

MWE 2010

September 26-29, 2010



MESA+

INSTITUTE FOR NANOTECHNOLOGY

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General Information

Conference Location

All sessions will be held at Poppodium Atak:
Willem Wilminkplein 1
7511 PG Enschede

For information:

E-mail : mme2010@ewi.utwente.nl
Phone : +31-53-4891032/+31-6-81847435 (Ms. Karen Wannyn)
Web : www.mme2010.org

Registration information

The registration desk will be open on:
Sunday, September 26 : 18h00-20h00
Monday, September 27 : 08h30-09h00
Tuesday, September 28 : 08h30-09h00

Internet service

For those that have their computers with them, complementary wireless Internet will be available in Poppodium Atak. Daily (24 hours)

Login information:

Username : gast atak
Password : backstage

Instructions posters

Poster boards will be available during the duration of the conference. The boards are numbered to match your entry in the program booklet. The poster dimensions allowed are up to 950 mm wide, 1150 mm high (but A0-paper format will also do). The best poster will be awarded the MESA+ poster price. Posters will be rated by a (secret) jury, who will judge scientific contents, clarity and appeal.

Please put your poster up before the beginning of the conference at Sunday-evening or Monday morning.

Posters with numbers A1-A5, B1-B5, C1-C4, D1-D4, should be put up Monday morning before 9:00, because of the music event at Sunday evening.

Posters

Each poster will be presented during one of the 4 posters sessions, but the posters should be displayed from welcome to closing session. Only posters which are displayed until the end of the conference will be eligible for the poster prize.

Poster Flash Presentations

As is common with MME conferences, each contributing author will present the results both in a short oral presentation and in a classical poster session. The short oral presentation (Flash presentation) has the goal to inform the audience on the topic of your poster and to motivate to visit you during the subsequent poster session.

Due to the large number of posters to be presented, authors will be strictly limited to 2 minutes presentation time. After this time the presentation will be stopped. The purpose of the flash presentations is to allow for a brief overview of all the posters and not to present all the results. This is only an opportunity to advertise for your paper. Therefore you should only show the title and list of authors, and one or two provoking images which raise curiosity. In depth discussions will be held at the posters during the poster session.

Addresses

Conference dinner (Monday):

Grolsch Veste, Colosseum 65, 7521 PP Enschede,
tel. +31-(0)53 8525525

Lunch (Monday & Tuesday):

Fred & Douwe, Bolwerkstraat 2, 7511 GP Enschede,
tel. +31-(0)53 4363399

Conference venue (Sun, Mon, Tue), Buffet (Sunday):

Poppodium Atak, Willem Wilmink 1, 7511 PG Enschede,
tel. +31-(0)53 4322388

Science Café (Tuesday)

Mac Berlijn, Stationsplein 1, 7511 JD Enschede,
tel. +31-(0)53 8511451

University (Nanolab tour (Wednesday))

University of Twente, Drienerlolaan 5, 7522 NB Enschede,
tel. +31-(0)53 4891032 / +31-(0)6-81847435 (Ms. Karen Wannyn)

Hotels

Dish Hotel, Boulevard 1945-2, 7511 AE Enschede,
tel. +31-(0)53 8506600

Hotel De Broeird, Hengelosestraat 725, 7521PA Enschede,
tel. +31-(0)53 8506500

Eden Star Hotel, B P Hofstedestraat 50, 7551 DG Hengelo,
tel. +31-(0)74 8516800

Hotel Amadeus, Oldenzaalsestraat 103, 7511 DZ Enschede,
tel. +31-(0)53 4357486

Hotel Stravinsky, Burgemeester Jansenplein 20, 7551 ED Hengelo,
tel. +31-(0)74 2910265

Hotel Drienerburght, Drienerlolaan 5, 7522 NB Enschede,
tel. +31-(0)53 4893819

Hotel Logica, Campuslaan 60, 7522 NR Enschede,
tel. +31-(0)53 4893819

Hotel Rodenbach, Parkweg 37, 7513AR Enschede,
tel. +31-(0)53 4800200

Sandton Resort Bad Boekelo, Oude Deldenerweg 203,
7548 PM Boekelo, tel: +31-(0)53 4283005

Hotel de Zwaan, Langestraat 2, 7491 AE Delden,
tel: +31-(0)53 4283005

Restaurants

Eetcafé Atrium (Dutch dishes)

Stadsgravenstraat 47, 7511 EP Enschede, Tel 053-4300967

De Ouwe Compagnie (Dutch dishes)

Walstraat 39, 7511 GG Enschede, Tel 053-4308160

Restaurant De Tropen (Dutch dishes)

Bolwerkstraat 9, 7511 GP Enschede, Tel 053-4345350

Mexicaans Restaurant Los Ponchos (Mexican dishes)

Korte Haaksbergerstraat 2, 7511 JS Enschede, Tel 053-4311787

Grieks Bistro Restaurant Olympic (Greece dishes)

Korte Haaksbergerstraat 4, 7511 JS Enschede, Tel 053-4309036

Extra Events

Sunday night



Most of you will travel to Enschede on Sunday. After registration, there will be a dinner buffet in Atak. At 20:00 the evening party will start with a special surprise and continue until small hours with a party, featuring a famous DJ from the Dutch school.

Monday night



The conference dinner will take place in the football temple of the ruling Dutch soccer champion FC Twente. From 19:00 onwards, you will have the chance to participate in the Grolsch Veste stadium tour (Only participants who registered for the tour can join.). At 20:00 the dinner buffet will start in the VIP lounge.

Tuesday night



On Tuesday night we will look into the future. Andreas Manz and Miko Elwenspoek will present their ideas to preserve a document on humankind for a million, or even better – a billion years (The Human Document Project). Their presentations will take place in the MAC Berlijn bar, where we can discuss this wild idea and have a drink, while listening to live Jazz. If you've seen enough of Berlijn or heard enough Jazz, you can visit some of the many bars in Enschede.

Wednesday morning



On Wednesday you will have the chance to visit the brand new MESA+ Nanolab facilities. So new, not even all equipment has been moved from the old facilities yet. The interest is overwhelming, so in first instance only participants who registered for the tour can join.

