



Euroensors

Zurich | Switzerland | 2026

September 6 – 9, 2026

PROGRAM

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Dear Colleagues and Friends

On behalf of the Organizing Committee, it is my great pleasure to welcome you to EUROSENSORS 2026 in Zurich, Switzerland.

For nearly four decades, EUROSENSORS has brought together the global sensor community annually to exchange ideas, present scientific breakthroughs, foster interdisciplinary collaborations, and accelerate the translation of research into technologies that benefit society. This year's 38th edition of the conference has attracted participants from 40 countries across five continents, reflecting the truly international nature of our community. We are delighted to present an outstanding scientific program featuring six plenary lectures, delivered by internationally renowned leaders, 13 invited talks, 112 contributed oral presentations, and 16 industry presentations showcasing the latest scientific breakthroughs, technological developments and industrial innovations. We are particularly excited to feature two Special Sessions on Wednesday morning that highlight the growing impact of sensor technologies in healthcare. In addition, around 200 poster presentations will

provide excellent opportunities for in-depth scientific discussions, networking, and the exchange of new ideas. Outstanding poster contributions will be recognized through our Poster Awards, celebrating exceptional work by early-career researchers.

This year also marks the inauguration of the EUROSENSORS Hackathon, a new initiative that complements the scientific conference by translating cutting-edge sensor research into real-world innovation. Over the weekend preceding the conference, multidisciplinary teams will tackle the challenge of developing "The Unhackable Scooter Immobilizer", an intelligent system combining gas sensing, biometrics, artificial intelligence, and cybersecurity to prevent unsafe e-scooter operation by detecting alcohol intoxication, helmet use, and multiple passengers. During the conference, participating teams will present their solutions, demonstrating

how advances in sensing technologies can address pressing societal challenges. We hope this inaugural hackathon will become a lasting tradition of EUROSENSORS, inspiring the next generation of sensor innovators and strengthening the connections between scientific discovery, engineering, and entrepreneurship.

This conference would not be possible without the generous support of our sponsors and partners. We would like to express our sincere gratitude to all of them for their commitment to the sensor community, and we are especially grateful to our Platinum Sponsors Sensirion, Innovative Sensor Technology (IST), and Endress+Hauser.

Beyond the scientific program, we hope you will enjoy the many opportunities to

connect with colleagues in a relaxed atmosphere. We warmly invite you to our Welcome Reception on Sunday evening in the historic Main Building of ETH Zurich, offering a unique setting overlooking the city. On Monday evening, join us for our social event at the conference venue featuring live music by the Polyband. Finally, we look forward to celebrating together at the Conference Dinner on Tuesday evening at the beautiful Lake Side venue on the shores of Lake Zurich, hopefully with a spectacular view of the Alps.

We wish you an inspiring conference filled with stimulating discussions, new collaborations, exciting discoveries, and memorable moments in Zurich.

