



Euroensors

Zurich | Switzerland | 2026

September 6 – 9, 2026

SPEAKER PROGRAM

Program 2026

Monday, September 7

08.30 – 09.00 **Opening**

[Room: HPH G1]

Andreas Güntner, General Chair Eurosensors 2026
Günther Dissertori, Rector of ETH Zürich

09.00 – 09.55 **Plenary Talk 1**

[Room: HPH G1]

Chair: Christofer Hierold
Nanophotonics: Enabling Technology For Next Generation Bioanalytical Devices
Hatice Altug
Ecole Polytechnique Fédérale de Lausanne (EPFL), School of Engineering, Bionanophotonic Systems Laboratory, 1015 Lausanne, Switzerland

10.00 – 11.00 **Session 1.1 Chemical Sensors**

[Room: HPH G1]

Chairs: Ralf Moos & Cristina Gentili

Sensor-On-LED: Visible-Light-Activated Gas Sensing Using Flame Spray Pyrolysis

Xiao-Xue Wang^{1,2}, *Lutz Mädler*^{1,2}

¹ Mechanical Engineering and Process Engineering, University of Bremen, Germany

² Leibniz Institute for Materials Engineering IWT, Germany

Printing Multiple Inks Of Porous Coordination Networks (PCNs) On An Electronic Nose For Plant Disease Detection

Stan Smit^{1,§}, *Murat Kabatas*^{1,2,§}, *Chunyu Huang*³, *Jelco Albertsma*³, *Tao Shen*⁴, *Yihan Ouyang*⁴, *Monique van der Veen*³,
Frans Widdershoven^{4,5}, *Peter G. Steeneken*¹, *Jasmin Aghassi-Hagmann*², *Murali K Ghatkesar*¹

¹ Department of Precision and Microsystems Engineering, TU Delft, The Netherlands

² Institute of Nanotechnology (INT), Karlsruhe Institute of Technology (KIT), Germany

³ Department of Chemical Engineering, TU Delft, The Netherlands

⁴ Department of Microelectronics, TU Delft, The Netherlands

⁵ NXP Semiconductors, The Netherlands

[§] Equal contribution

Human Activity Recognition Using Distributed Colorimetric Chemical Sensors Based On CO2 And Formaldehyde Inks And Interpretable Machine Learning

*Ismael Benito-Altamirano*², *Yansheng Chen*¹, *Maria Gonzalez-Gomez*³, *Olga Casals*¹, *J. Daniel Prades*³, *Cristian Fabrega*¹

¹ University of Barcelona, Martí i Franques 1, Spain

² Universitat Oberta de Catalunya, Rambla del Poblenou, 154-156 Spain

³ Technische Universität Braunschweig, Germany

Dielectric And DRIFTS Characterization Of Ba-Based NOx Storage Materials For Radio Frequency Based Dosimeters

Daniela Schönauer-Kamin, *Fabian Fütterer*, *Johanna Baumgärtner*, *Thomas Wöhl*, *Gunter Hagen*, *Ralf Moos*

Department of Functional Materials, University of Bayreuth, Universitätsstrasse 30, 95447 Bayreuth, Germany

10.00 – 11.00

Session 1.2 Optical Sensors

[Room: HPH G2]

Chairs: Romain Quidant & Tobias Cramer

Multiplexed, Label-Free InP Nanowire Photodetectors For Nanofluidic Single-Particle Sensing

Leon Seggering^{1,2}, *Vidar Flodgren*³, *Abhijit Das*³, *Thomas Kjellberg Jensen*³, *Joachim E. Sestoft*⁴,
*Jesper Nygård*⁴, *Anders Mikkelsen*³, *Irene Fernandez-Cuesta*¹

¹ University of Hamburg, Physics Department, 22761 Hamburg, Germany

² Deutsches Elektronen-Synchrotron (DESY), 22607 Hamburg, Germany

³ Lund University, Department of Physics and NanoLund, 223 63 Lund, Sweden

⁴ University of Copenhagen, Niels Bohr Institute, 2100 Copenhagen, Denmark

Circuit-Free Cardiovascular Monitoring Via Electrically Passive Nanophotonic Patch For Sub-Beat Hemodynamics

*Torjus Steffensen*¹, *Vegar Stubberud*¹, *Eryk Winogrocki*¹, *Emilie Hennissen*¹, *Nils Kristian Skjærvald*^{1,2}, *Martin Steinert*¹,
*Angelos Xomalis*¹

¹ Norwegian University of Science and Technology, Høgskoleingen 1, 7034 Trondheim, Norway

² St. Olav's University Hospital, Prinsesse Kristinas gate 3, 7030 Trondheim, Norway

Polymer-Based Fiber Fabry-Perot Interferometer For Temperature Monitoring Of Operando Lithium-Ion Batteries

*Andrés Hernández-Pascual*¹, *David Manzón-Hernández*¹, *Monserat Alonso-Murias*¹, *Erika Rodríguez Sevilla*¹,
Joel Villatoro^{2,3}

¹ Centro de investigaciones en Óptica A.C., 37150, León, Guanajuato, México

² Departamento de Ingeniería de Comunicaciones, University of the Basque Country UPV/EHU, 48013 Bilbao, Spain

³ IKERBASQUE, Basque Foundation for Science, 48011 Bilbao, Spain

Trace Level Moisture Sensing Using A Resonant Photoacoustic Sensor With An LED As Light Source

Christian Weber^{1,2}, *Andre Eberhardt*¹, *Mike Benkendorf*¹, *Katrin Schmitt*^{1,2}, *Jürgen Wollenstein*^{1,2}

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² Department of Microsystems Engineering - IMTEK, University of Freiburg, 79110 Freiburg, Germany

10.00 – 11.00

Session 1.3 Sensing for Medical Diagnostics

[Room: HPH G3]

Chairs: Irene Taurino & Günther Zeck

Colorimetric Point-Of-Care Detection Of Enterococcus Faecalis In Urinary Tract Infection

*Maria M. Marim*¹, *Patrick Rupper*², *Stefanie Altenried*³, *Adrian Meier*¹, *René M. Rossi*¹, *Qun Ren*³, *Luciano F. Boesel*¹,
*Giorgia Giovannini*¹

¹ Swiss Federal Laboratories for Materials Science and Technology (Empa), Laboratory for Biomimetic Membranes and Textiles, Lerchenfeldstrasse 5, CH-9014, St. Gallen, Switzerland.

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³ Swiss Federal Laboratories for Materials Science and Technology (Empa), Laboratory for Biointerfaces, Lerchenfeldstrasse 5, St. Gallen 9014, Switzerland

Continuous Respiratory Rate Monitoring Using A Flexible Thermoelectric Sensor

Abi Johnson-Brett, *Aimilios Angelopoulos*, *Rafail Zafeiiris*, *Harry Akerman*, *Ioannis Zimpekis*, *Nick Harris*, *Neil White*,
Katrina A. Morgan

University of Southampton, Southampton, SO17 1BJ, United Kingdom

Comparative Assessment Of Assimilating Probes And Molecular Beacons In Multiplex LAMP For Diagnostics

Ankita Mishra, *Than Linh Quyen*, *Winnie Edith Svendsen*, *Maria Dimaki*

DTU Bioengineering, Technical University of Denmark DK-2800 Kgs. Lyngby, Denmark

Multimodal Textile-Based Wearable System For Upper-Limb Motion And Heart Rate Monitoring In Rehabilitation

*C. Alglave*¹, *G. Jodin*¹, *A. Laarabi*², *J. Schoch*¹, *C. Depontailier*¹, *A. Marin*³, *J. Prioux*⁴, *F. Razan*¹

¹ Univ Rennes, ENS Rennes, CNRS, IETR - UMR 6164, Rennes, 35170, France,

² SII Ouest, 3b Av. de Belle Fontaine, Cesson-Sévigné, 35510, France

³ Inria, CNRS, ENS Rennes, Univ Rennes, IRISA, Bruz, France

⁴ Movement, Sport and Health Laboratory (EA 1274), UFR APS, Rennes 2, France

10.00 – 11.00

Session 1.4 Sensor Applications: Environmental and Food Monitoring

[Room: HPV G4]

Chairs: Renaud Leturcq & Elisabetta Comini

Combined Physical And Digital Sensor Twin For Monitoring Fresh Fruits In The Cold Chain

Reiner Jedermann¹, Tuany Gabriela Hoffmann², Pramod Vasantrao Mahajan²

¹ University Bremen, IMSAS, 28205 Bremen, Germany,

² Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), 14469 Potsdam, Germany

Continious Monitoring Of Glyphosate In Water

Nataša Budimirović, Alexandra Beard, Tristan Kipfer, Raphaël Pugin, Sylvain Nicolay

Centre Suisse d'Electronique et de Microtechnique SA (CSEM), 2002 Neuchâtel, Switzerland

Architecture-Dependent Emergence Of Self-Powered Gas Sensing In Junction Engineered WSe₂ Device

Dipanjana Mondal, Vinayak Kamble

School of Physics, Indian Institute of Science Education and Research Thiruvananthapuram, Kerala, India, 695551

Low-Cost Raman System For Continuous Measurement Of Aqueous Ammonium Bicarbonate In Carbon Capture Processes

Nick Schauble¹, Jennifer Jacob¹, Christian Karnutsch¹, Jan Hoinkis¹, Jürgen Wöllenstein^{2,3}, Markus Graf^{1,4}

¹ Karlsruhe University of Applied Sciences, 76133 Karlsruhe, Germany

² Fraunhofer-Institute for Physical Measurement Techniques, 79110 Freiburg, Germany

³ University of Freiburg, 79085 Freiburg, Germany

⁴ University of Hamburg, 22761 Hamburg, Germany

11.00 – 11.30

Coffee Break

[Exhibition Hall]