Conference Sponsors

The MME 2010 Conference was kindly supported by the following organisations and companies:



INSTITUTE FOR NANOTECHNOLOGY

MESA+ Institute for Nanotechnology
main sponsor



Demcon, advanced mechatronics



SmartTip, probe solutions



Institute of Physics, publisher of JMM



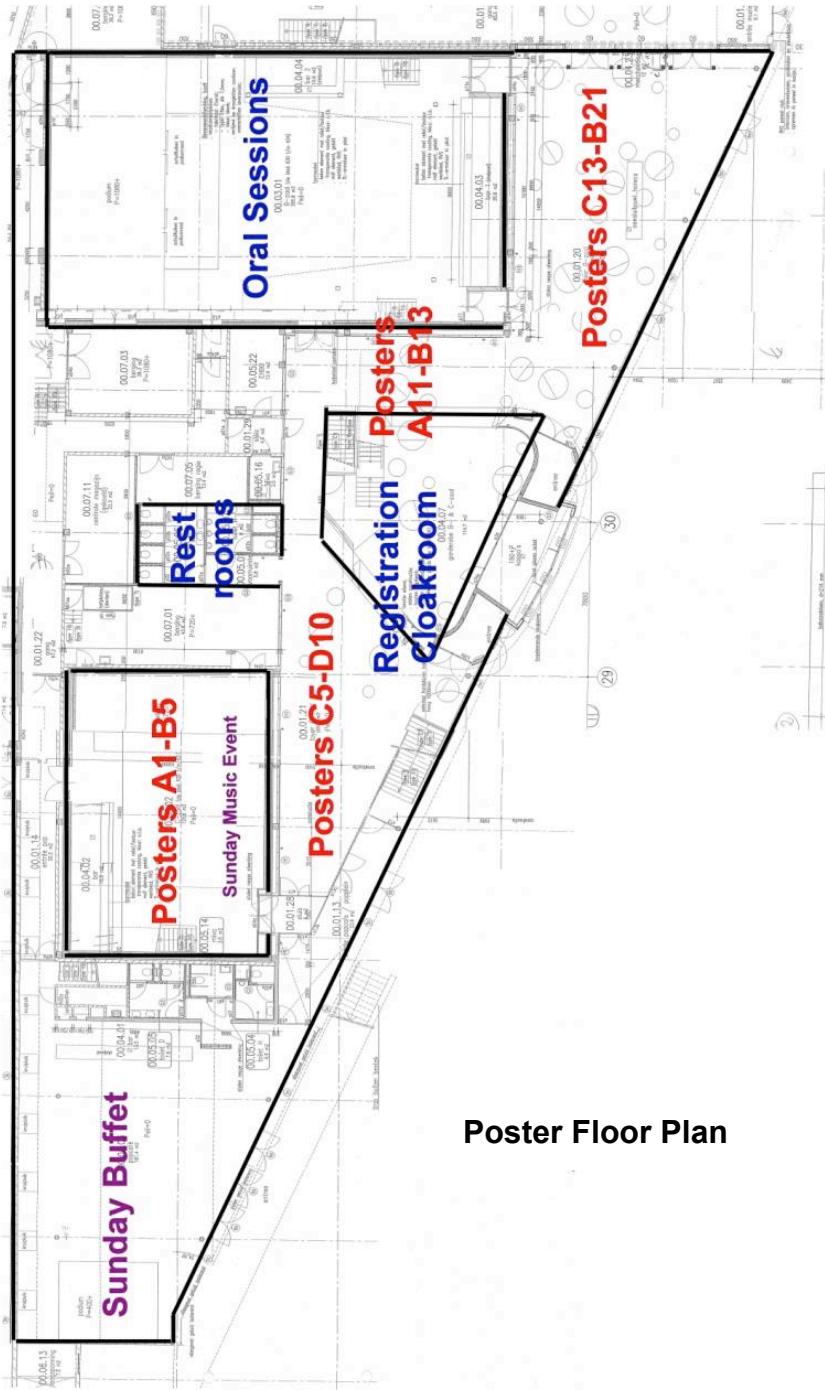
SPS-Europe B.V., Semiconductor production systems



Arias, Wet benches & more



Micronit Microfluidics B.V., Inside life sciences



Poster Floor Plan

PROGRAMME

MME 2010

Sunday, September 26, 2010

- 18h00 – 20h00 : Registration (location: Atak)**
Ms. Karen Wannyn, Mrs. Satie Biharie and
Mrs. Susan Janse
- 18h30 – 20h00 : Buffet (location: Atak)**
- 20h00 - 01h00 : Music Event (location: Atak)**
-

Monday, September 27, 2010

- 8h30 – 9h00 : Registration (location: Atak) + poster mounting**
- 09h00 – 09h15 : Welcome (location: Atak)**
- 09h15 – 10h00 : Mark Lantz, IBM Zurich, Switzerland**
‘Understanding and eliminating nanoscale
wear (invited)’
- 10h00 – 11h00 : Flash presentation session A (location: Atak)**
- A01 Silicon carbide thin-film encapsulation of planar thermo-electric infrared (IR) detectors – for an IR microspectrometer**
V. Rajaraman, G. de Graaf, P.J. French, K.A.A. Makinwa and R.F. Wolffenbuttel
Delft University of Technology (TU Delft), Dept. of Microelectronics, EI Lab - DIMES, The Netherlands

A02 Design, fabrication and characterization of an in-plane AFM probe with ultra-sharp silicon nitride tip

E. Sarajlic¹, J. Geerlings², J.W. Berenschot², M.H. Siekman^{1,2}, N.R. Tas² and L. Abelmann²

¹SmartTip, Enschede, The Netherlands

²MESA+ Research Institute, University of Twente, The Netherlands

A03 A silicon micromachined triaxial accelerometer using the MultiMEMS MPW process with additional deep reactive ion etching as post-processing

P. Ohlickers, L. Petricca and C. Grinde

Vestfold University College, Institute for Micro- and nano System Technologies, Norway

A04 Integrated lab-on-a-chip silicon nanowire biosensing platform

A. De, S. Chen, J. van Nieuwkastele, W. Sparreboom, E.T. Carlen and A. van den Berg

BIOS Lab on a Chip Group, MESA+ Institute for Nanotechnology, University of Twente, The Netherlands

A05 Surface modification of silicon by 3D etching processes and subsequent layer deposition

