



SENSOR 2009 - Programme

Conference Part B

**SENSOR+TEST Conference 2009 during
SENSOR+TEST 2009 - THE MEASUREMENT FAIR**

26 - 28 May 2009 - Exhibition Centre Nürnberg, Germany

Tuesday, 26 May 2009

10:00 Opening Ceremony

Chair: G. Gerlach, Technische Universität Dresden
R. Lerch, University Erlangen-Nürnberg, Erlangen
E. Wagner, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg
R. Werthschützky, Technical University Darmstadt (Germany)

Opening of SENSOR+TEST 2009 - THE MEASUREMENT FAIR

ÜV1

Novel Silicon and Polymer Sensors in Acoustics

G. M. Sessler, Technical University Darmstadt (Germany)
459

Presentation of the SENSOR Innovation Award 2009

11:30 *Coffee Break*

B1: Medical Application I

Chair: W. Mokwa, RWTH Aachen (Germany)
G. A. Urban, University Freiburg (Germany)

B1.1 12:00 **Pressure Measurements by Medical Devices and within Medical Devices**
R. Glocker, MHM Harzbecher Medizintechnik GmbH, Aschaffenburg (Germany)
434

B1.2 12:30 **Hyper IMS: Fully Implantable Blood Pressure Sensor for Hypertonic Patients**
T. Götttsche, Dr. Osypka Medizintechnik GmbH, Rheinfelden (Germany)
435

B1.3 12:50 **Excitation and Wireless Lock-In Measurement of Hip Prosthesis Vibrations for Loosening Detection**
U. Marschner, W.-J. Fischer, Technische Universität Dresden; B. Jettkant, Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil GmbH, Bochum; D. Ruwisch, Ruwisch & Kollegen GmbH, Berlin; H. Grätz, Fraunhofer Institute for Photonic Microsystems IPMS, Dresden, G. Woldt, Microelectronic Packaging Dresden GmbH, Dresden, B. Clasbrummel, Ev. Krankenhaus Witten im Diakoniewerk Ruhr (Germany)
436

B1.4 13:10 **Fully Implantable Epiretinal Vision Prosthesis for Retinata Pigmentosa Patients**
T. Schanze, EpiRet GmbH, Gießen (Germany)
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13:30 *Lunch Break*



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B2: Medical Application II

Chair: W. Mokwa, RWTH Aachen (Germany)
G. A. Urban, University Freiburg (Germany)

B2.1 14:20 **Micro-and Nanosensors for Biological Applications**
G. A. Urban, University Freiburg (Germany)
440

B2.2 14:50 **Multi-Way Biosensors: Development and Commercialization**
D. Zahn, BST Bio Sensor Technologie, Berlin (Germany)
441

B2.3 15:10 **Microbiosensor-Systems for Cellular Monitoring**
J. Kieninger, University Freiburg, IMTEK (Germany)
442

B2.4 15:30 **Protein Microarrays for Diagnostic Assays**
M. Hartmann, NMI Naturwissenschaftliches und Medizinisches Institut an der Universität
Tübingen, Reutlingen (Germany)
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15:50 *End*

17:00 *Exhibitors' Party*



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Plenary Talk

Chair: G. Gerlach, Technische Universität Dresden
R. Lerch, University Erlangen-Nürnberg, Erlangen
E. Wagner, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg
R. Werthschützky, Technical University Darmstadt (Germany)

ÜV2 08:30 **Modern Gas Sensors Allow Innovations**
M. Fleischer, Siemens AG, München (Germany)
460

ÜV3 09:15 **Metallic Photonic Crystal and Metamaterial Sensors**
H. Giessen, University Stuttgart (Germany)
231

B3: Micro Sensors

Chair: W. Lang, University Bremen (Germany)
M. J. Vellekoop, Technical University Wien (Austria)

B3.1 10:15 **Novel Silicon High Pressure Sensing Element**
P. Heinicke, Technical University Darmstadt (Germany)
457

B3.2 10:45 **Ultra-Low Power Pressure Sensing: A Capacitive Based MEMS Approach**
O. Abed, P. Seesink, C. Miclaus, Kavlico Corp., Moorpark (USA)
301

B3.3 11:05 **Fabrication of Microfluidic Devices Using SU-8 for Detection and Analysis of Viruses**
C. Garcia, W. Lang, University Bremen; A. Schomacker, I. Klarholz, C. Harms, TTZ
Technologie-Transfer-Zentrum Bremerhaven (Germany)
423

B3.4 11:25 **Resonant Mode Detection for Fast Determination of Structural and Material Parameters of MEMS**
M. Meinig, S. Kurth, T. Gessner, Fraunhofer-Einrichtung für Elektronische Nanosysteme
ENAS, Chemnitz; A.V. Shaporin, Technical University Chemnitz; W. Bauer, Polytec GmbH,
Waldbronn (Germany)
404

11:45 *Break*

Poster Session 13:00 –14:30

see Conference Part A



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B4: Sensor Packaging

Chair: J. Müller, Technical University Hamburg (Germany)
J. Wilde, University Freiburg (Germany)

- B4.1** 14:30 **Trends in Assembly and Packaging of Sensors**
J. Wilde, University Freiburg (Germany)
438
- B4.2** 15:00 **Analyzing Amplitude and Phase Response of a Differential Pressure Sensor Using a Dynamic Pressure Source**
T. Kober, Technical University Darmstadt (Germany)
455
- B4.3** 15:20 **INKtelligent Printing® of Scale Comprehensive Electrical Connections for Thermal Flow Sensors**
C. Sosna, H. Sturm, R. Buchner, W. Lang, University Bremen; C. Werner, D. Godlinski, V. Zöllmer, M. Busse, Fraunhofer Institute for Manufacturing Technology and Applied Materials Research IFAM, Bremen (Germany)
422
- B4.4** 15:40 **New Packaging of Flow Sensors With Monolithic Integration of Micro-Channel on Chip**
S. Billat, K. Kliche, R. Gronmaier, P. Nommensen, J. Auber, F. Hedrich, M. Ashauer, R. Zengerle, HSG-IMIT Hahn-Schickard Gesellschaft, Villingen-Schwenningen (Germany)
303
- 16:00 *Break*