11.30 – 13.00

Session 2.1 Microfluidic Devices, Lab on a Chip, µTAS, Organ on Chip Systems

[Room: HPH G1]

Chairs: Peter Fűrjes & Zhen Zhu

Bimodal MEMS Sensor Cartridge For Prediagnostic Screening Of Pleural Effusion

Mehmet Oğulcan Günöğür^{1,2}, Aysen Gümüştas^{1,3}, Seçkin Eroğlu^{1,4}, Amir Fadaie¹, Çağrı Öztürk^{1,5}, Ender Yıldırım^{1,2,4}

¹ ODTU MEMS Center, Ankara, Türkiye

² Micro and Nanotechnology, Middle East Technical University, Ankara, Türkiye

³ Department of Pharmaceutical Microbiology, Ankara University, Ankara, Türkiye

⁴ Department of Mechanical Engineering, Middle East Technical University, Ankara, Türkiye

⁵ Department of Biomedical Engineering, Middle East Technical University, Ankara, Türkiye

Real-World Chemical Plant Monitoring And Event Classification By Multi-Modal Low-Cost Sensor Network

A. Raffener¹, R. Pohle¹, J. Kelleter², S. Essel³

¹ Siemens AG, Munich, Germany

² GTE Industrieelektronik GmbH, Viersen, Germany

³ ISH, Höchst, Germany

Graphene Hall Sensor-Based Receiver For Magnetic Droplet-Based Communications

Maryam Kahvazi Zadeh, Eren Akyol, Aysa Azmoudeh, Murat Kuscü

Department of Electrical and Electronics Engineering, Koç University, İstanbul, Turkey

Interfacial Direct Printing (IDP) Of SU-8: Fabrication Of Molds With Smooth Round Channels

Raphael Dezaudier, Maximilian Breiffeld, Claudius L. Dietsche, Petra S. Dittrich
Department of Biosystems Science and Engineering, ETH Zürich, Klingelbergstrasse 48, 4056 Basel, Switzerland

(INVITED) Designing Better Biosensors From First Principles

David Juncker
McGill University, Biomedical Engineering Department and VP Dahdaleh Institute of Genomic Medicine Montréal, Canada

11.30 – 13.00

Session 2.2 Optical Sensors

[Room: HPH G2]

Chairs: Niels Quack & Hatice Altug

Raman And Photoluminescence Spectroscopy Detection Of NO₂ Gas Adsorbed On ZnO Nanowires

Federica Rigoni, Massimo Panzoni, Matteo Borsi, Dario Zappa, Elisabetta Comini
Università di Brescia, via Branze 38, 25123, Brescia, Italy

A Lens-Free Microscope With Edge AI Acceleration

Lena Zhukova^{1,2}, Luqi Yan³, Agus Dharmawan³, J. Daniel Prades³, Ismael Benito-Altamirano^{1,3,4}
¹ e-Health Centre & Faculty of Computer Science, Multimedia and Telecommunications, Universitat Oberta de Catalunya, Barcelona, Spain
² Centre for Sensors, Instruments and Systems Development (CD6), Universitat Politècnica de Catalunya, Barcelona, Spain
³ Institute of Semiconductor Technology (IHT) & Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, Braunschweig, Germany
⁴ Department of Electronics and Biomedical Engineering, Universitat de Barcelona, Barcelona, Spain

Digital Bone Metastasis: An AI-Based Organ On Chip Platform For Modeling Breast Cancer Bone Metastasis

M. D'Orazio¹, A. Mencattini¹, L. Iafrate², V. de Turris³, A. Agresti¹, S. Pescetelli¹, G. Ruocco³, G. Cidonio^{2,3}, E. Martinelli¹
¹ Department of Electronic Engineering, University of Rome Tor Vergata, Rome, Italy
² Department of Mechanical and Aerospace Engineering (DIMA), Sapienza University of Rome, Rome, Italy
³ Center for Life Nano- and Neuro-Science of Istituto Italiano di Tecnologia (IIT), Italy

A Miniaturized Optical Online Sensor For The Detection Of Oil Pollution On Water Surfaces

Martin Brandl, Thomas Posnisek, Anja Knecht
University for Continuing Education Krems, Department for Integrated Sensor Systems, 3500 Krems, Austria

Monolithic LED Emitter-Detector For Colorimetric CO₂ Gas Sensor

Martí Verdaguer Mallorquí¹, María González-Gómez^{1,2}, Jana Hartmann², Cristian Fàbrega¹, Andreas Waag², Joan Daniel Prades², Olga Casals Guillén¹
¹ MIND/IN2UB, Dept. of Electronics and Biomedical Engineering, University of Barcelona, Martí i Franqués 1, Barcelona ESO8028, Spain
² Institute of Semiconductor Technology (IHT) & Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, D-38106 Braunschweig, Germany

A Portable And Low-Cost Spirometer With Knife-Edge Optical Detection

Sena Ulgaz¹, Ömer Gökulp Akcan^{1,3}, Berkay Yılmaz², Onur Ferhanoglu¹, Yiğit Dağhan Gökdel²
¹ Department of Electronics and Communication Engineering, Istanbul Technical University, 34467, Istanbul, Türkiye.
² Department of Electrical and Electronics Engineering, Istanbul Bilgi University, 34060, Türkiye.
³ Advanced Vocational Studies, Big Data Analytics, Istanbul Bilgi University, 34387, Istanbul, Türkiye.

11.30 – 13.00

Session 2.3 Sensing for Medical Diagnostics

[Room: HPH G3]

Chairs: Ines Weber & Marina Cole

(INVITED) Beyond Surface Area: Microfabrication-Compatible Electrode Nanostructuring For High-Performance Miniaturized Electrochemical And Bioelectrical Sensors

Irene Taurino

KU Leuven, Kasteelpark Arenberg 10, 3001 Leuven, Belgium

Motion Artifact Removal For Moving FMCW Radar-Based Vital Sign Sensing Using IMU

Natsuhiko Mascia, Jarred Fastier-Wooller, Shun Muramatsu, Michitaka Yamamoto, Toshihiro Itoh

Department of Precision Engineering, Graduate School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku 113-8656, Tokyo, Japan

Unchallenging The Debye Challenge In Field-Effect Biosensors

Gil Shalev^{1,2}

¹ School of Electrical Engineering, Ben-Gurion University of the Negev, POB 653, Beer-Sheva 8410501 Israel

² The Ilse-Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, POB 653, Beer-Sheva 8410501, Israel

Development And Comparison Of An Innovative Electronic Nose For Pneumonia Diagnostic Support

*Ana Maria Tischer*¹, *Emanuele Zanni*², *Felix Schmidt*³, *Carmen Bax*¹, *Luca Novelli*⁴, *Udo Weimar*³, *Nicolae Barsan*³, *Raffaele Dellacà*², *Fabiano Di Marco*^{4,5}, *Laura Capelli*¹

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² Department of Electronics, Information, and Bioengineering, Politecnico di Milano, Milan, Italy

³ Institute of Physical and Theoretical Chemistry, University of Tuebingen, Tuebingen, Germany

⁴ Azienda Ospedaliera Socio Sanitaria Territoriale Papa Giovanni XXIII, Bergamo, Italy

⁵ Università degli Studi di Milano, Department of Health Sciences, University of Milan, Milan, Italy

Metabolic Monitoring At Home With A Smartphone-Coupled Breath Sensing Device

*Simone Hersberger*¹, *Jan Van Den Broek*², *Lara Schmid*¹, *Fabienne Kappeler*¹, *Philipp A. Gerber*³, *Andreas T. Güntner*¹

¹ Department of Mechanical and Process Engineering ETH Zurich, 8092 Zurich, Switzerland

² Alivion AG, 8152 Glattbrugg, Switzerland

³ Department of Endocrinology, Diabetes, and Clinical Nutrition, University Hospital Zurich, 8091 Zurich, Switzerland.

11.30 – 13.00

Industry Session 1

[Room: HPV G4]

Chairs: Katrin Gajo & Markus Graf

Pushing The Limits Of Established Sensor Technologies

*Yannick Maret*¹, *Antoine Riaud*², *Brian Smith*³, *Jens Schalkowski*⁴

¹ ABB Measurement & Analytics, Segelhofstrasse 1K, 5405 Dättwil, Switzerland,

² ABB Corporate Research, Segelhofstrasse 1K, 5405 Dättwil, Switzerland,

³ ABB Measurement & Analytics, 7051 Industrial Boulevard, Bartlesville, OK 74006, USA

⁴ ABB Measurement & Analytics, Stierstädterstrasse 5, 60488 Frankfurt am Main, Germany

From Physics To Models – Understanding Microwave Sensing In Process Industry

Anne Habermehl

Endress+Hauser Flowtec AG, Christoph Merian-Ring 4, 4153 Reinach, Switzerland

Scaling Up And Automating Nanodevice Fabrication With Parallelized Multi-Tip Thermal Scanning Probe Lithography

Jana Chaaban, Julia Stark, Elliott Clerc, Andrea Ubezio, Antoaneta Damyanova, Fabian Könemann, Kartik Buddha, Simon Bonanni, Emine Çağın

Heidelberg Instruments Nano AG, Bändliweg 30, 8048 Zürich, Switzerland

From Miniaturized Bioassays To 3D Imaging of Microfluidic Devices

Yuksel Temiz

Microquibic AG, Feldpark 29, 6300 Zug, Switzerland

13.00 – 14.00 **Lunch**

14.00 – 14.55 **Plenary Talk 2**

[Room: HPH G1]

Chair: Andreas Hierlemann

MEMS Sensors For The Body: From Wireless Implants To Transdermal Diagnostics

Mark G. Allen

University of Pennsylvania, Philadelphia, Pennsylvania, USA

14.55 – 16.30 **Poster Session & Coffee Break**

[Exhibition Hall]