Z. Fekete, D. Gubán, É. Vázsonyi, A. Pongrácz, G. Battistig and P. Fürjes
Research Institute of Technical Physics & Materials Science, Hungarian Academy of Science, Hungary

A06 Material selection for impedance spectroscopy on an electrowetting based lab-on-a-chip

T. Lederer, S. Clara, B. Jakoby and W. Hilber

Institute for Microelectronics and Microsensors, Johannes Kepler University, Austria

A07 Stiction reduction in electrostatic poly-SiGe micromirrors by applying a self-assembled monolayer film

L. Fangzhou^{1,2}, J. de Coster¹, R. Beernaert³, W.-Y. Lin^{1,2}, J.-P. Celis and I. de Wolf

¹IMEC, Belgium

²Dept MTM, KU Leuven, Belgium

³CMST, Ghent University, Belgium

A08 A bridge-connected isolated silicon islands post-processing method for fine-grain-integrated ±10V-operating CMOS-MEMS by standard 5V CMOS process technology

S. Morishita¹, M. Kubota¹, K. Asada¹, I. Mori¹, F. Marty² and Y. Mita¹

¹The University of Tokyo, Japan

²ESIEE, Université Paris Est, France

A09 Single-mask thermal displacement sensor in MEMS

B. Krijnen^{1,2}, R.P. Hogervorst¹, J.B.C. Engelen³, J.W. van Dijk^{1,2}, D.M. Brouwer^{1,2} and L. Abelmann³

¹DEMCON Advanced Mechatronics, The Netherlands

²Mechanical Automation, IMPACT, University of Twente, The Netherlands

³Transducer Science and Technology, MESA+, University of Twente, The Netherlands

A10 AlGaN/GaN C-HEMT for piezoelectric MEMS stress sensor applications

M. Vallo¹, T. Lalinsky¹, G. Vanko¹, M. Drzik², S. Hascik¹, I. Rýger¹ and I. Kostic³

¹Institute of Electrical Engineering of the Slovak Academy of Sciences, Slovakia

²International Laser Center, Slovakia

³Institute of Informatics, Slovak Academy of Sciences, Slovakia

A11 A capacitive humidity sensor using a positive photosensitive polymer

N.P. Pham, V. Cherman, F.F.C. Duval, D.S. Tezcan, R. Jansen and H.A.C. Tilmans
IMEC, Belgium

A12 Silicon/glass microchip with a monolithically integrated electrospray ionization tip for mass spectrometry

L. Sainiemi¹, T. Nissilä^{2,3}, V. Saarela⁴, R. A. Ketola³ and S. Franssila¹
¹Aalto University, Department of Materials Science and Engineering, Finland

²University of Helsinki, Division of Pharmaceutical Chemistry, Finland

³University of Helsinki, Centre for Drug Research (CDR), Finland

⁴Aalto University, Department of Micro and Nanosciences, Finland

A13 Improving the efficiency of thermoelectric generators by using solar heat concentrators

M.T. de Leon, P. Taatizadeh and M. Kraft
University of Southampton, School of Electronics and Computer Science, United Kingdom

A14 Gas sensing micromachined structure based on gallium arsenide

I. Hotovy¹, D. Tengeri¹, V. Rehacek¹, S. Hascik² and T. Lalinsky²

¹Microelectronics Department, Slovak University of Technology, Slovakia

²Institute of Electrical Engineering, Slovak Academy of Sciences, Slovakia

A15 Structuring techniques of aluminum nitride masks for deep reactive ion etching (DRIE) of silicon

S. Leopold¹, T. Polster¹, T. Geiling¹, D. Pätz², F. Knöbber⁴, A. Albrecht³, O. Ambacher⁴, S. Sinzinger² and M. Hoffmann¹

¹Ilmenau University of Technology, IMN MacroNano®, Germany,

Department for Micromechanical Systems, ²Department for Optical

Engineering, ³Centre for Micro- and Nanotechnology, ⁴Fraunhofer

Institute for Applied Solid State Physics, Germany

A16 Design and evaluation of an active cooling concept for functional ceramic circuits

T. Haas¹, C. Zeilmann¹, A. Backes², A. Bittner³ and U. Schmid³

¹Engineering Substrate, Micro Systems Engineering GmbH, Germany

²Chair of Micromechanics, Microfluidics/Microactuators, Saarland University, Germany

³Department for Microsystems Technology, Institute of Sensor and Actuator Systems, Vienna University of Technology, Austria

**A17 Determination of mechanical and swelling properties of
Epochad negative photoresist**

K. Wouters¹, P. Gijsenbergh¹, K. Vanstreels² and R. Puers¹

¹KULeuven, ESAT-MICAS, Belgium

²IMEC, Belgium

A18 Graphene for nano-electro-mechanical systems

Z. Moktadir, S. Boden, H. Mizuta and H. Rutt

University of Southampton, School of Electronics and Computer Science,
UK

**A19 Inductive-coupling system for abdominal aortic aneurysms
monitoring based on pressure sensing**

A.T. Sepúlveda¹, A. Moreira², F. Fachin³, B.L. Wardle³, J.M. Silva⁴, A.J.
Pontes¹, J.C. Viana¹ and L.A. Rocha¹

¹I3N/IPC-Institute for Nanostructures, Nanomodelling and
Nanofabrication, University of Minho, Portugal

²University of Porto – Faculty of Engineering, Portugal

³Department of Aeronautics and Astronautics, Massachusetts Institute of
Technology, USA

⁴INESC Porto, University of Porto – Faculty of Engineering, Portugal

11h00 – 12h30 : Poster session A (including coffee)

12h30 – 14h15 : Lunch (location: Fred en Douwe)

14h15 – 15h00 : Olav Solgaard, Stanford, USA

**‘Optical sensors and actuators enabled by
photonic crystals (invited)’**

15h00 – 16h00 : Flash presentation session B (location: Atak)

**B01 Design and modeling of a three-mass, decoupled, tunable
SOI-MEMS gyroscope with sense frame architecture**

I. Sabageh¹, V. Rajaraman¹, E. Cretu² and P.J. French¹

1Delft University of Technology, Department of Microelectronics, EI Lab-
DIMES, The Netherlands

2University of British Columbia, Department of Electrical and Computer
Engineering, Canada