Andreas Güntner
General Chair



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Eurosensors Hackathon



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Staub-Hugentobler**

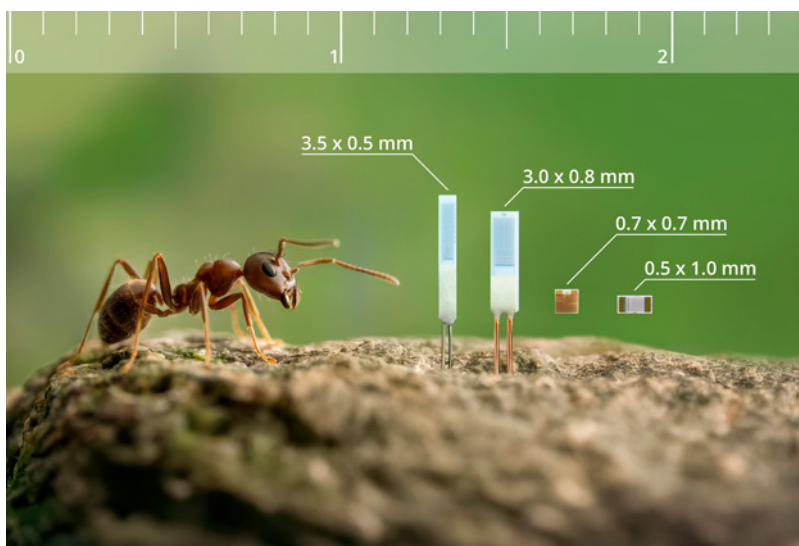
ETH Zürich, CH

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Jean-Philippe Polizzi CEA-LETI/MINATEC, FR	

Plenary Speakers



Hatice Altug

Bionanophotonic Systems Laboratory, Ecole Polytechnique Federale de Lausanne (EPFL)

Integrated Nanophotonics:

Enabling Next-Gen Biosensing, Spectroscopy and Imaging Systems

Hatice Altug is full professor at Ecole Polytechnique Federal de Lausanne since 2013 and the head of BioNanoPhotonic Systems Laboratory in School of Engineering. Prior, she was professor at Boston University, Electrical and Computer Engineering Department. She received her Ph.D. in Applied Physics from Stanford University in 2007 and her B.S. in Physics from Bilkent University (Turkey). Her research is focused in the application of nanophotonics for life sciences and biomedical fields with the development of next-generation biosensing, spectroscopy and bioimaging systems. Her lab has pioneering expertise to leverage optical lab-on-chips, digital biosensing and surface enhanced vibrational spectroscopy (infrared, Raman, Circular Dichroism) techniques with operations from visible to mid-Infrared spectrum. Prof. Altug received numerous awards including European Physical Society Emmy Noether Distinction, Optica (formerly OSA) Adolph Lomb Medal, U.S. Presidential Early Career Award for Scientists and Engineers, IEEE Photonics Society Young Investigator Award and Koc University Science Medal. In 2011, she has been named to Popular Science Magazine's «Brilliant 10» list. She is a fellow of Optica and senior member of SPIE. In 2023, she has been among highly cited researchers list provided by Clarivate.



Mark Allen

Alfred Fittler Moore Professor, University of Pennsylvania

MEMS Sensors for the Body:

From Wireless Implants to Transdermal Diagnostics

Mark G. Allen joined the faculty of the School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, in 1989, ultimately holding the rank of Regents' Professor and the J.M. Pettit Professorship in Microelectronics, as well as serving as Senior Vice Provost for Research and Innovation and Director of the Institute for Electronics and Nanotechnology. In 2013 he moved to the University of Pennsylvania (Penn), becoming the Alfred Fittler Moore Professor of Electrical and Systems Engineering (ESE) and Inaugural Scientific Director of the Singh Center for Nanotechnology. He held this post until 2024, when he became Chair of Penn's ESE department. He has co-founded multiple MEMS companies, including Cardiomechs, Axion Biosystems, and Enachip. He is a Fellow of the IEEE, a member of the National Academy of Inventors, and a member of the National Academy of Engineering.



Achim J. Lilienthal

Perception for Intelligent Systems, Technische Universität München (TUM)

Intelligent Robots with a Sense of Smell – Current State and Persisting Challenges

Prof. Dr. Achim J. Lilienthal is a full professor at TU Munich, head of the chair “Perception for Intelligent Systems”, deputy director of the Munich Institute of Robotics and Machine Intelligence (MIRMI), and manager of the “KI.Fabrik” at the German Museum in Munich. His research fundamentally targets perception systems in unconstrained, dynamic environments, typically leveraging domain knowledge and AI. Particularly, perception for Intelligent mobile robots, intelligent robot olfaction, spatial human-robot interaction, as well as Eye-tracking and AI support systems. Prof. Dr. Achim J. Lilienthal obtained his Ph.D. with a thesis about mobile robot olfaction at Tübingen University. He has been the coordinator of three EU projects and PI in six EU projects, established two spinoff companies in Sweden (Retenua and QTPIE), has published more than 300 refereed conference papers and journal articles, is senior member of IEEE, and evaluator for several national funding agencies and the EU.