16.30 – 18.00 **Session 3.1 Chemical Sensors**

[Room: HPH G1]

Chairs: Chris Blackman & Meng Yin

Free-Space Laser Interrogation Of Tantalum-Palladium Hydrogen Sensor

Robin Gremaud, Chongsheng Yue, Jean-Marc Oppliger, Pedro Castro-Fernández

ABB Research, ABB Switzerland Ltd, Baden-Dättwil, Switzerland

Optimized Water-Based Colorimetric Carbon Dioxide Indicators For 455 nm Monolithic LED Emitter-Detector

Martí Verdaguer Mallorquí¹, María González-Gómez^{1,2}, Cristian Fàbrega¹, Joan Daniel Prades², Olga Casals¹

¹ MIND/IN2UB, Dept. of Electronics and Biomedical Engineering, University of Barcelona, Martí i Franqués 1, Barcelona ES08028, Spain

² Institute of Semiconductor Technology (IHT) and Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, D-38106 Braunschweig, Germany

Photolysis For Enhancing The Specificity Of NOx Electrochemical Sensors

Reinoud F. Wolffenbuttel¹, David Bilby², Jacobus H. Visser²

¹ Laboratory for Electronic Instrumentation, Department of Microelectronics, Delft University of Technology, 2628 CD Delft, The Netherlands,

² Research and Advanced Engineering, Ford Motor Company, Dearborn, MI 48121, USA

A New QEPAS Sensor Optimized For The Use Of Multiple Optical Sources With Reduced Window Absorption

Ilona Troadec, Maxime Duquesnoy, Jean-Michel Melkonian, Raphaël Levy, Myriam Raybaut

ONERA, 6 Chemin de la Vauve aux Granges 91120 Palaiseau, France

Hydrogel Beads-Based Sensing Technology For Measurement Of Insulin Growth Factor 1 (IGF1) In Saliva

Khalid Haliru¹, Nicholas Goddard², Ruchi Gupta¹

¹ School of Chemistry, University of Birmingham, Birmingham, B15 2TT, United Kingdom

² Independent Researcher, Accrington, BB5 2SB, United Kingdom

Selective Benzene Gas Sensing With Flame-Made Polytungstate Porous Film

Adrian Baur, Sebastian Kravec, Andreas T. Güntner

Department of Mechanical and Process Engineering, ETH Zürich, Sonneggstrasse 3, 8092 Zürich, Switzerland

16.30 – 18.00

Session 3.2 Biosensors

[Room: HPH G2]

Chairs: Danick Briand & David Juncker

(INVITED) Single-Cell Impedance Cytometry: Recent Progress And Challenges Ahead

Federica Caselli

University of Rome Tor Vergata, via del Politecnico 1, 00133 Roma, Italy

Chip-Sized Biosensor For Multiparametric Monitoring

Sofia Moncada-Madrado^{1,2}, *Joan Canals*^{1,2}, *Sergio Moreno*^{1,2}, *Natalia Castro*³, *Carolina Rodríguez*³,

Javier Ramón-Azcón^{3,4}, *Anna Vilà*^{1,2}, *Ángel Diéguez*^{1,2}

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² Institute of Nanoscience and Nanotechnology (INZUB), Universitat de Barcelona

³ Institute for Bioengineering of Catalonia (IBEC), The Barcelona Institute of Science and Technology (BIST)

⁴ Institutió Catalana de Recerca i Estudis Avançats (ICREA)

PEDOT:PSS Coated Fully Printed Microelectrode Arrays For Neural Interfacing

Amelie Ziller, *Lukas Kreuzberger*, *Andrea Corna*, *Paul Werginz*, *Günther Zeck*

Institute of Biomedical Electronics, TU Wien, Vienna, Austria

An Electrochemical Aptasensor For Continuous Biomarker Monitoring

Hadi Mirzajani, *Sandro Carrara*

Bio/CMOS Interfaces (BCI) Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), 2000 Neuchâtel, Switzerland

Ferroelectric Microelectrode Array With System-Integrated Direct-Digitization ASIC For Neural Recording

*Moritz Doering*¹, *Roman Willaredt*², *Daniel Rossbach*¹, *Philip Zimmer*¹, *Daniel Hoffmann*¹, *Heiko Trautner*¹, *Oliver Amft*^{1,2},

*Matthias Kuhl*², *Maximilian T. Becker*¹

¹ Hahn-Schickard-Gesellschaft, 78052 Villingen-Schwenningen, Germany

² Universität Freiburg, 79110 Freiburg, Germany

16.30 – 18.00

Session 3.3 Physical Sensors

[Room: HPG G3]

Chairs: Elmar Hufschmid & Mark Allen

CO/HC Gas Sensor Using A Powder Aerosol Deposited Thermoelectric Material

Benedikt Streibl, *Thomas Wöhrl*, *Daniel Paulus*, *Jaroslav Kita*, *Daniela Schönauer-Kamin*, *Gunter Hagen*, *Ralf Moos*

Department of Functional Materials, Center of Energy Technology (ZET), University of Bayreuth, Bayreuth, 95447, Germany

Micropillars Patterned Surface On In-Plane MEMS Resonator For Enhanced Airborne Fine Particles Detection

*Julien Soral*¹, *Pierre Didier*², *Frédéric Marty*¹, *Evelyne Géhin*², *Lyès Ait Ali Yahia*², *Emmanuelle Algré*¹

¹ Univ Gustave Eiffel, ESYCOM Laboratory, UMR 9007 CNRS, F-77454 Marne-la-Vallée, France

² Univ Paris-Est Creteil, CERTES, F-94010 Creteil, France

(INVITED) From Materials To Systems: Passive, Low-Energy Sensors Based On Organic Mixed Ionic–Electronic Conductors

Tobias Cramer

University of Bologna, Department of Physics and Astronomy, Viale Berti Pichat 6/2, 40127 Bologna, Italy

A Mixed-Level Model For Force-Feedback Controlled Piezoelectric MEMS Microphones

*Til Friebe*¹, *Ferdinand Schiller*², *Christian Bretthauer*², *Gabriele Schrag*¹

¹ Technical University of Munich (TUM), Munich, Germany

² Infineon Technologies AG, Munich, Germany

Microfluidic Integration Of Interfacial Nanopores For Single Molecule Sensing Under FPGA-Based Closed-Loop Control

Lorenzo Petrella, *Lena Dysli*, *Jonah Imfeld*, *Justin N. Cronk*, *Morteza Aramesh*

Laboratory of Single-Molecule and Single-Cell Biophysics, Department of Information Technology and Electrical Engineering, ETH Zürich, Zürich, Switzerland

16.30 – 18.00

Industry Session 2

[Room: HPV G4]

Chairs: Emine Çağın & Markus Graf

High-Precision 3D Printed Micro-Optics For Next-Generation Optical Sensor Integration

Mina A. T. Yeşilyurt

Nanoscribe GmbH & Co. KG, Hermann-von-Helmholtz-Platz 6, 76344 Eggenstein-Leopoldshafen, Germany

Photonics Innovation Scaled At The Institute For Microelectronics Stuttgart

Niels Quack

IMS Chips, Allmandring 30a, 70569 Stuttgart, Germany

Active Optics For Enhanced Sensor Performance

Wolfgang Zesch

Optatone, Bernstrasse 388, 8953 Dietikon, Switzerland

A Hitchhiker's Wave Guide To Photonic Chips Physics, Fabrication, And The Road To Volume

Jan Voigt

IMT Masken und Teilungen AG, Im Langacher 46, 8606 Greifensee, Switzerland

18.00 – 18.30

Hackathon Awards

[Room: HPH G1]

18.30 – 20.00

Social Event

[Room: HPH G1]

Tuesday, September 8

08.30 – 09.00

Arrival & Coffee

[Exhibition Hall]

09.00 – 09.55

Plenary Talk 3

[Room: HPH G1]

Chair: J. Daniel Prades

Intelligent Robots With A Sense Of Smell – Challenges, Current State, And Future Directions

Achim J. Lilienthal

Technical University of Munich, Georg-Brauchle-Ring 60-62, 80992 München, Germany

10.00 – 11.00

Session 4.1 Chemical Sensors

[Room: HPH G1]

Chairs: Jürgen Wollenstein & Daniela Schönauer-Kamin

Printed And Light-Activated CuO/Cu₂O-Based Chemiresistive Acetone Sensors With Carbon Electrodes

Amit Chatterjee¹, Bernhard Jakoby², Jürgen Kosel¹, Mani Teja Vijjapu¹

¹ Sensor System Division, Silicon Austria Labs GmbH, Europastrasse 12, Villach 9524 Austria

² Institute for Microelectronics and Microsensors, Johannes Kepler University Linz, Austria

Enhanced Gas Sensing Performance Of Pt-Coated Ag Doped Ga₂O₃ Via Surface Modification

Md Mayen Uddin, Mohammad Ariful Islam Bhuyan, Liang Xiuqian, Hyeon Cheol Kim

Department of Electrical, Electronic and Computer Engineering, University of Ulsan 93 Doehak-ro, Nam-gu, Ulsan 680-749, South Korea

(INVITED) Re-Examining Mechanisms, Materials And Measurement In Metal Oxide Gas Sensing

Chris Blackman

University College London (UCL), 20 Gordon Street, London, WC1H 0AJ, United Kingdom

10.00 – 11.00

Session 4.2 Optical Sensors

[Room: HPH G2]

Chairs: Reinoud Wolffenbuttel & Roland Pöhle

(INVITED) Beyond The Ensemble: Resolving Sample Heterogeneity In Space And Time

Romain Quidant

Department of Mechanical and Process Engineering (D-MAVT), ETH Zurich, Zurich, Switzerland

Compact MicroLED-Based Lensless Microscope For Real-Time Airborne Cloud Droplet Sensing