B02 Robust MEMS for space applications

A. Delahunt and W.T. Pike

Imperial College London, UK

B03 Linear variable optical filter with silver metallic layers

A. Emadi, V.R.S.S. Mokkapati, H. Wu, G. de Graaf and R. F.

Wolffenbuttel

Faculty EEMCS, Department ME/EI, Delft University of Technology, The
Netherlands

B04 Fractal-based dual-band small antenna for 2.45 and 5.8 GHzS. Ahmed¹, P. Enoksson¹, M.V. Rusu² and C. Rusu³¹Chalmers University of Technology, Micro and Nanosystems group, Sweden²Faculty of Physics, Bucharest University, Romania³Imego AB, Sweden**B05 Measuring thermal properties of small volumes of liquid using a robust and flexible sensor**

J.J. Atherton, M.C. Rosamond, S. Johnstone and D.A. Zeze

Durham University, School of Engineering and Computing Sciences, United Kingdom

B06 Small antenna based on a MEMS magnetic field sensor that uses a piezoelectric polymer as translation mechanismR. Lameiro¹, F. J. O. Rodrigues¹, L. Gonçalves¹, S. Lanceros-Mendez², J. H. Correia¹ and P. M. Mendes¹¹Algoritmi, UM, Campus de Azurém, Portugal²Center/Department of Physics, University of Minho, Portugal**B07 Fabrication of integrated bimorphs with self aligned tips for optical switching in 2-d photonic crystal waveguides**S.M. Chakkalakkal Abdulla¹, L.J. Kauppinen², M. Dijkstra², M.J. de Boer¹, E. Berenschot¹, R.M. de Ridder² and G.J.M. Krijnen¹¹Transducers Science and Technology, MESA+ Research Institute, University of Twente, The Netherlands²Integrated Optical Microsystems Groups, MESA+ Research Institute, University of Twente, The Netherlands**B08 High-throughput on-chip DNA fragmentation**L. Shui, M. Jin, J.G. Bomer, E.T. Carlen and A. van den Berg
BIOS/Lab-on-Chip Group, MESA+ Institute for Nanotechnology, University of Twente, The Netherlands**B09 Performance metrics for MEMS tunable capacitors**M. Hill¹, Y. Kubarappa¹ and C. O'Mahony²¹Adaptive Wireless Systems Group, Cork Institute of Technology, Ireland²Tyndall National Institute, University College Cork, Ireland**B10 Ultrasoft Finemet thin films for magneto-impedance microsensors**J. Moulin¹, I. Shahosseini¹, F. Alves² and F. Mazaleyrat³¹IEF, UMR 8622, Univ Paris Sud, France²LGEP, UMR 8507, Supelec, France³SATIE, UMR 8029, ENS Cachan, France**B11 3-dimensional etching of silicon substrates using a modified deep reactive ion etching technique**

S. Azimi, J. Naghsh-Nilchi, A. Amini, A. Vali, M. Mehran and S. Mohajerzadeh

School of Electrical and Computer Eng, Thin Film and NanoElectronic Lab, University of Tehran, Iran

- B12 Microshutters for space physics time of flight applications**
K. Brinkfeldt¹, P. Enoksson², B. Front², M. Wieser³, M. Emanuelsson³ and S. Barabash³
¹Swerea IVF, Sweden
²Chalmers University of Technology, Dept. Microtechnology and Nanoscience, Sweden
³Swedish Institute of Space Physics, Sweden
- B13 Study of injection molded surface features in terms of light reflection, wettability and durability**
S. Kuhn, A. Burr, M. Kübler, M. Deckert and C. Bleeser
Heilbronn University, Mechatronics and Micro System Engineering, PIK, Germany
- B14 Simulation studies of parametric amplification in bio-inspired flow sensors**
H. Droogendijk and G.J.M. Krijnen
University of Twente, MESA+ Research Institute, The Netherlands
- B15 Adsorption studies of DNA origami on silicon dioxide**
B. Albrecht^{1,2}, D.S. Hautzinger^{1,3,4}, M. Krüger², M. Elwenspoek^{4,5}, K.M. Müller^{3,6} and J.G. Korvink^{1,4}
¹Laboratory for Simulation, Dep. of Microsystems Engineering (IMTEK),
²Laboratory for Sensors, Dep. of Microsystems Engineering (IMTEK),
³Laboratory for Synthetic Biosystems, Institute of Biology III,⁴FRIAS,
⁵Centre for Biological Signaling Studies (bioss),¹⁻⁵University of Freiburg, Germany
⁶MESA+ Institute for nanotechnology, University of Twente, The Netherlands
- B16 3D lithography based fabrication of neural stimulator electrode arrays**
F. Ceyssens¹, J.Verstraete¹, B. Volckaerts² and R. Puers¹
¹KULeuven dept. ESAT-MICAS, Belgium.
²Cochlear Technology Center, Belgium.
- B17 A micro fuel cell stack without interconnect overhead – macro world-like stacks in MEMS**
G. Scotti^{1,3}, P. Kanninen², T. Kallio² and S. Franssila³
¹Department of Micro and Nanosciences, Aalto University School of Science and Technology, Finland
²Department of Chemistry, Aalto University School of Science and Technology, Finland
³Department of Materials Science and Engineering, Aalto University School of Science and Technology, Finland
- B18 Fabrication technique of a compressible biocompatible interconnect using a thin film transfer process**
A.A.A. Aarts^{1,2,3}, O. Srivannavit³, K.D. Wise³, E. Yoon³, H.P. Neves¹, R. Puers^{1,2} and C. Van Hoof^{1,2}
¹Technology Unit, IMEC, Belgium
²ESAT-Micas , KU Leuven, Belgium
³EECS, University of Michigan, USA

B19 Interference filter based absorber for thermopile detector array by surface micromachining

H. Wu, A. Emadi, G. de Graaf and R. Wolffenbuttel

Delft University of Technology, Faculty of EEMCS, Department of ME/EI,
The Netherlands

B20 Thermal analysis, fabrication and signal processing of surface micromachined thermal conductivity based gas sensors

G. de Graaf, H. Wu and R.F. Wolffenbuttel

Delft University of Technology, Faculty EEMCS, Dept. for Micro-Electronics, The Netherlands

