicroComponents AS)
- Electrochemical etching of deep silicon micro pore arrays, Jan Linnros, Xavier Badel, Thangavelu Rajendra Kumar, Robert Juhasz, Pascal Kleimann (KTH)
- Fabrication of uncooled quantum well microbolometers for infrared imaging using hybridization, Bengt Jacobson, Olof Öberg, Linda Höglund, Jan Andersson (Acreo)
- Guidance of neurons on porous patterned silicon – is pore size important?, Lars Wallman, Fredrik Johansson (LTH)
- Micromechanical ultrasonic transducers for air applications, Marcus Törndahl (LTH)
- Modelling of Transport Phenomena and Chemical Reactions in Microfluidics, Anders Thorsén (Acreo)
- Polymer filters for sample handling of blood in steroid screening, Sara Thorslund, Oliver Klett, Jonas Bergquist, Fredrik Nikolajeff (UU)
- Seat microvalve nozzle design for optimal gas flow capacity, Wouter van der Wijngaert¹, Anders Thorsén², Göran Stemme¹ (¹KTH, ²Acreo)
- Size-reduction of silicon nanowires in a micro-electrochemical cell, Robert Juhasz, Jakob Wiström, Jan Linnros (KTH)
- Ultrasonic bead trapping for bioassay, Mikael Nilsson (LTH)
- Some of the oral presentations will be displayed as posters as well
- **There is space left for more posters, contact the organisers.**

EXHIBITORS

- Acreo AB
- Im ego
- Erysave AB
- MicroPlast AB
- LRI Instruments AB
- Comsol AB
- proDesign
- teknIQ
- **There is space left for more exhibitors, contact the organisers.**

PROGRAM MSW '04

MARCH 31 (WEDNESDAY)

Session 5: The SSF-MST research program.

8.30 A novel technique for integration of optical elements onto silicon, Gert Andersson¹, Jörgen Bengtsson², Leif Bergstedt¹, Peter Enoksson², Karin Hedsten², Mikael Löfgren¹, Björn Löfving¹, Anders Magnusson², Jonas Melin³, Fredrik Nikolajeff³, Richard Nilsson¹, Cristina Rusu¹, Henrik Rödjegård¹ (¹Imego, ²CTH/MC2, ³UU)

8.45 Doping of electrochemically etched deep macro pore arrays in silicon: Processing and electrical characterization, Xavier Badel, Jan Linnros (KTH)

9.00 Novel technology platforms with expandable microspheres, Niclas Roxhed, Björn Samel, Patrick Griss, Göran Stemme (KTH)

9.15 Phase change devices for on-chip drive and control of microfluidic systems, Marcus Lehto (UU)

9.30 A study of biological particles in a bio-MEMS device using dielectrophoresis, Mats Jönsson¹, Fredrik Aldaeus², Lars-Erik Johansson², Ulf Lindberg¹, Johan Roeraade², Ylva Bäcklund², Sven Hamp³, Gunnar Jonsson³ (¹UU, ²KTH, ³MdH)

9.45 Array transducer for ultrasonic manipulation of particles, Tobias Lilliehörn¹, Mikael Nilsson², Urban Simu¹, Linda Johansson¹, Monica Almqvist², Thomas Laurell², Stefan Johansson¹, Johan Nilsson² (¹UU, ²LTH)

10.00 MedChip – Doping analysis on the chip level, Sara Thorslund, Sara Bergström, Nina Johannesson, Gustav Liljegren, Andreas Pettersson, Kristina Magnusson, Mathias Hallberg, Oliver Klett, Jonas Bergquist, Leif Nyholm, Karin Markides, Fred Nyberg, Fredrik Nikolajeff (UU)

10.15 ☕ Coffee

Session 6: Stimulating the industrial use of MEMS.

10.45 INVITED: Commercial microstructure efforts, Edvard Kälvesten¹, Ove Öhman² (¹Silex Microsystems AB, ²Amic AB)

11.25 SATS – An innovation and market-based perspective on the future of Sweden's electronics-based industry, Kåre Gustafsson¹, Andreas Jönsson², Kjell Lindén³, Tommy Skoog⁴, Jan Söderkvist⁵, Karl-Einar Sjödin⁶ (¹Ericsson AB, ²Venabler AB, ³InView AB, ⁴Acreo AB, ⁵Colibri Pro Development AB, ⁶VINNOVA)

11.35 MINUT – Microsystems for Innovation in the Nordic region stimulating the use of micro system technologies (MST), Cristina Rusu¹, Dag Aussen², Jens Branebjerg³, Hannu Kattelus⁴ (¹Imego, ²SINTEF, ³Delta, ⁴VTT)

11.50 Expert Training for Sweden's small and medium sized firms, KK-stiftelsen (The Knowledge Foundation)

12.00 Micro systems for industrial growth, Sven-Ingemar Ragnarsson (VINNOVA)

12.10 Open discussion on how to get SME to use MEMS

12.20 ✕ Lunch

Session 7: Understanding phenomena in MEMS.