Agus Budi Dharmawan¹, Rodrigo Gaston Gibilisco^{1,2}, Jorge Saturno³, Andreas Nowak³, Christopher Pöhlker³,

J. Daniel Prades¹

¹ Institute of Semiconductor Technology (IHT) and Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, Braunschweig, Germany

² Laboratory of Atmospheric Studies (LEA), INQUINOA (CONICET – National University of Tucumán), Tucumán, Argentina

³ Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

Multi-Wavelength Fiber-Optic Refractometer Based On Multimodal Interference And Surface Plasmon Resonance

Galván-Navarro E. Didier, Alonso-Murias Monserrat, Monzón-Hernández David

Centro de Investigaciones en Óptica A.C., Loma del Bosque 115, Lomas del Campestre, 37150 León de los Aldama, Gto., Mexico

10.00 – 11.00

Session 4.3 Emerging Sensor Materials

[Room: HPH G3]

Chairs: Eleni Stavrinidou & Gunjoo Kim

Bio-Sourced Polyester As Substrate For Sustainable Wireless Smart Tags Made By Printing

James Bourelly¹, Maxime A. Hedou^{2,3}, Roger Marti³, Lorenz P. Manker², Jeremy S. Luterbacher², Danick Briand¹

¹ EPFL STI IGM LINTS, Rue de la Maladière 71b, 2002 Neuchâtel, Switzerland

² EPFL SB ISIC LPDC, Bâtiment CH, Station 6, 1015 Lausanne, Switzerland

³ HEIA-FR Chemtech, HES-SO, Boulevard de Pérolles 80, 1700 Fribourg, Switzerland

A Torque Sensor Using 3D Printed Conductive TPU

Tom Stein, Marc Schärer, Mirko Meboldt

Product Development Group Zurich, ETH Zurich, Zurich, Switzerland

Soft And Stretchable Carbon Flower Sensors Detect Hormones And Neurotransmitters At High Sensitivity

Ines C. Weber¹, Diego U. Patino², Kuang-Jung Hsu², Zhenan Bao²

¹ Chalmers University of Technology, Kemivägen 10, SE-412 96 Göteborg, Sweden

² Stanford University, 334 Via Ortega, 94305 Stanford, USA

Electrokinetic Self-Cleaning Of Mixed-Phase Contaminants On Optical Sensors In Physical AI

Dong Joo Lee¹, Tae Hyeon Jang¹, Youngkwang Kim¹, Jeongmin Lee², Sang Kug Chung¹

¹ Department of Mechanical Engineering, Myongji University, 116 Myongji-ro, 17058 Yongin, South Korea

² Microsystems Inc., 116 Myongji-ro, 17058 Yongin, South Korea

10.00 – 11.00

Session 4.4 Actuators

[Room: HPV G4]

Chairs: Michael Schneider & Gabriele Schrag

Programmable Hierarchical Actuation Schemes Based On Phase Change Composites Arranged As A Resistive Network

Wolfgang Hilber, Sebastian Lang, Bernhard Jakoby

Institute for Microelectronics and Microsensors, Johannes Kepler University Linz, Altenbergerstrasse 69, A4040 Linz, Austria

A 3D-Printed Monolithic Bender Bar Transducer Featuring A Fluid-Coupled Thin-Plate Backing And Flexural Hinges

Min Jung Sim, Yub Je, Hayeong Shim, Kyungseop Kim, Yohan Cho, Hee Seon Seo

Agency for Defense Development, Jinhwa P.O. Box 18, Changwon, Gyeongnam 51678, Republic of Korea

A Low-Power Printed Flexible Lorentz Force MEMS Switch With Electrostatic Hold-Down

Mohammad Meybodi, Khoi Nguyen, Tao Chen, Cyrus Shafai

University of Manitoba, 75 Chancellors Circle, Winnipeg, MB, R3T 5V6, Canada

Characterization Of Biodegradable Magnetic Elastomers For Mechanical Stimulation In Organ On Chip Platforms

Feyza Pirim-Aslan¹, Elena Aprea¹, Mahmut Kamil Aslan², Stavros Stavrakis², Andrew deMello², Pasqualina M. Sarro¹, Clementine M. Boutry¹

¹ Department of Microelectronics, Delft University of Technology, Delft, The Netherlands

² Institute of Chemical and Bioengineering, ETH Zurich, Switzerland

11.00 – 11.30

Coffee Break

[Exhibition Hall]

11.30 – 13.00

Session 5.1 Microfluidic Devices, Lab on a Chip, μ TAS, Organ on Chip Systems

[Room: HPH G1]

Chairs: Clémentine Boutry & Bernhard Wolfrum

Aptamer-Based Optically Induced Dielectrophoresis For High-Resolution Single-Cell Phenotyping

J. Filippi¹, F. Corsi², P. Casti¹, A. Mencattini¹, G. Antonelli¹, A. Chamorro-Garcia², A. Wheeler³, A. Idili², E. Martinelli¹

¹ Department of Electronic Engineering, University of Rome Tor Vergata, Rome, Italy

² Department of Chemical Sciences and Technologies, University of Rome Tor Vergata, Rome, Italy

³ Department of Chemistry, University of Toronto, Toronto, Canada

Multiplexed Analysis Of Extracellular Vesicles From Single Cells In An Array With Opposing Microwells

Lucien R. Stöcklin, Erwin Kortus, Petra S. Dittrich

Department Biosystems Science and Engineering, ETH Zürich

Microfluidic Synthesis Of Piezoelectric-Magnetic Composite Microbeads For Wireless Neural Stimulation

Tao Zhang¹, Arnaud Bertsch¹, Jiabei Luo², Yuyan Su², Yujia Zhang², Juergen Brugger¹

¹ Microsystems Laboratory, Ecole Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland

² Laboratory for Bio-Iontronics, Ecole Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland

Label-Free Isolation Of Single Cells For IVD Cell Therapy Using Impedance Flow Cytometry

M. Favrod-Coune^{1,2,3}, A. Stirnimann^{1,2}, O. Guenat³, F. Ille¹, P. Eberle¹

¹ Lucerne University of Applied Sciences, Switzerland

² Graduate School for Cellular and Biomedical Sciences, University of Bern, Switzerland

³ University of Bern, ARTORG Center, Switzerland

(INVITED) Microdroplet Arrays: Printing And Analyzing Liquid Sample At High Throughput

Petra S. Dittrich

Department Biosystems Science and Engineering, ETH Zürich

11.30 – 13.00

Session 5.2 Emerging Sensor Materials

[Room: HPH G2]

Chairs: Florence Razan & Tobias Kraus

(INVITED) Bioelectronic Sensors For Understanding Plant Stress Responses

Eleni Stavrinidou

Laboratory of Organic Electronics, Department of Science and Technology, Linköping University, 601 74, Norrköping, Sweden

Measurement Method For Determining Solvent Exchange In Aerogels During Realization And Functionalization

Jan kleine Piening^{1,2}, Khyati Tembekar¹, Tim Mike de Rijk^{1,2}, Sander van den Driesche^{1,2,3}, Michael J. Vellekoop^{1,2,3}

¹ Institute for Microsystems Actuators and Systems (IMSAS), Universität Bremen, Bremen, Germany

² Microsystems Center Bremen (MCB), Universität Bremen, Bremen, Germany

³ MAPEX Center for Materials and Processes, Universität Bremen, Bremen, Germany

Biosensing And Healthcare Applications Via Emerging Nanomaterials

Kanchan Yadav^{1,2,3,4}, Raman Sankar^{2,3}

¹ Department of Chemistry, National Taiwan University, Taipei, Taiwan

² Nano Science and Technology Program, Taiwan International Graduate Program, Academia Sinica, Taipei, Taiwan

³ Institute of Physics, Academia Sinica, Taipei, Taiwan

⁴ Department of Materials Engineering, Indian Institute of Science, Bangalore, India

All-Dry Dual-Stencil Lithography For IGZO Thin-Film Transducers

Chenxiang Zhang, Giovanni Boero, Jürgen Brugger

Microsystems Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, Switzerland

Ensemble Nuclearity Optimum In Chemoresistive Hydrogen Sensing

Hamin Shin, Andreas Güntner

Human-centered Sensing Laboratory, Department of Mechanical and Process Engineering, ETH Zürich, CH-8092, Zürich, Switzerland

11.30 – 13.00

Session 5.3 Sensor Arrays and Networks, Integrated Systems

[Room: HPH G3]

Chairs: Jordi Fonollosa & Ana Maria Tischer

A Polyimide-Based In-Situ Sensor And Actuator Platform For Battery Monitoring And Self-healing

Vincent Kuczius¹, Pongsak Sarapukdee¹, Emanuel Wallesch¹, Deniz Kutluay², Joe Fleming², Tazdin Amietszajew², Enric Comas³, Jagdeep Sagu⁴, Andrew Baker⁴, Lilly Gill⁴, David Johnson⁴, Ian Manfren⁴, Kevan Parkes⁴, Gavin Brown⁴, John McClean⁴, Frances Tait⁴, Sam Chan⁴, Louise Evans⁴, Stefan Palzer¹

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² Coventry University, C-ALPs building, Coventry University, Cheetah Road, CV1 2TL, United Kingdom

³ IDNEO Technologies, Career Rac de Dalt 3, Barcelona, Spain

⁴ Centre for Process Innovation, The Caxon Building, John Walker Road, Sedgefield, TS21 3FE, United Kingdom

A Portable Ultrasound System Integrating A CMUT Sensor Array With An FPGA-Based Delay-And-Sum Beamformer