16h00 – 18h00 : Poster session B (including coffee)

**18h30 – 20h00 : Reception and Grolsch Veste tour
(location: Grolsch Veste)**

20h00 – 23h00 : Conference dinner (location: Grolsch Veste)

Tuesday, September 28, 2010

08h30 – 09h00 : Registration (location: Atak)

**09h00 – 09h45 : Kurt Vesterager Gothelf, Aarhus University, DK
‘Programmed self-assembly and dynamics of
DNA nanostructures (invited)’**

09h45 – 10h45 : Flash presentation session C (location: Atak)

**C01 High aspect ratio hidrogenation-assisted lateral etching of
(100) silicon**

M. Kayyalha, J. Naghsh Nilchi, A. Ebrahimi and S. Mohajerzadeh
University of Tehran, Nano-Electronics and Thin Film Lab., Iran

**C02 AFM-based mechanical characterization of FBAR cantilevers
as first step towards developing of force sensors**

C.J. Camargo, H. Campanella, J. Montserrat and J. Esteve
Instituto de Microelectrónica de Barcelona IMB-CNM (CSIC), Spain

**C03 Post-processing of linear variable optical filter on CMOS
chip at die-level**

A. Emadi, H. Wu, G. de Graaf and R. F. Wolffenbuttel
Faculty EEMCS, Department ME/EI, Delft University of Technology, The
Netherlands

C04 MEMS based gravimeters and gravity gradiometers

R. Cuperus¹, F.F. Flokstra¹, R.J. Wiegerink² and J. Flokstra¹

¹University of Twente, Interfaces and Correlated Electron systems, The
Netherlands

²University of Twente, Transducers Science and Technology, The
Netherlands

C05 A musical instrument in MEMS

J.B.C. Engelen, H. de Boer, J.G. Beekman, A.J. Been, G.A. Folkertsma,
L. Fortgens, D. de Graaf, S. Vocke, L.A. Woldering and L. Abelmann
Transducer Science and Technology, MESA+ Institute for
Nanotechnology, University of Twente, Enschede, The Netherlands

**C06 Microfluidic chip development for an autonomous field
deployable water quality analyser**

D. Maher¹, J. Healy¹, J. Cleary¹, G. Carroll² and D. Diamond¹

¹CLARITY: Centre for Web Sensing Technologies, Dublin City University,
Ireland

²EpiSensor Ltd., Ireland

C07 A novel multisite silicon probe for laminar neural recordings with improved electrode impedance

A. Pongrácz¹, G. Márton¹, L. Grand^{2,3}, É. Vázsonyi¹, I. Ulbert^{2,3}, G. Karmos^{2,3}, S. Wiebe⁴ and G. Battistig¹

¹Research Institute for Technical Physics and Materials Science, Hungarian Academy of Sciences, Hungary

²Péter Pázmány Catholic University, Faculty of Information Technology, Hungary

³Institute for Psychology of the Hungarian Academy of Sciences, Hungary

⁴Plexon Inc., USA

C08 Large deflection actuator for variable-ratio RF MEMS power divider application

Y. Li¹, S. Kühne¹, D. Psychogiou², J. Hesselbarth² and C. Hierold¹

¹Micro- and Nanosystems, Department of Mechanical and Process Engineering, ETH Zurich, Switzerland

²Laboratory for Electromagnetic Fields and Microwave Electronics, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland

C09 PVDF micro heat exchanger manufactured by ultrasonic hot embossing and welding

K. Burlage, C. Gerhardy and W.K. Schomburg

RWTH Aachen University, Konstruktion und Entwicklung von Mikrosystemen (KEmikro), Germany

C11 A comb based in-plane SiGe capacitive accelerometer for above-IC integration

L. Wen¹, K. Wouters¹, L. Haspeslagh², A. Witvrouw² and R. Puers¹

¹ESAT-MICAS, Katholieke Universiteit Leuven, Belgium

²IMEC, Belgium

C12 Surface-micromachined gas sensor using thermopiles for carbon dioxide detection

S. Chen, H. Wu, G. de Graaf and R.F. Wolfenbuttel

Delft University of Technology, Faculty of EEMCS, Department of ME/EI, The Netherlands

C13 Subwavelength nanopyramids for surface enhanced Raman scattering

M. Jin¹, V. Pully², C. Otto², A. van den Berg¹ and E.T. Carlen¹

¹BIOS/Lab-on-a-Chip Group, ²Medical Cell Biophysics Group

^{1,2}MESA+ Institute for Nanotechnology, ²MIRA Institute for Biomedical Technology and Technical Medicine, University of Twente, The Netherlands

C14 A microneedle-based miniature syringe for transdermal drug delivery

C. O'Mahony, J. Scully, A. Blake and J. O'Brien

Tyndall National Institute, University College Cork, Ireland

C15 On the processing aspects of high performance hybrid backside illuminated CMOS imagers

J. De Vos, K. De Munck, K. Minoglou, P. Ramachandra Rao, M.A.

Erismis, P. De Moor and D.S. Tezcan

IMEC, Belgium

C16 Fabrication and characterization of carbon nanotube composites for strain sensor applications

F. Ceyssens¹, M. De Volder², G. Keulemans, J.W.Seo³ and R. Puers¹

¹KULEuven, dept. ESAT-MICAS, Belgium.

²KULEuven, dept. Mech. 2Eng, Belgium

³KULEuven, dept. MTM, Belgium

C17 Fluidic variable inductor using SU8 channel

I. El Gmati^{1,3}, P. Calmon^{1,2}, R. Fulcran¹, S. Pinon¹, A. Boukabache^{1,2}, P. Pons^{1,2} and A.Kallala³

¹LAAS-CNRS, France

²Université de Toulouse, UPS, INSA, INP, ISAE, LAAS, France

³Laboratoire Instrumentations Monastir, Tunisie

C18 Low-cost bevel-shaped sharp tipped hollow polymer-based microneedles for transdermal drug delivery

B.P. Chaudhri^{1,2}, F. Ceyssens¹, P. De Moor², C. Van Hoof^{1,2} and R. Puers^{1,2}

¹ESAT, Department of Electrical Engineering, Katholieke Universiteit Leuven, Belgium