John A. Rogers

Querrey Simpson Institute for Bioelectronics, Northwestern University

Bioresorbable Electronics as Therapeutic Temporary Implants

Professor John A. Rogers began his independent career at Bell Laboratories as a Member of Technical Staff in 1997 and served as Director of the Condensed Matter Physics Research Department from 2000 to 2002. He then spent thirteen years on the faculty at the University of Illinois at Urbana/Champaign, finally as the Swanlund Chair Professor and Director of the Seitz Materials Research Laboratory. In the Fall of 2016, he joined the faculty at Northwestern University where he is Director of the Querrey-Simpson Institute for Bioelectronics. His research has been recognized by many awards, including a MacArthur Fellowship (2009), the Lemelson-MIT Prize (2011), the Smithsonian Award (2013), the Benjamin Franklin Medal (2019), a Guggenheim Fellowship (2021) and the IEEE Biomedical Engineering Award (2024). He is a member of the US National Academy of Engineering, Sciences, Medicine and Inventors, the American Academy of Arts and Sciences and the Royal Society.



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Michael Snyder

Stanford W. Ascherman Professor of Genetics, Stanford University

Managing Health through Remote Monitoring

Michael Snyder is the Stanford W. Ascherman Professor and Director of the Center for Genomics and Personalized Medicine. Dr. Snyder received his Ph.D. training at Caltech and carried out postdoctoral training at Stanford. Dr. Snyder has led groundbreaking research in genomics, biotechnology, and personalized health. His extensive research focuses on how genetic variation affects individual health and disease, heralding a new and more effective approach to healthcare. Dr. Snyder's innovative work utilizes big data generated through high-throughput technologies, including genomics, proteomics, and wearable devices, to monitor disease onset and progression in real time. He is known for his pioneering study where he was both a subject and researcher, which opened new pathways in the understanding of personalized medicine and laid the groundwork for precision health. He has co-founded 17 biotechnology companies and serves on the board of numerous organizations that aim to revolutionize healthcare through genomics and personalized health strategies.



Attila Bonyár

Budapest University of Technology and Economics

High-throughput Optical Biosensing with Localized Surface Plasmon Resonance Imaging (LSPRI)

Attila Bonyár is a full professor and head of the Nanotechnology and Sensorics Research Group at the Department of Electronics Technology, Faculty of Electronics Engineering and Informatics, Budapest University of Technology and Economics. He was elected to serve in the Hungarian Academy of Sciences (HAS) Electron Devices and Electronics Technology Scientific Committee for three terms (in 2017, 2021 and 2023) and is currently an elected member of the HAS General Assembly. He is a senior IEEE member since 2021 and actively serves in many international committees, including technical committees of major IEEE conferences (NANO, NMDC, ESTC, ISSE). In 2025 he received the EUROSensors Fellow award and was selected as ambassador for the conference series. He co-authored more than 200 publications, including 85 journal papers. His H-index is 24, with more than 2300 independent citations. His current research activities are focused on the development of optical biosensor technologies utilizing plasmonics, low-dimensional nanomaterials, nanocomposites, and nanometrology.