Mert Doğan¹, Can Ufuk Ertenli^{2,3}, Mehmet Oğulcan Güngör⁴, Berkay Karacaer²

¹ Department of Electrical and Electronics Engineering, METU, Ankara, Turkey

² K AND K Müh. Tek. Ltd. Şti., Ankara, Turkey

³ Department of Computer Engineering, METU, Ankara, Turkey

⁴ Department of Micro and Nanotechnology, METU, Ankara, Turkey

(INVITED) Addressing Calibration Transfer In Electronic Noses For Urine Headspace Analysis Through Synthetic Reference Samples And Advanced Feature Extraction

Laura Capelli

Politecnico di Milano, Department of Chemistry, Materials and Chemical Engineering «Giulio Natta» Piazza Leonardo da Vinci 32, 20133 Milano, Italy

A Two-Stage Encapsulation Procedure For Sterilization Resistant MEMS Devices With Integrated SMA Actuator

Daniel Hoffmann¹, Dietmar Schuhmacher¹, Nico Burghardt¹, Andreas Erben², Alfons Dehé^{1,3}

¹ Hahn-Schickard, Wilhelm-Schickard-Str. 10, Villingen-Schwenningen, Germany

² Fraunhofer IWU, Nöthnitzer Str. 44, Dresden, Germany

³ University of Freiburg, Georg H. Endress Chair for Smart Systems Integration, Freiburg, Germany

Continuous, Scalable Building Envelope Monitoring Using Low-Cost Gas Sensor Networks

Fabian Sievers, Nils Langer, Michael Jakubowsky, Álvaro Ortiz Pérez, Sibylle Braungardt, Stefan Palzer

Technical University Dortmund, Professorship for Sensors, Otto-Hahn-Strasse 8, 44227 Dortmund, Germany

11.30 – 13.00

Industry Session 3

[Room: HPV G4]

Chairs: Ulrich Bartsch & Markus Graf

State Of The Art Microsensors At Industrial Scale

Thomas Uehlinger, Marina de Queiroz Tavares, Lukas Bürgi

Sensirion AG, Laubisruetistrasse 50, 8712 Stäfa, Switzerland

Innovative Sensor Development – The Need Of Tailor-Made Sensors

Katrin Gajo, Christoph Hepp

Innovative Sensor Technology AG (IST), Stägerstrasse 14, 9642 Ebnat-Kappel, Switzerland

Alivion SmartSelect: Making Gas Sensors Work In The Real World

Jan van den Broek

Alivion AG, Flughafenstrasse 42, 8152 Opfikon, Switzerland

Accelerating Gas Sensor Material Development

Leandro Nicolas Sacco

VSParticle B.V., Oostsingel 209, 2612 HL, Delft, The Netherlands

13.00 – 14.00 **Lunch**

14.00 – 14.55 **Plenary Talk 4**

[Room: HPH G1]

Chair: Andreas Güntner

Wearable Sensors Of Flux From The Skin

John A. Rogers

Northwestern University, 2145 Sheridan Road, Evanston, IL 60208 USA

14.55 – 16.30 **Poster Session & Coffee Break**

[Exhibition Hall]

16.30 – 18.00 **Session 6.1 Chemical Sensors**

[Room: HPH G1]

Chairs: Eduard Llobet & Cosmin Roman

Microwave-Based Control Of An SCR-Based Flue Gas Aftertreatment System For Biomass Combustion

Benedikt Streibl¹, Ralf Maos¹, Thomas Wöhr¹, Thomas Ritter², Gunter Hagen¹

¹ Department of Functional Materials, Center of Energy Technology (ZET), University of Bayreuth, 95447 Bayreuth, Germany

² H+H Engineering & Service GmbH, Birkenleite 2, 96242 Sonnefeld, Germany

Polymorph-Dependent Electronic Transduction In WO₃ During Molecular Sensing Through Experiment And DFT

Meng Yin¹, Matteo D'Andrea², Stefan Neuhauser², Vlasios G. Mavrantzas^{3,4}, Ying Chen⁵, Ken Suzuki¹, Andreas T. Güntner²

¹ Green X-Tech Center, Green Goals Initiative, Tohoku University, Sendai, Miyagi, Japan,

² Human-Centered Sensing Laboratory, Dept. of Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland,

³ Macromolecular Engineering Laboratory, Dept. of Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland

⁴ Department of Chemical Engineering, University of Patras & Institute of Chemical Engineering Sciences (ICE-HI/FORTH), Patras, Greece

⁵ Global Learning Center, Tohoku University, Sendai, Miyagi, Japan

Comparison Of Self-Heating And Electrode Heating Recoveries In A Suspended-CNT CNFET NO₂ Sensor

Ines Kraiem, David Wolf, Miroslav Haluška, Cosmin I. Roman, Cristina Gentili, Christofer Hierold

Micro and Nanosystems, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland

Controlling Interconnection Density In 3D ZnO Networks For Optimized Charge Transport And Multimodal Sensing

Barnika Chakraborty¹, Benjamin Junker-Reiss², Leonard Siebert¹, Rainer Adelung^{1}*

¹ Chair for Functional Nanomaterials, Department for Materials Science, Kiel University, Kaiserstr. 2, 24143, Kiel, Germany

² Mathematisch-Naturwissenschaftliche Fakultät Institut für Physikalische und Theoretische Chemie, Eberhard Karls Universität Tübingen, AG Weimar, Auf der Morgenstelle 15, 72076, Tübingen, Germany

High-Sensitivity And Reliable Gas Sensor By Hybridizing Laser-Induced Graphene And Molybdenum Trioxide With Metal-Organic Decomposition

Akihiro Katsura, Otoyoka Okanishi, Yukiko Hirose, Yuma Miura, Wenliang Zhu, Tohru Sugahara

Kyoto Institute of Technology, Matsugasaki, Sakyo-ku, Kyoto, 606-8585, Japan

Corporation Effect Of CuO And Fe₂O₃ Composites In VOC Sensing

Changlin Xiao, Harindrasingh Jabal, Udo Weimar, Nicolae Barsan

Institute of Physical and Theoretical Chemistry, University of Tübingen, 72076 Tübingen, Germany

16.30 – 18.00

Session 6.2 Biosensors

[Room: HPH G2]

Chairs: Federica Caselli & Sven Ingebrandt

Miniaturized, Flexible Electroosmotic Device Based On Laser-Patterned PEDOT:PSS Electrodes For Drug Delivery And Electrophysiological Biosensing

Massimo Mariello, Farabi Ahnaf, Christopher M Proctor

Department of Engineering Science, Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom

Bespoke Laser Fabrication Of High-Density PEDOT:PSS MEAs For Low-Impedance And High-SNR Cortical Neuronal Recordings

Enzo Rolando, David Grojo, Adrien Casanova

LP3 UMR 7341, 163 Av. de Luminy, 13009 Marseille, France

Enzyme-Free Electrochemical Sensing For Real-Time In-Process Monitoring

Aliyeh Hasanzadeh¹, Shova Neupane¹, Elaheh Kazempour¹, Nicolai Støvring², Stephan Sylvest Keller², Krist V. Gernaey¹, Pedram Ramin¹

¹ Center for Process Engineering and Technology (PROSYS), Department of Chemical and Biochemical Engineering, Technical University of Denmark

² National Centre for Nano Fabrication and Characterization Nanofabrication, Technical University of Denmark

Toward Rapid Water Quality Monitoring: QCM-Guided Biointerface Engineering Of Graphene SGFET Biosensors For Escherichia Coli Detection

Claire Beddok¹, Mohammad Danish Alhindi², Gad Fuks², Ahmed Mehdi Debela², Victor Fabre¹, Thomas Alava¹

¹ Univ. Grenoble Alpes, CEA, LETI, Grenoble 38054, France

² Univ. Perpignan Via Domitia, CRIIBE, Perpignan 66400, France

Biopimpedance Microsensor For Cell-Density Monitoring In Small-Scale Bioprocessing

Philip Patschg¹, Yves Mermaud¹, Samuel Schneider², Muriel Zumbühl², Raneem Achor¹, Regine Eibl², Samuel Huber¹

¹ Institute of Microtechnology and Photonics, OST - Eastern Switzerland University of Applied Sciences, Buchs (SG), Switzerland,

² Institute of Chemistry and Biotechnology, School of Life Sciences and Facility Management, ZHAW Zurich University of Applied Sciences, Wädenswil, Switzerland

MXene-Functionalised U-Shaped SMF-NC-SMF Optical Fibre Sensor For Label-Free Detection Of PFOA And PFOS In Water

Adeel Faruq¹, YongQing Fu¹, Zabih Ghassemloo¹, Yuliya Semenova², Qiang Wu¹

¹ School of Engineering, Physics and Mathematics, Northumbria University, Newcastle, NE1 8ST, United Kingdom

² School of Electrical and Electronic engineering, Technological University Dublin, Ireland

16.30 – 18.00

Session 6.3 Signal Analysis, Machine Learning and Artificial Intelligence for Sensing

[Room: HPH G3]

Chairs: Laura Capelli & Nik Dennler

(INVITED) Mitigation Of Chemical Sensor Drift Through Calibration Transfer In Edge AI

Jordi Fonollasa

Institut de Recerca i Innovació en Salut (IRIS), Universitat Politècnica de Catalunya, Av. Diagonal, 647, 08028 Barcelona, Spain

A Dual-Resolution Binary Neural Network Inference Engine For Fully Implantable Cochlear Implant Speech Processing

Mert Doğan¹, Hasan Uluşan^{1,2}, Haluk Külah^{1,2}

¹ Department of Electrical and Electronics Engineering, METU, Ankara, Turkey

² ODTÜ MEMS CENTER, Ankara, Turkey

Tiltmeter-Based Forecasting And Anomaly Detection For Proactive Structural Monitoring Of Railway Infrastructure

Puspita Saha¹, Francisco Hernandez-Ramirez^{1,2}, J. Daniel Prades¹

¹ Institute of Semiconductor Technology (IST) and Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, 38106 Braunschweig, Germany