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B5: Gas Sensors

Chair: F. L. Dickert, University Wien (Austria)
M. Fleischer, Siemens AG, München (Germany)

B5.1 16:10 **Recent Developments in Automotive Exhaust Gas Sensing**

R. Moos, University Bayreuth (Germany)
433

B5.2 16:40 **Evaluation of an E-Nose System for Objective Smell Assessment of Shoe/Socks Systems by Comparison with a Sensory Panel**

S. Horras, T. Fricke, A. Schütze, Saarland University, Saarbrücken; A. Gaiotto, Prüf- und Forschungsinstitut Pirmasens e.V., Pirmasens; M. Mayer, Forschungsinstitut Hohenstein, Boennigheim, Saarland University, Saarbrücken (Germany)
400

B5.3 17:00 **Selectivity Improvement of High-Temperature Resonant Gas Sensors using Micromachined Membrane Arrays**

D. Richter, H. Fritze, Technical University Clausthal, Goslar (Germany)
386

B5.4 17:20 **Gas Sensor Array for Low-cost Gas Chromatography in Food Industry Processes**

M.-L. Bauersfeld, C. Peter, J. Wöllenstein, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg; M. Bücking, J. Bruckert, J. Steinhanses, Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Schmallingenberg-Grafschaft; J. G. Krovink, University Freiburg (Germany)
381

17:40 *End*



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R. Lerch, University Erlangen-Nürnberg, Erlangen
E. Wagner, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg
R. Werthschützky, Technical University Darmstadt (Germany)

ÜV4 08:30 **Funksensornetzwerke: Status und Trends**
G. Fischerauer, University Bayreuth (Germany)
461

B6: Optical Sensors

Chair: F. Puente León, University Karlsruhe (Germany)
Vellekoop, Technical University Wien (Austria)

B6.1 09:30 **Optical Temperature Sensors for Harsh Environments**
A. Harpin, R. Pechstedt, S. Tyler, Oxsensis Ltd., Chilton, Didcot (Great Britain)
412

B6.2 10:00 **A Spectral Filter Analyzer for Sampling of Optical Bragg Grating Sensors**
T. Schanze, K. Plies, CORRSYS 3D Sensors AG, Wetzlar; N. Samfirescu, T. Tschudi, M. A. Bader, G. Jakob, Photonik Zentrum Hessen in Wetzlar AG, Wetzlar (Germany)
401

B6.3 10:20 **Detection and Classification of Explosive Compounds in Presence of Interferents Utilizing Laser Ion Mobility Spectrometry**
A. Langmeier, W. Heep, C. Oberhüttinger, H. Oberpriller, M. Kessler, J. Göbel, S. Beer, G. Müller, EADS - Innovation Works, München (Germany)
363

B6.4 10:40 **Liquid-Based Sensor Systems Applying Novel Optofluidic Elements Fabricated by Micro-Stereolithography**
M. I. Rosenauer, M. J. Vellekoop, Technical University Wien (Austria)
350

11:00 *Coffee Break*



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B7: Gas and Humidity

Chair: F. L. Dickert, University Wien (Austria)
R. Moos, University Bayreuth (Germany)

B7.1 11:20 RF-Probing of Automotive Catalysts

M. Wedemann, M. Spörl, A. Nerowski, G. Fischerauer, R. Moos, University Bayreuth (Germany)
340

B7.2 11:50 Low-Cost Smart Self-Adaptive Humidity Sensors with Parametric Adaptation

S. Yurish, CDEI-UPC, Barcelona (Spain)
342

B7.3 12:10 Field Effect SnO₂ Nano-Thin Film Layer CMOS-Compatible

J. J. Velesco Vélez, A. Chaiboun, T. Doll, University Mainz; C. Wilbertz, Micronas GmbH, Freiburg, J. Wöllenstein, M. Bauersfeld, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg (Germany)
339

B7.4 12:30 YSZ Thick Film Oxygen Gas Sensor Using the Direct Ionic Thermoelectric Effect

U. Röder-Roith, F. Rettig, K. Sahner, R. Moos, University Bayreuth; T. Röder, J. Janek, University Gießen (Germany)
357

12:50 *Lunch Break*

Poster Session 13:00 –14:30

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B8: Accurate Geometric Measurements

Chair: K.-D. Sommer, Physikalisch-Technische Bundesanstalt, Braunschweig (Germany)
A. Weckenmann, University Erlangen-Nürnberg, Erlangen (Germany)

B8.1 15:00 Sensors for Accurate Geometric Measurements in Manufacturing

A. Weckenmann, University Erlangen-Nürnberg, Erlangen (Germany)
444

B8.2 15:30 Application of a Touch-Probe Array for the Parallel Measurement of Microstructures

R. Tutsch, Technical University Braunschweig (Germany)
445

B8.3 15:50 Multifunctional, Laserinterferometric Measurement Systems

W. Schott, SIOS Messtechnik, Ilmenau (Germany)
446

B8.4 16:10 High Precision Length Measurement Systems in the Production of an Automotive Supplier

R. Ofen, Robert Bosch GmbH, Bamberg (Germany)
447

16:30 *End*