Invited Speakers



Chris Blackman
University College London, GB



Clémentine Boutry
TU Delft, NL



Laura Capelli
Politecnico di Milano, IT



Federica Caselli
University of Rome
Tor Vergata, IT



Tobias Cramer
University of Bologna, IT



Petra Dittrich
Eidgenössische Technische
Hochschule Zürich, CH

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Gas - MTCS 2300

Thermal Conductivity Sensor for Pirani gauge

Gas & Pressure - MTCS 2601

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Jordi Fonollosa

Universitat Politècnica
de Catalunya, ES



David Juncker

McGill University, CA



Irene Taurino

KU Leuven, BE



Romain Quidant

Eidgenössische Technische
Hochschule Zürich, CH



Eleni Stavrinidou

Linköping University, SE



Bhamini Vadhwana

Imperial College London, UK

(Special Session)



Catherine Jutzeler

Eidgenössische Technische
Hochschule Zürich, CH

(Special Session)

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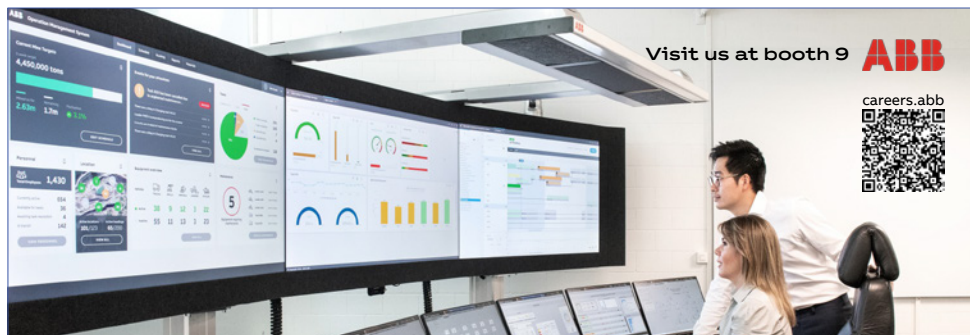
Industrial



Indoor Air
Quality (IAQ)



Outdoor Air
Quality (OAQ)

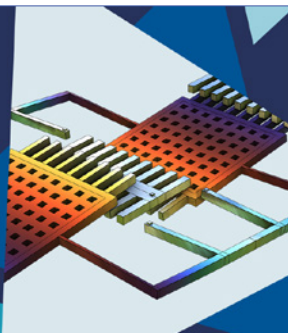


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Social Events



Registration followed by Welcome Reception

Sunday, 06.09.2026

Starting: 18.30

As the sun sets, we're delighted to share this beautiful evening with you, offering refreshing drinks and light bites to enjoy. Relax, mingle, and enjoy the stunning view, as we kick off what promises to be a memorable time at Eurosensors together.

ETH Zürich, Main Building
Rämistrasse 101, 8092 Zürich



Social Event

Monday, 07.09.2026

Starting: 19.00

Join us after the conference for a special music performance by the ETH Big Band at Hönggerberg. The band will bring the conference atmosphere to a close with approximately one hour of live music.

ETH Zürich, Hönggerberg (Room HPH G)
Deschwanden-Platz 1, 8093 Zürich



Conference Dinner

Tuesday, 08.09.2026

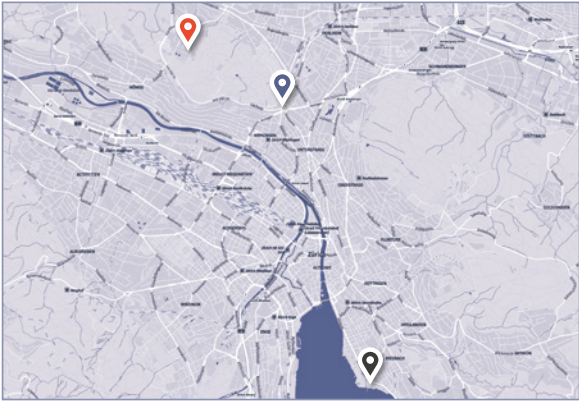
Starting: 19.00

Lake Side is located directly at Zürichhorn in Zürich-Seefeld, offering a wonderful view of Lake Zurich and the Alps, with a spacious terrace and a stylish summer lounge on the upper floor.