²IMEC, Belgium

C19 Non-invasive dry electrodes for EEG

M.F. Silva, N.S. Dias, A.F. Silva, J.F. Ribeiro, L.M. Goncalves, J.P. Carmo, P.M. Mendes and J.H. Correia
University of Minho, Dept. Industrial Electronics, Portugal

10h45 – 12h15 : Poster session C (including coffee)

12h15 – 14h00 : Lunch (location: Fred en Douwe)

**14h00 – 14h45 : Ronny van 't Oever, Micronit, the Netherlands
'Glass-based lab-on-a-chip products (invited)'**

14h45 – 15h45 : Flash presentation session D (location: Atak)

D01 Application of silicon micro-needles in liquid-based sensors and vapor transport

Z. Sanaee and S. Mohajerzadeh

University of Tehran, School of Electrical and Computer Eng, Nano-electronic Center of Excellence, Thin Film and Nano-Electronic Lab, Iran

D02 Metallic layer for EM pressure sensor sensitivity improvement

S. Bouaziz^{1,2}, M. Mehdi Jatlaoui¹, D. Mingli¹, P. Pons¹ and H. Aubert^{1,2}

¹CNRS, LAAS, Toulouse, France

²Université de Toulouse, INP, LAAS, France

D03 Microfabrication and characterization of thin-films solid-state rechargeable lithium battery

J.F. Ribeiro¹, M.F. Silva¹, L.M. Goncalves¹, M.M. Silva² and J. H. Correia¹

¹University of Minho, Algoritmi Centre, Portugal

²University of Minho, Chemistry Centre, Portugal

D04 Determination of young's modulus of PZT – influence of cantilever orientation

H. Nazeer¹, L.A. Woldering¹, L. Abelmann¹ and M.C. Elwenspoek^{1,2}

¹MESA+ institute for nanotechnology, University of Twente, The Netherlands

²Freiburg institute for Advanced Studies, Albert-Ludwigs-Universitat Freiburg, Germany

D05 Tungsten-siliconnitride medium for mega- to gigayear data storage

J. de Vries¹, L. Abelmann¹, A. Manz² and M. Elwenspoek^{1,2}

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D06 Controlled increase and stabilisation of the tuning range of RF-MEMS capacitors with an active lid electrode

J. Love¹, M. Hill¹ and C. O'Mahony²

¹Adaptive Wireless Systems Group, Cork Institute of Technology, Ireland

²Tyndall National Institute, University College Cork, Ireland

D07 Two-degree-of-freedom capacitive MEMS velocity sensor: initial test measurements

A. Alshehri¹, M. Kraft¹ and P. Gardonio²

¹EDS, University of Southampton, UK

²DIEGM, Università degli Studi di Udine, Italy

D08 Computational analysis of microparticle seperation in straight channels

H. Kizil¹, L. Trabzon², L. Yobas³, M. Yilmaz¹ and A. Ozbey²

¹Department of Materials and Metallurgical Engineering, Istanbul Technical University, Turkey

²Department of Mechanical Engineering, Istanbul Technical University, Turkey

³Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong

D09 Fabrication of cantilever arrays with tips for parallel optical readout

W.W. Koelmans¹, T. Peters¹, L. Abelmann¹ and M.C. Elwenspoek^{1,2}

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D10 Morphological characterisation of micromachined film bulk acoustic resonator structures manufactured on GaN/Si

A. Cismaru¹, A. Stavrinidis², A. Stefanescu¹, D. Neculoiu¹, G.

Konstantinidis² and A. Müller¹

¹IMT-Bucharest, Romania

²FORTH-IESL-MRG Heraklion, Greece

D11 Static crack growth and fatigue modeling for silicon MEMS

W.M. van Spengen

TU Delft, 3mE-PME, The Netherlands

D12 Development of a novel micromirror with high static rotation angle for measurement applications

S. Weinberger, O. Jakovlev, C.H. Winkelmann, E. Markweg, T. Polster and M. Hoffmann

Ilmenau University of Technology, IMN MacroNano®, Department of Micromechanical Systems, Germany

D13 Applications of all-(111) surface silicon nanowires

M.N. Masood, S. Chen, E.T. Carlen and A. van den Berg

BIOS Lab on a Chip, MESA+ Institute for Nanotechnology, University of Twente, The Netherlands

D14 A micromirror for optical projection displays

R.A. Brookhuis¹, M.J. de Boer¹, M. Dijkstra¹, A.A. Kuijpers², D. van Lierop² and R.J. Wiegerink¹

¹MESA+ institute for nanotechnology, University of Twente, The Netherlands

²Philips Applied Technologies, Eindhoven, The Netherlands

D15 Frequency shift of MEMS electromechanical resonators induced by process variation

F. Casset¹, J. Arcamone¹, A. Niel¹, E. Lorent¹, C. Marcoux¹, Y. Civet³, C. Durand², E. Ollier¹, P. Renaux¹, J.F. Carpentier², P. Ancey² and P. Robert¹

¹CEA, LETI, MINATEC, France

²STMicroelectronics, France

³TIMA, CNRS, Grenoble INP, France

D16 Wet etching optimization for arbitrarily shaped planar electrode structures

H. Rattanasanti¹, R.C. Sterling², P. Srinivasan¹, W.K. Hensinger² and M. Kraft¹

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²Department of Physics and Astronomy, University of Sussex, UK

D17 Thermal behaviour of three dimensional single crystalline force sensors

G. Battistig¹, T. Weidisch², T. Retkes², M. Ádám¹, I. Bársny¹ and T. Mohácsy¹

¹Research Institute for Technical Physics and Materials Science - MFA, Hungarian Academy of Sciences, Hungary

²Department of Electron Devices of the Budapest University of Technology and Economics, Hungary

D18 Incorporation of in-plane electrical interconnects to the reflow bonding

B. Mogulkoc¹, H.V. Jansen¹, H.J.M. ter Brake¹ and M.C. Elwenspoek^{1,2}

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²Freiburg Institute for Advanced Studies, Albert-Ludwigs-Universität Freiburg, Germany

D19 Piezoelectric power harvesting device with multiple resonant frequencies

Z. Chew and L. Li

Swansea University, School of Engineering, UK

D20 Reliability modelling of MEMS cantilever switches under variable actuation stress levels