² Worldsensing SL, 08014, Barcelona, Spain

Graph Deviation Networks For Schizophrenia Signatures Detection In Brain Organoids' MEA Signals

Alessia Riccardi^{1,2}, *Arianna Mencattini*^{1,2}, *Giorgia Curci*^{1,2}, *Wendiao Zhang*^{3,4}, *Qingtuan Meng*^{3,4}, *Eugenio Martinelli*^{1,2}

¹ Department of Electronic Engineering, University of Rome Tor Vergata, 00133 Rome, Italy

² Interdisciplinary Center for Advanced Studies on Lab-on-Chip and Organ on Chip Applications (ICLOC), 00133 Rome, Italy

³ The First Affiliated Hospital, Multi-Omics Research Center for Brain Disorders and Department of Neurology, Hengyang Medical School, University of South China, Hunan 421001, China

⁴ The First Affiliated Hospital, Clinical Research Center for Immune-Related Encephalopathy of Hunan Province, Hengyang Medical School, University of South China, Hunan 421001, China

Multidimensional Force Estimation In Laparoscopic Instruments With A CMOS-Based Force Sensor Chip

*Thorsten Hahn*¹, *Bernd Folkmer*¹, *Rachid Nouna*¹, *Stephan Knappmann*¹, *Wolfgang Kunert*², *Steffen Axt*², *Jens Rolinger*³, *Achim Bradbeck*³, *Oliver Amft*^{1,4}

¹ Hahn-Schickard, Wilhelm-Schickard-Strasse 10, 78052 Villingen-Schwenningen, Germany

² Universitätsklinikum Tübingen, Chirurgische Technologie & Training (CTT), Waldhornlestrasse 22, 72072 Tübingen, Germany

³ Erbe Elektromedizin GmbH, Waldhornlestrasse 17, 72072 Tübingen, Germany

⁴ Albert-Ludwigs-Universität Freiburg, Institut für Informatik, Intelligente Eingebettete Systeme (IES), Georges-Köhler-Allee 304, 79110 Freiburg, Germany

16.30 – 18.00

Industry Session 4

[Room: HPV G4]

Chairs: Felix Mayer & Markus Graf

Innovations In Coriolis Flow Meters: From Carbon Capture And The Hydrogen Economy To Single-Use Sensors In Life Sciences

Johan Pohl

Endress+Hauser Flowtec AG, Christoph Merian-Ring 4, 4153 Reinach, Switzerland

MicroGauge – A Micro Resonator Gauge (MRG) Featuring A High-Stability Zero For Vacuum Process Control

Stéphane Kühne, *Nina Wojtas*, *Samuele Demicheli*

VAT Vakuumventile AG, Rütistrasse 4, 9469 Haag, Switzerland

Evolutionary Steps In Level And Pressure Measurement At VEGA: Miniaturization And Recent Sensing Improvements

Jochen Huber

VEGA, Am Hohenstein 113, 77761 Schiltach, Germany

Taking Sensor Simulations To New Frontiers: The COMSOL Perspective

Sven Friedel

COMSOL Multiphysics GmbH, Technoparkstrasse 1, 8005 Zurich, Switzerland

19.00

Conference Dinner



Wednesday, September 9

08.30 – 09.00 **Arrival & Coffee**

[Exhibition Hall]

09.00 – 09.55 **Plenary Talk 5**

[Room: HPH G1]

Chair: Helge Raeder

Managing Health Through Remote Monitoring

Michael Snyder

Stanford University School of Medicine, 240 Pasteur Drive Palo Alto, CA 94304, USA

10.00 – 11.00 **Session 7.1 Chemical Sensors**

[Room: HPH G1]

Chairs: Christian Bur & Matteo D'Andrea

Electrochemical Approaches For Monitoring PFOA In Aqueous Environments

Alexandra Beard¹, Natasa Budimirovic¹, Tristan Kipfer¹, Sergey Piletsky, Elena Piletska², Sylvain Nicolay¹

¹ Swiss Center for Electronics and Microtechnology CSEM SA, 2002 Neuchâtel, Switzerland

² Department of Chemistry, University of Leicester, University Rd, LE1 7RH Leicester, United Kingdom

Transient Graphene-Based Aptasensor On A Cellulose Substrate For Toxin Detection

Lorenzo Travaglini¹, Yassar Abderrahim², Hafsa Karri-Youssoufi³, Danick Briand¹

¹ Ecole Polytechnique Fédérale de Lausanne (EPFL), Soft Transducers Laboratory (LMTS), Rue de la Maladière 71b, Neuchâtel, Switzerland

² Ecole Polytechnique, CNRS, IPP, LPICM, Route de Saclay, Palaiseau, France

³ Université Paris-Saclay, CNRS, Institut de Chimie Moléculaire et des Matériaux d'Orsay (ICMMO), 17 Av. des Sciences, Orsay, France

Physics-Based Dynamic Estimation Of NO₂ And H₂O Concentrations With CNT-FETs And Extended Kalman Filter

Cristina Gentili, Cosmin I. Roman, Ines Kraiem, Miroslav Haluska, Christof Hierold

Micro and Nanosystems, Department of Mechanical and Process Engineering, ETH Zürich, Zürich

Gas Sensing Applications Of CuO Doped With Metallic Catalyst Fabricated By Spark Ablation

Christian Maier¹, Larissa Egger¹, Barbara Kosednar-Legenstein¹, Nigel Rising², Leandro Sacco²

¹ Materials Center Leoben Forschung GmbH, Roseggerstrasse 12, 8700 Leoben, Austria

² VSPARTICLE B.V. Oostingel 209, 2612HL Delft, The Netherlands

10.00 – 11.00 **Session 7.2 Physical Sensors**

[Room: HPH G2]

Chairs: Paddy French & Bernhard Jakoby

A Functionalization-Free Acetone Detector Based On Low Frequency Interfacial Dielectric Relaxation

Satish K. Verma¹, Mahesh Menon¹, Aravind N. Warrior¹, Andreas Mrask³, Markus Gardill¹, Harald Schenk^{1,2}

¹ Brandenburg University of Technology Cottbus-Senftenberg, 03046 Cottbus, Germany

² Fraunhofer Institute for Photonic Microsystems, Maria-Reiche-Str. 2, 01109 Dresden, Germany

Modelling Of Moving Magnet Actuators For Haptic Sensing Applications

Sebastian Lang, Alexander O. Niedermayer, Jonas Astl, Daniel Spira, Bernhard Jakoby

Johannes Kepler University Linz, Altenbergerstrasse 69, 4040 Linz, Austria

In-Situ Spatial Mapping Of Microjet Impingement With A Piezoresistive Silicon Nanowire MEMS Sensor

Levent Demirkazik¹, Ipek Nil Samci¹, Masoud Jedari Ghourichaei¹, Onur Aydin¹, Bekir Aksoy¹, Cemal Aydoğan², Gokhan Nadar¹, Ivo W. Rangelow^{2,3}, Arda Deniz Yalcinkaya⁴, Halil Bayraktar⁵, Umut Kerimzade^{1,4}, Burhanettin Erdem Alaca^{1,6,7}

¹ Mechanical Engineering Department, Koç University, Istanbul, Türkiye

² Department of Electrical Engineering and Information Technology, Institute of Micro- and Nanoelectronics, Ilmenau University of Technology, Ilmenau, Germany

³ nano analytik GmbH, Ehrenberg Str. 3, Ilmenau, Germany

⁴ Department of Electrical and Electronics Engineering, Boğaziçi University, Istanbul, Türkiye

⁵ Department of Molecular Biology and Genetics, Istanbul Technical University, Istanbul, Türkiye

⁶ nZSTAR, Koç University, Istanbul, Türkiye

⁷ KUYTAM, Koç University, Istanbul, Türkiye

Dual-Resonance Indirect Photoacoustic Gas Sensing System For Sub-ppm Gas Detection

Ananya Srivastava¹, Achim Bittner¹, Alfons Dehé^{1,2}

¹ Hahn-Schickard, Wilhelm-Schickard-Str. 10, 78052 Villingen-Schwenningen, Germany

² Georg H. Endress Chair of Smart Systems Integration, IMTEK, Albert-Ludwigs-Universität Freiburg, Georges-Köhler-Allee 103, 79110 Freiburg, Germany

10.00 – 11.00

Session 7.3 Sensor Fundamentals & Modelling

[Room: HPH G3]

Chairs: Jean-Paul Viricelle & Adrien Baut

On The Interplay Of Viscoelasticity And Air Permeation In Modelling The Dynamics Of Embedded Tactile Sensors

Katja Meier, Florin Püntener, Christofer Hierold, Cosmin Roman

Micro and Nanosystems, Dept. of Mechanical and Process Engineering, ETH Zürich, Switzerland

Improved Angle Sensing By Shape-From-Motion Calibration Of 3D Magnetic Sensors

Bibhu Kar, Per Rutquist, Oliver Paul

Laboratory for Microsystem Materials, IMTEK, University of Freiburg, Germany

Geometrical Optimization Of Planar Hall Sensors Dominated By 1/f Noise For Maximal Signal-To-Noise Ratio

Anja Fleck¹, Laurent Osberger², Martin Cornils², Maria Cristina Vecchi², Oliver Paul¹

¹ Dept. of Microsystems Eng. (IMTEK), University of Freiburg, Freiburg, Germany

² TDK-Micronas GmbH, Freiburg, Germany

Study Of Width-Over-Length Aspect Ratio On Mode Ordering For 2D Nanomechanical Resonant Sensors

Weixin Zhou, Cosmin Ioan Roman, Christofer Hierold and Pengcheng Zhang

Micro and Nanosystems, Department of Mechanical and Process Engineering, ETH Zürich, 8092 Zürich, Switzerland

10.00 – 11.00

Special 1.1 Continuous Health Monitoring in Medicine

[Room: HPV G4]