13.30 Characterisation of mechanical sensors using multiple pieces of equipment, Henrik Rödjegård, Gert Andersson (Imego)

13.45 Pure and technology imposed diffraction effects in a slotted micro mirror, Svein Husa (Vestfold Univ. Collage)

14.00 Scaling properties and MEMS implementation of acoustic gas sensors, Bertil Hök¹, Anders Blücker¹, Vegar Dalsrud², Per Gerhard Glaersen², Geir Uri Jensen², Daniel Lapadat², Andreas Vogl³, Dag T. Wang³, Trond Inge Westgaard², Per Åkerlund¹, Niels Peter Østba³ (¹Hök Instrument AB, ²SensoNor AS, ³SINTEF)

14.15 Examples of complications in fluid-structure analysis for MEMS, Jari Hyvärinen (Anker-Zemer Engineering AB)

14.30 ☕ Coffee

Session 8: Processes and components.

15.00 Fabrication of microfluidic devices from SU-8, Santeri Tuomikoski and Sami Franssila (HUT)

15.15 Self-organization of polymer film from liquid induce by naked PDMS stamping, Xiangjun Wang, Kristoffer Tvingstedt, Olle Inganäs (LIU)

15.30 Thermal polymer V-shaped actuators for optical alignment applications, Sjoerd Haasi¹, Patrick Griss¹, Thorbjörn Ebefors², Hans Sohlström¹, Edvard Kälvesten², Göran Stemme¹ (¹KTH, ²Silex Microsystems AB)

15.45 Integrated pressure sensors on SOI, Jyrki Kiihamäki, Hannu Kattelus, Ari Härärä, Miikka Ylimäula (VTT)

16.00 Measurements of heart motion using accelerometers, Lars Hoff¹, Ole Jakob Elle², Morten Grimnes¹, Steinar Halvorsen², Hans Jürgen Alker¹, Erik Fosse² (¹Vestfold Univ. Collage, ²Rikshospitalet University Hospital)

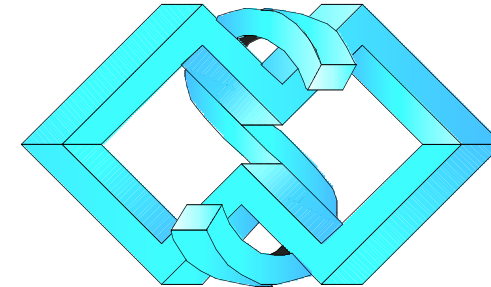
~16.15 Closing of the workshop



PROGRAM

MICRO STRUCTURE WORKSHOP

YESTERDAY'S IMAGINATION
TODAY'S INNOVATIONS
TOMORROW'S INDUSTRIAL SUCCESS



Ystads Saltsjöbad, Ystad, Sweden
March 30-31, 2004

Background: The MST field is currently in a transition phase where the industrial activities are increasing. Most notably is also the rapidly growing area of bio-related MEMS/MST where industry is pushing hard to accomplish new miniaturized approaches in medical engineering as well as improved biotechnology concepts e.g. in the drug discovery and development process. Material physics and technology is also driving the field further on to the nanotechnology field, searching new break-throughs in the control of matter down to single molecule/atom level. In this perspective MSW is an effort to gather the Nordic forces within this area to stimulate and encourage interaction, collaboration and exchange of ideas.

Local organisers for MSW'04: Department of Electrical Measurements, Lund Institute of Technology, Sweden in collaboration with Colibri Pro Development AB and the Swedish Foundation for Strategic Research. **MSW04 web-site:** www.elmat.lth.se/MSW04

Conference site: Ystads Saltsjöbad Ystad, (www.ystadssaltsjobad.se).

Transportation: The conference site is situated on the south coast of Sweden, about 30 minutes from the Sturup airport and 50 minutes from Copenhagen airport (Kastrup). Before making your travel arrangements, please check the conference web-site for the latest information. We will make arrangements for bus transports from both airports to the conference site. Travelers by train will go to Malmö and then change train to Ystad.

Registration: Registration to MSW'04 can be made on the enclosed form that is either mailed or faxed to the organisers. The registration form can also be downloaded at the conference web-site. An invoice will be sent out together with the confirmation.

Registration fees: Before March 5, 2004: 2800 SEK (+VAT) , students 1950 SEK (+VAT) **including** one night accommodation in double room with breakfast, lunches, coffee, dinner and conference material for the two days. Late registration fee: Additional 600 SEK (+VAT). Cancellations before March 5, will be refunded by 50%.

Lodging: Accommodation can be offered in a single room for an additional fee of 400 SEK (+VAT) when booked via the organisers. Extra nights are offered at the conference hotel for 1000 SEK in a single room and 600 SEK per person in a double room (+VAT) when booked via the organisers.



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MSW '04 is a forum for those interested in micro-opportunities, micro-devices, micromechanics, MEMS and MST. It is a complement to scientific conferences, which primarily are forums for the latest scientific results. The purposes of **MSW** are ...

- ... to bring together in an informal way those interested in MEMS/MST
- ... to stimulate the (industrial) use of MEMS/MST and micromechanics
- ... to increase the awareness of resources, competence and challenges

MSW '04 is a platform for information exchange, and its informal atmosphere will create many opportunities to form new and to strengthen old contacts. **MSW** is held with the participants in focus.

MSW '04 is intended not only for those working actively in the area, but equally well for those in both industry and academy that have a general interest in MEMS/MST. More than one third of the participants at previous **MSWs** came from industry.

You are welcome to attend the 5th **MSW**. The target is to meet the high expectations generated by the previous workshops. **MSW** is held with the participants in focus.

Welcome !