P. Fitzgerald¹ and M. Hill²

¹Cork Institute of Technology, Ireland and Analog Devices

²Cork Institute of Technology, Cork, Ireland

15h45 – 17h15 : Poster session D (including coffee)

17h15 – 17h45 : MME 2011, poster award and closing remarks

19h30 – 21h00 : Science Café and excursion in Enschede

Location: MAC Berlijn

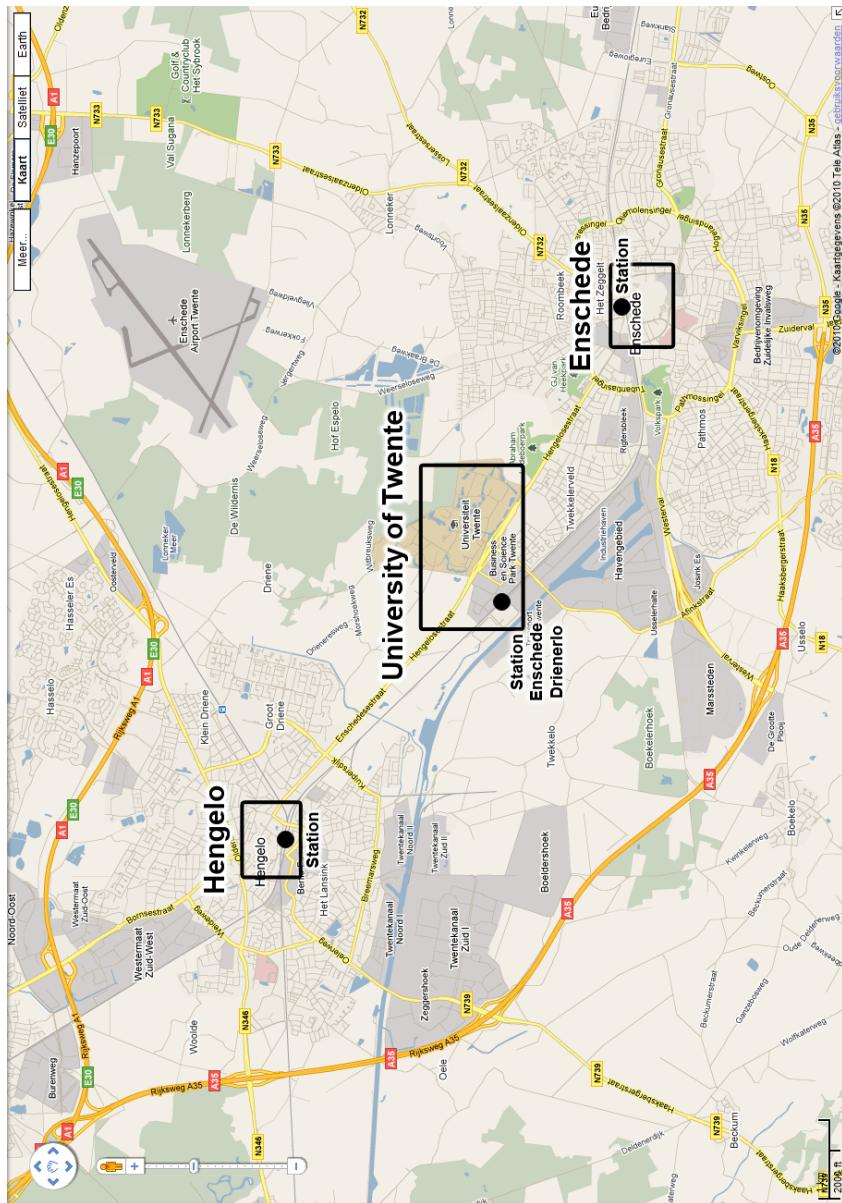
Wednesday, September 29, 2010

09h00 – 12h30 : MESA+ NanoLab tours (Only if registered.)