Chairs: Walter Karlen & Luis Fernandez-Luque

Cortisol And Luteinizing Hormone. A Tale Of Two Aptamers

S. Ben-Aissa, Anthony Cass

Imperial College London, White City Campus, London, United Kingdom

A System For All Day Biosampling: Microdialysis And Wearables Collide

Thomas Upton¹, Eder Zavala², Paal Methlie³, Martijn van Faassen⁴, Eystein Husebye³, Stafford Lightman¹ and the ULTRADIAN consortium

¹ University of Bristol, Bristol, United Kingdom,

² University of Manchester, Manchester, United Kingdom

³ University of Bergen, Bergen, Norway

⁴ University Medical Center Groningen, Groningen, Netherlands

Tissue Corticosteroid Rhythms Are Dysregulated Mainly During Sleep In Primary Aldosteronism

Marianne A. Grytaas^{1,†}, *Thomas Upton*^{2,†}, *Isabella Marinelli*^{3,†}, *Paal Methlie*^{1,4,†}, *Marianne Øksnes*^{1,4,†}, *Dimitra A. Vassiliadi*⁵, *Sophie Bensing*^{6,7}, *Georgina Russell*², *Kristian Lavås*¹, *Dimitris Margaritopoulos*⁵, *Ileana R. Botusan*^{6,7}, *Katerina Simunkova*⁴, *Maria Balomenaki*⁵, *Katarina Berinder*^{6,7}, *Belinda Lombard*⁸, *Theo Sjögren*¹, *Ida Lavik*⁹, *Bergithe E. Øftedal*^{1,4}, *Anette Heie*¹⁰, *Grethe Å. Ueland*¹, *Olle Kämpe*^{6,7}, *Stylianos Tzagarakis*⁵, *Stafford L. Lightman*², *Eder Zavala*^{8,11}, *Eystein S. Husebye*^{1,4}

¹ Department of Medicine, Haukeland University Hospital; 5021 Bergen, Norway

² Henry Wellcome Laboratories for Integrative Neuroscience and Endocrinology, Translational Health Sciences, Faculty of Health Sciences; University of Bristol; BS1 3NY Bristol, United Kingdom

³ Department of Mathematics and Statistics, University of Exeter, EX4 4QF, Exeter, United Kingdom

⁴ Department of Clinical Science, University of Bergen, 5021 Bergen, Norway

⁵ Department of Endocrinology and Metabolism, Diabetes Centre, Evangelismos General Hospital, European Reference Network on Rare Endocrine Conditions (Endo-ERN), 106 76 Athens, Greece

⁶ Department of Endocrinology, Karolinska University Hospital; 171 76 Stockholm, Sweden

⁷ Department of Medicine Solna, Karolinska Institutet; 171 77 Stockholm, Sweden

⁸ School of Mathematics, University of Birmingham, B15 2TT, Birmingham, United Kingdom

⁹ Department of Pathology, Haukeland University Hospital, 5021 Bergen, Norway

¹⁰ Department of Surgery, Haukeland University Hospital, 5021 Bergen, Norway

¹¹ Centre for Biological Timing; Division of Diabetes, Endocrinology & Gastroenterology; Faculty of Biology, Medicine and Health; University of Manchester; M13 9PT, Manchester, United Kingdom

Shared first author †; Shared second author ‡

Ultradian Monitoring In Adrenal Insufficiency

*Botusan Ileana*¹, *Zavala E*², *Upton T*³, *Berinder K*¹, *Methlie P*⁴, *Simunkova K*⁴, *Vassiliadi D*⁵, *Grytaas M*⁴, *Russell G*³, *Tzagarakis S*⁵, *Lightman S*³, *Husebye E*⁴, *Kämpe O*¹, *Øksnes M*⁴, *Bensing S*¹

¹ Karolinska Institutet, Karolinska University Hospital, Dept of Medicine, Stockholm, Sweden

² Centre for Biological Timing, University of Manchester, Manchester, United Kingdom

³ University of Bristol, Bristol, United Kingdom

⁴ University of Bergen, Haukeland University Hospital, Medicine, Bergen, Norway

⁵ Evangelismos Hospital, Athens, Greece

10.00 – 11.00

Special 1.2 Antimicrobial Resistance Diagnostics

[Room: HPV 65]

Chairs: Emma Slack & Thomas Kessler

(INVITED) Machine Learning For Longitudinal Data Analysis In Gas Sensors: A Case Study In Early Subclinical Ketosis In Dairy Cows

Albert Belenguer-Llorens^{1,2}, *Jonas Hendricks*³, *Jaehyun Ko*⁴, *Anna-Maria Reiche*³, *Frigga Dohme Meier*³, *Andreas T. Güntner*⁴, *Catherine R. Jutzeler*^{1,2}

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⁴ Human-centered Sensing Laboratory, Department of Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland

Metabolomics As A Tool For Rapid Urinary Tract Infection Diagnosis

*Glenda Vasku*¹, *Anne Vescovi*¹, *Emma Wetter Slack*^{1,2}

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² Botnar Research Institute for Child Health, Basel, Switzerland

Volatilomics For Medical Microbiology Diagnostics Using Standard Bacterial Headspace Sampling

*Mehmet Berk Bilgin*¹, *Norma Toccolino*¹, *Emma Slack*^{2,3,4}, *Adrian Egli*⁵, *Andreas Güntner*¹

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³ Botnar Institute of Immune Engineering, Basel, Switzerland

⁴ Sir William Dunn School of Pathology, University of Oxford, Oxford, United Kingdom

⁵ Institute of Medical Microbiology, University of Zurich, Zurich, Switzerland

11.00 – 11.30

Coffee Break

[Exhibition Hall]

11.30 – 13.00

Session 8.1 Chemical Sensors

[Room: HPH G1]

Chairs: Robin Gremaud & Ines Kraiem**Charge And Capacitance Sensitive Field Effect Device For Room-Temperature Hydrogen Sensing**Lamila Boudaden¹, Nnaemeka Michael Mbachu¹, Karl Neumeier¹, Ignaz Eisele^{1,2}¹ Fraunhofer Institute for Electronic Microsystems and Solid State Technologies EMFT, Germany² Center Integrated Sensor Systems (SENS), Universität der Bundeswehr München, Germany**Triphenylene And Triptycene-Based MOFs As Chemiresistive Platforms For CO₂ And CH₄ Detection**Yuzelfy Mendoza-Gamero^{1,2,3}, Sergi Gonzalez-Martinez^{1,2,3}, Albert Romano-Rodriguez^{1,2}, Daniel Sainz-Garcia^{2,3}¹ Electronic and Biomedical Engineering Department, Universitat de Barcelona, Barcelona, Spain² Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Barcelona, Spain³ Inorganic and Organic Chemistry Department, Universitat de Barcelona, Barcelona, Spain**Ultra-Low Crosstalk Thermally-Compensated Monolithic AlGaIn/GaN MISHEMT Sensor Array For Robust Gas Detection**Karim Bouzid, Sri Saran Venkatachalam, Tarik Moudakir, Abhishek Juyal, Safa Othmani, Mickaël Petit, Simon Gautier

Institut Lafayette, 2 rue Marconi, 57070 Metz, France

Pd Decorated MoS₂ Nanosheet Deposited On Yolk-Shell (SiO₂-TiO₂) Nanosphere For Hydrogen Gas SensingDulani N. Liyanage¹, Hamidah Allahaybi², Thilini Thathsara¹, Christopher J. Harrison^{1,2}, Peter King shott¹, Ylias Sabri², Mahnaz Shafiei¹¹ Swinburne University of Technology, Hawthorn, VIC, 3122, Australia² Royal Melbourne Institute of Technology, Melbourne, VIC, 3001, Australia**Development And Validation Of A Portable GC-MOS System For High-Sensitivity And Selective Analysis Of VOC**Oliver Brieger¹, Tilman Sauerwald², Gina Zeh², Andreas Schütze¹, Christian Bur¹¹ Saarland University, Lab for Measurement Technology, Saarbrücken, Germany² Fraunhofer IVV, Department of Sensory Analytics and Technologies, Freising, Germany**Unveiling Humidity-Enhanced Performance In Chemoresistive CoCu₃O₃ VOCs Sensors**Matteo D'Andrea¹, Hamin Shin¹, Yi-Hsuan Wu², Xiangchao Meng³, Patrick Zeller^{4,5}, Feng Ryan Wang³, Andreas T. Güntner¹¹ Department of Mechanical and Process Engineering, ETH Zurich, CH-8092 Zurich, Switzerland² Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy (IET-2), Forschungszentrum Jülich GmbH, 91058 Erlangen, Germany³ Department of Chemical Engineering, University College London (UCL), London WC1E 7JE, United Kingdom⁴ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Department of Inorganic Chemistry, Berlin, Germany⁵ Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Chemical Energy Division, Berlin, Germany

11.30 – 13.00

Session 8.2 Physical Sensors

[Room: HPH G2]

Chairs: Christoph Hepp & Pavel Ripka**On-Chip Label-Free Holographic NTA For Biophysical Characterization Of Single Particles**Chiara Lombardo, Benoit Vignon, Jaime Ortega Arroyo, Romain Quidant

Department of Mechanical and Process Engineering (D-MAVT), ETH Zurich, Zurich, Switzerland

Systematic Method Of Measuring And Evaluating Sensitivity And Linearity Of A Micro-Fluxgate SensorJiri Maier¹, Pavel Ripka¹, Poki Chen²¹ Czech Technical University in Prague, Technicka 2, 160 00 Prague, Czech Republic² National Taiwan University of Science and Technology, Taipei City 106335, Taiwan**A Next Generation HVM Process Platform For High Performance IMU Devices**Tobias Macha, Arezo Behroudi, Daniel Richter, Christof Schwenk, Heiko Stahl, Axel Grosse