Lake Side Zürich
Bellerivestrasse 170, 8008 Zürich



Map of Events





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We are proud to announce that we will be publishing a Special Issue on EUROSENSORS 2026 and cordially invite all contributors to publish a full paper of their EUROSENSORS 2026 contribution in this Special Issue of the journal *Sensors* (ISSN 1424-8220) published online by MDPI, Switzerland. For more details and submissions, please visit the following link:
https://www.mdpi.com/journal/sensors/special_issues/U7695HC1XX

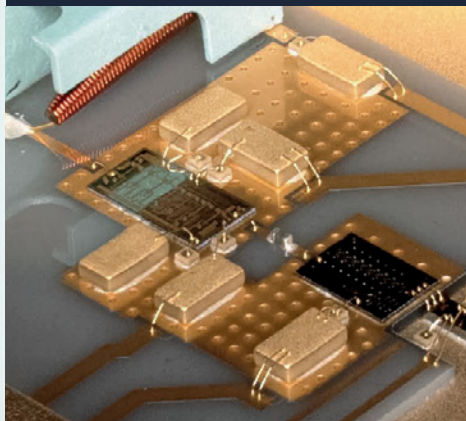


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Program 2026

Sunday, September 6

Starting: 18.30

Registration followed by Welcome Reception

[Location: ETH Zürich, Main Building]

More Information on Page 17

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 Federale 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,§}, Chunyu Huang³, Jelco Albertsma³, Tao Shen⁴, Yihan Ouyang⁴, Monique van der Veen³,

Frans Widdershoven^{4,5}, Peter G. Steenekken¹, Jasmin Aghassi-Hagmann², Murali K Ghatkesar¹, Murat Kabatas^{1,2,§}

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-Altamirano², Yansheng Chen¹, Maria Gonzalez-Gomez³, Olga Casals¹, J. Daniel Prades³, Cristian Fabrega¹

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 NO_x 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 Flodgren³, Abhijit Das³, Thomas Kjellberg Jensen³, Joachim E. Sestoft⁴,

Jesper Nygård⁴, Anders Mikkelsen³, Irene Fernandez-Cuesta¹

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 Steffensen¹, Vegar Stubberud¹, Eryk Winogrocki¹, Emilie Hennissen¹, Nils Kristian Skjærvold^{1,2}, Martin Steinert¹,

Angelos Xomalis¹

¹ Norwegian University of Science and Technology, Høgskoleringen 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-Pascual¹, David Manzón-Hernández¹, Monserrat Alonso-Murias¹, Erika Rodríguez Sevilla¹,

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 Eberhardt¹, Mike Benkendorf¹, Katrin Schmitt^{1,2}, Jürgen Wollenstein^{1,2}

¹ Fraunhofer Institute for Physical Measurement Techniques IPM, 79110 Freiburg, Germany

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 Zek

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

Maria M. Marim¹, Patrick Rupper², Stefanie Altenried³, Adrian Meier¹, René M. Rossi¹, Qun Ren³, Luciano F. Boesel¹,

Giorgia Giovannini¹

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

² Swiss Federal Laboratories for Materials Science and Technology (Empa), Laboratory for Advanced Fibers, Lerchenfeldstrasse 5, CH-9014 St. Gallen, Switzerland

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 Zafeirelis, Harry Akerman, Ioannis Zeimpekis, 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. Alglave¹, G. Jodin¹, A. Laarabi², J. Schach¹, C. Depontailier¹, A. Marin³, J. Prioux⁴, F. Razan¹

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

² SIL 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 Schäuble¹, Jennifer Jacob¹, Christian Karnutsch¹, Jan Hoinakis¹, 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

11.30 – 13.00

Session 2.1 Microfluidic Devices, Lab on a Chip, μ TAS, Organ on Chip Systems

[Room: HPH G1]

Chairs: Peter Fürjes & Zhen Zhu

Bimodal MEMS Sensor Cartridge For Prediagnostic Screening Of Pleural Effusion

Mehmet Oğulcan Güngör^{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. Raffeiner¹, 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, Istanbul, Turkey