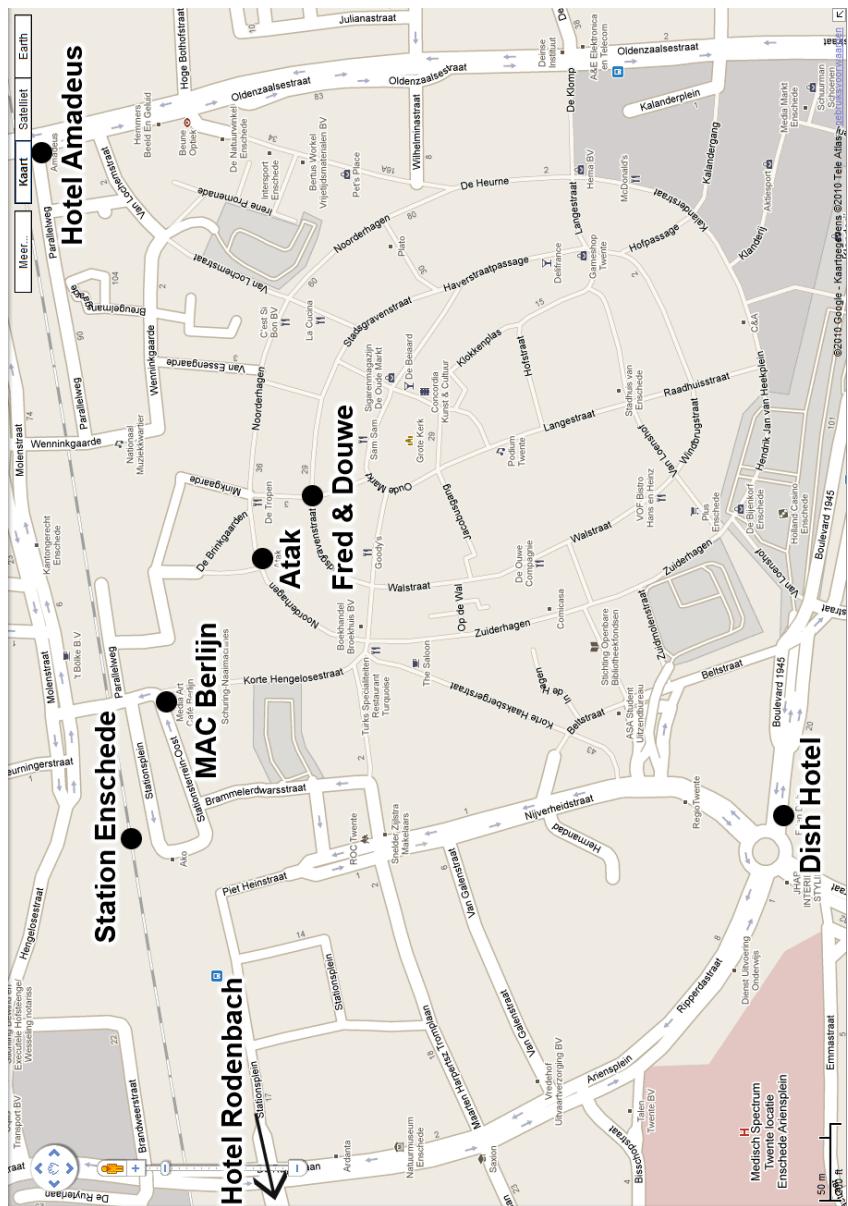
Location: University of Twente

Detailed instructions and schedule will be given at conference.

Overview of Maps



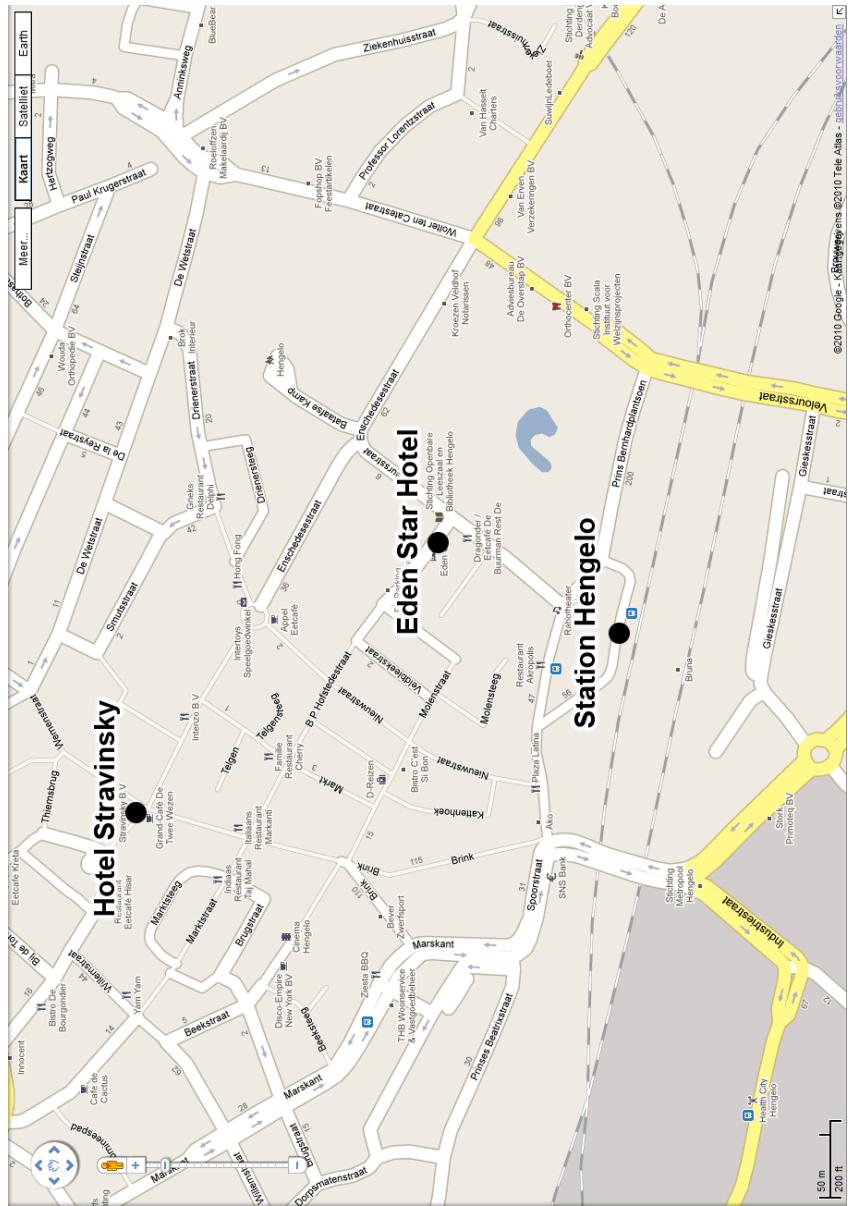
Map of Enschede



University / Grolsch Veste



Map of Hengelo



Sunday 26 September

- 18h00 – 20h00 : Registration, buffet (Atak)
20h00 – 01h00 : Music event in Atak

Monday 27 September

- 08h30 – 09h00 : Registration
09h00 – 09h15 : Welcome
09h15 – 10h00 : Mark Lantz, IBM Zurich, CH “Understanding and eliminating nanoscale wear”
10h00 – 11h00 : Poster Flash presentations A
11h00 – 12h30 : Poster session A
12h30 – 14h15 : Lunch (Fred & Douwe)
14h15 – 15h00 : Olav Solgaard, Stanford, USA “Optical sensors and actuators enabled by photonic crystals”
15h00 – 16h00 : Poster Flash presentations B
16h00 – 18h00 : Poster session B
18h30 – 20h00 : Reception and Grolsch Veste tour
20h00 – 23h00 : Conference Dinner (Grolsch Veste)

Tuesday 28 September

- 08h30 – 09h00 : Registration
09h00 – 09h45 : Kurt Vesterager Gothelf, Aarhus University, DK
“Programmed self-assembly and dynamics of DNA nanostructures”
09h45 – 10h45 : Poster Flash presentations C
10h45 – 12h15 : Poster session C
12h15 – 14h00 : Lunch (Fred & Douwe)
14h00 – 14h45 : Ronny van 't Oever, Micronit, NL
“Glass-based lab-on-a-chip products”
14h45 – 15h45 : Poster Flash presentations D
15h45 – 17h15 : Poster session D
17h15 – 17h45 : MME2011, poster award and closing remarks
19h30 – 21h00 : Science Café (MAC Berlijn)

Wednesday 29 September

- 09h00 – 12h30 : MESA+ NanoLab tours (Only if registered.)

200 μ m