Robert Bosch GmbH, Reutlingen, Germany

Chip-Scale Electrochemical Angular Accelerometer Based On SOI Substrate

Maogi Zhu^{1,2}, *Yulan Lu*¹, *Bowen Liu*³, *Deyong Chen*^{1,2}, *Junbo Wang*^{1,2}

¹ Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing 100190, China

² University of Chinese Academy of Sciences, Beijing 100049, CHINA 3Minzu University of China, Beijing 100081, China

Particle-Based Sensor Materials Enable Plant-Inspired Upconverting I-Seeds As Flying Environmental Sensors

*Albenc Nexha*¹, *Kliton Cikalleshi*², *Thomas Kister*¹, *Stefano Mariani*², *Barbara Mazzolai*², *Tobias Kraus*^{1,3}

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³ Saarland University, Colloid and Interface Chemistry, 66123, Saarbrücken, Germany

ZnO@ZIF-8 Doubly Clamped Microbeam Resonator For Detection Of VOCs

*Divya Rajagopal*¹, *Chen Wang*¹, *Barnika Chakraborty*², *Ajay Padunnappattu*³, *Bernardo Pereira Madeira*¹, *Norbert Stock*³,

*Rainer Adelung*², *Michael Kraft*¹

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³ Institute of Inorganic Chemistry, Kiel University, Max-Eyth-Str. 2, 24118 Kiel, Germany

11.30 – 13.00

Session 8.3 Flexible, Stretchable and Wearable Sensors

[Room: HPH G3]

Chairs: Donatella Puglisi & Hasan Ullusan

(INVITED) Biodegradable Technologies For Medical And Environmental Applications

Clementine M. Boutry

TU Delft, Mekelweg 4, 2628 CD Delft, The Netherlands

Smartphone-Enabled Thin-Film Epidermal Electronic Systems For Cardiac Health Monitoring

*Sven Ingebrandt*¹, *Dongli Zhang*¹, *Milad Eyvazi Hesar*¹, *Henning Gall*², *Ralf Schemmuly*², *Hossein Ardeschir Ghofrani*², *Ziyu Gao*¹

¹ RWTH Aachen University, Institute of Materials in Electrical Engineering 1, Aachen, Germany

² Justus-Liebig-University Giessen, Department of Internal Medicine, Giessen, Germany

Transient Battery-Free Microphone-Integrated Face Mask

*Mohammad Javad Bathaei*¹, *Ata Golparvar*¹, *Sina Hashemizadeh*², *Denys Nikolayev*³, *Filipe Arroyo Cardoso*¹,

*Clementine M. Boutry*¹

¹ Department of Microelectronics, Delft University of Technology, Delft, 2628 CD, The Netherlands

² Foundation for Research on Information Technologies in Society (IT²S), Zurich, 8004, Switzerland

³ Institut d'électronique et des technologies du numérique (IETR UMR 6164), French National Center for Scientific Research (CNRS) / University of Rennes, Rennes, 35042, France

Ultrathin Wearable Thermochromic Tattoo-Based Skin Sensor

Katrin Unger, *Rudolf Heer*, *Paulina Piller*

Silicon Austria Labs GmbH, 8010 Graz, Austria

Reduced Recovery Time After Free Flap Surgery By Means Of Textile Sensor Systems

*Ekaterina Maevskaia*¹, *Luisa Lotter*², *Jonas Gartmann*³, *André Kupferschmid*³, *Martin Camenzind*¹, *Alexander Haag*⁴,

Charlotte Lemièrre-Franzetti^{1,5}, *Tessa Eugster*², *René M. Rossi*¹, *Volker J. Schmidt*², *Simon Annaheim*¹

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² HOCH, Health Ostschweiz, Department of Plastic Surgery and Handsurgery, Rorschacher Strasse 95, 9007 St. Gallen, Switzerland

³ Empa, Transport at Nanoscale Interfaces Laboratory, Überlandstrasse 129, 8600 Dübendorf, Switzerland

⁴ FRTI Inter Spitzen AG, Flurhofstrasse 150, 9000 St. Gallen, Switzerland

⁵ ENSISA, 12 Rue des Frères Lumière, 68093 Mulhouse, France

11.30 – 13.00

Special 2.1 Continuous Health Monitoring in Medicine

[Room: HPV G4]

Chairs: Felix Beuschlein & Anthony Cass

Electrochemical Sensors And Biosensors For Biomedical And Clinical Applications

*Danny O'Hare*¹, *A Cass*², *E. Stadler*³, *W de Boer*^{1,3}

¹ Department of Bioengineering, Imperial College, London SW7 2BP, United Kingdom

² Department of Chemistry, Imperial College London W12 0BZ, United Kingdom

³ Department of infectious Diseases, Imperial College London SW7 2AZ, United Kingdom

From Rigid To Flexible And Stretchable Hollow Microneedle Patches: Integrated Microfluidic Platforms For Dermal Interstitial Fluid Extraction And Intradermal Therapeutic Delivery

*Wenting Shu*¹, *Teodora Raicevic*¹, *Felix Beuschlein*², *Andreas T. Güntner*^{1,2}

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² Department of Endocrinology, Diabetology, and Clinical Nutrition, University Hospital Zurich (USZ) and University of Zurich (UZH), 8091 Zurich, Switzerland

Managing Data Integrity In Medical Wearables

Walter Karlen

Universität Ulm, Albert-Einstein-Allee 45, 89081 Ulm, Germany

Mathematical Modelling At The Interface Of Digital Endocrinology And Wearable Sensing Technologies

*Belinda Lombard*¹, *Thomas Upton*², *Stafford L. Lightman*², *Eder Zavala*^{1,3}

¹ School of Mathematics, University of Birmingham, Birmingham, United Kingdom

² Laboratories for Integrative Neuroscience and Endocrinology, University of Bristol, Bristol, United Kingdom

³ Centre for Biological Timing, University of Manchester, Manchester, United Kingdom

«How Are You Today?» Harnessing Speech As A Window Into Life With A Chronic Disease

Viktor von Wyl

Digital & Mobile Health Group; Epidemiology, Biostatistics & Prevention Institute (EBPI); University of Zurich, Zurich, Switzerland

Participatory AI In Endocrinology: Supporting Shared Decision-Making Through Multimodal Sensing

Luis Fernandez-Luque

Adhera Health SL, Sevilla, Spain

11.30 – 13.00

Special 2.2 Antimicrobial Resistance Diagnostics

[Room: HPV G5]

Chairs: Adrian Egli & Catherine Jutzeler

(INVITED) The Cancer Microbiome Produces Distinct Volatile Organic Compounds

*Bhramini Vadhwana*¹, *Pallavi Arya*¹, *Piers Boshier*¹, *Sara Jamel*¹, *Ilaria Belluomo*¹, *Philip Leung*¹, *Patrik Španěl*², *Lesley Hoyles*³, *George B Hanna*¹

¹ Department of Surgery and Cancer, Imperial College London, Du Cane Road, London, United Kingdom

² Department of Chemistry of Ions in Gaseous Phase, J. Heyrovský Institute of Physical Chemistry, Prague, Czech Republic

³ School of Science and Technology, Nottingham Trent University, Nottingham, United Kingdom

Base Gap Switches: Exploiting The Central Dogma Of Molecular Biology To Detect Disease

*Yukina Partington*¹, *Beatrice Dalla Via*¹, *Fabrice Abgottspon*¹, *Isaure de Geyer*¹, *Piet Cools*², *Andrew J. deMello*¹, *Daniel A. Richards*¹

¹ ETH Zurich, Department of Chemistry and Applied Biosciences (D-CHAB), Vladimir-Prelog-Weg 1, 8093, Zürich, Switzerland

² Ghent University, Faculty of Medicine, Corneel Heymanslaan10, 9000, Ghent, Belgium

Isolation And Culturing Of Urinary Bacteria For VOC-Based Rapid Diagnostics

Anne Vescovi¹, Glenda Vasku¹, Emma Wetter Slack^{1,2}

¹ Laboratory for Mucosal Immunology, Institute for Food, Nutrition and Health, D-HEST, ETH Zürich, Zürich, Switzerland

² Botnar Research Institute for Child Health, Basel, Switzerland

Machine Learning And Gas Sensors For Antimicrobial Resistance Identification

Albert Belenguier-Llorens^{1,2}, Emma Slack^{3,4,5}, Adrian Egli^{6,7}, Thomas M. Kessler⁸, Andreas T. Güntner⁹, Catherine R. Jutzeler^{1,2}

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⁴ Basel Institute for Child Health, Basel, Switzerland

⁵ Sir William Dunn School of Pathology, University of Oxford, Oxford, United Kingdom

⁶ Institute of Medical Microbiology, University of Zurich, Zurich, Switzerland

⁷ Swiss National Reference Center for Emerging Antibiotic Resistance (NARA) Network, University of Fribourg, Fribourg, Switzerland

⁸ Department of Neuro-Urology, Balgrist University Hospital, University of Zurich, Zurich, Switzerland

⁹ Department of Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland

Diagnostics Needs For Urinary Tract Infections In The Era Of Antimicrobial Resistance

Lorenz Leitner^{1,2}, Shawna McCallin^{1,2}, Thomas M. Kessler^{1,2}

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² Spinal Cord Injury Center, Balgrist University Hospital, University of Zürich, Zürich, Switzerland

13.00 – 14.00 **Lunch**

14.00 – 14.55 **Plenary Talk 6**

[Room: HPH G1]

Chair: Markus Graf

High-Throughput Optical Biosensing With Localized Surface Plasmon Resonance Imaging (LSPRI)

Attila Bonyár

Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Eötvös József Street 18., H1111, Budapest, Hungary

15.00 – 16.00 **Poster Awards and Closing Ceremony**

[Room: HPH G1]