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

Raphael Dezauzier, Maximilian Breitfeld, 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

Chairs: Niels Quack & Hatice Altug

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

Federica Rigoni, Massimo Ponzone, 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 Yan*³, *Agus Dharmawan*³, *J. Daniel Prades*³, *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'Orazio*¹, *A. Mencattini*¹, *L. Iafrate*², *V. de Turris*³, *A. Agresti*¹, *S. Pescetelli*¹, *G. Ruocco*³, *G. Cidonio*^{2,3}, *E. Martinelli*¹

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 Posniecek*, *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 Mallorquí*¹, *Maria González-Gómez*^{1,2}, *Jana Hartmann*², *Cristian Fàbrega*¹, *Andreas Waag*²,

*Joan Daniel Prades*², *Olga Casals Guillén*¹

¹ MIND/IN2UB, Dept. of Electronics and Biomedical Engineering, University of Barcelona, Martí i Franquès 1, Barcelona E508028, Spain

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

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

*Senay Ulgaz*¹, *Ömer Gökulp Akcan*^{1,3}, *Berkay Yılmaz*¹, *Onur Ferhanoglu*¹, *Yiğit Dağhan Gökdel*²

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.

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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 Mascia¹, Jarred Fastier-Wooller, Shun Muramatsu, Michitaka Yamamoto, Toshihiro Itah

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 Tischer¹, Emanuele Zanni², Felix Schmidt³, Carmen Bax¹, Luca Novelli⁴, Udo Weimar⁵, Nicolae Barsan³, Raffaele Dellaçà², Fabiano Di Marco^{4,5}, Laura Capelli¹

¹ Department of Chemistry, Materials and Chemical Engineering Giulio Natta, Politecnico di Milano, Milan, Italy

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 Hersberger¹, Jan Van Den Broek², Lara Schmid¹, Fabienne Kappeler¹, Philipp A. Gerber³, Andreas T. Güntner¹

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 Maret¹, Antoine Riaud², Brian Smith³, Jens Schalkowski⁴

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 Chaabon, 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 Break**

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**

[HPH Floor D]

More Information on Page 43 – 52

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 Fabrega¹, Joan Daniel Prades², Olga Casals¹

¹ MINO/IN2UB, Dept. of Electronics and Biomedical Engineering, University of Barcelona, Martí i Franqués 1, Barcelona E08028, 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

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

Selective Benzene Gas Sensing With Flame-Made Polytungstate Porous Film

Adrien Baut, 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}

¹ Department of Electronic and Biomedical Engineering, Universitat de Barcelona

² Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona

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

⁴ Institució 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, *Sandra 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*¹, *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: HPH G3]

Chairs: Elmar Hufschmid & Mark Allen

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

Benedikt Streibl, *Thomas Währ*, *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 Sorel*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

18.05 – 18.55

Hackathon and Eurosensor Fellow Awards

[Room: HPH G2]

More Information: www.eurosenors2026.ch/hackathon

Starting 19.00

Social Event

[Room: HPH G1]

More Information on Page 17

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Tuesday, September 8

08.30 – 09.00 **Arrival & Coffee**

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 Xiugan, Hyeon Cheol Kim

Department of Electrical, Electronic and Computer Engineering, University of Ulsan 93 Daehak-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 (IST) 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 LMIS, 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, Hyeon Shim, Kyungseop Kim, Yohan Cho, Hee Seon Seo

Agency for Defense Development, Jinhoe 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, Khai 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

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 & Paddy French

Apptamer-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^{1,2,3,5}, Raman Sankar^{2,3}, Chien-Yuan Pan⁴, Ashok M. Raichur⁴

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 Life Science, National Taiwan University, Taipei, Taiwan

⁵ Department of Materials Engineering, Indian Institute of Science, Bangalore, India

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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

Active Nitrogen Mediated Systematic Synthesis Of Sn/SnO₂ Bi-Phase Sensor

Gunjoo Kim, Matteo Quaranta, 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

¹ Technical University Dortmund, Professorship for Sensors, Otto-Hahn-Strasse 8, 44227 Dortmund, Germany

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

³ IDNEO Technologies, Career Rec 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, Näthaitzer 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, Laubisruefstrasse 50, 8712 Stäfa, Switzerland

Innovative Sensor Development – The Need Of Tailor-Made Sensors

Katrin Gajo, Christoph Hepp

Innovative Sensor Technology AG (IST), Stegrütstrasse 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 Break**

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**

[HPH Floor D]

More Information on Page 53 – 63

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 Moos¹, Thomas Wöhl¹, 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, Vlas 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

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

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, Otoy 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 & Bernhard Wolfrum

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 Hasanazadeh¹, 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, CRIODE, Perpignan 66400, France

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

Philip Patschg¹, Yves Mermoud¹, 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 Fonollosa

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 Kulah^{1,2}

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

² ODTÜ MENS 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 (IHT) and Laboratory for Emerging Nanometrology (LENA), Technische Universität Braunschweig, 38106 Braunschweig, Germany

² Worldensing 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}, *Qingjuan 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 Brodbeck*³, *Oliver Amft*^{1,4}

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

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

³ Erbe Elektromedizin GmbH, Waldhörnlestrasse 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

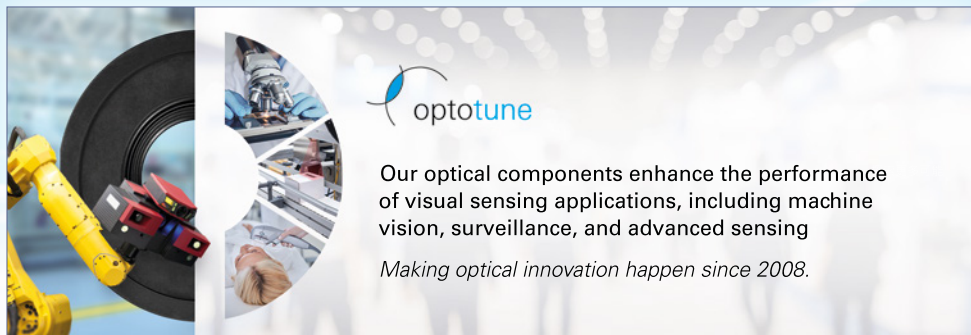
COMSOL Multiphysics GmbH, Technoparkstrasse 1, 8005 Zurich, Switzerland

Starting: 19.00

Conference Dinner

[Lake Side, Bellerivestrasse 170, 8008 Zürich]

More Information on Page 17



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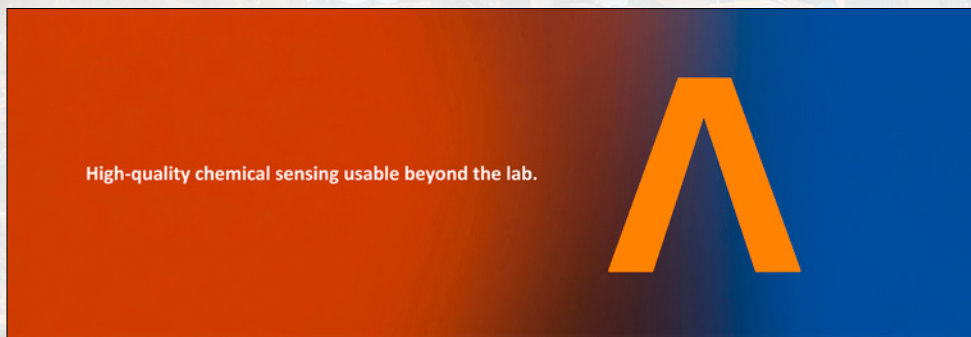
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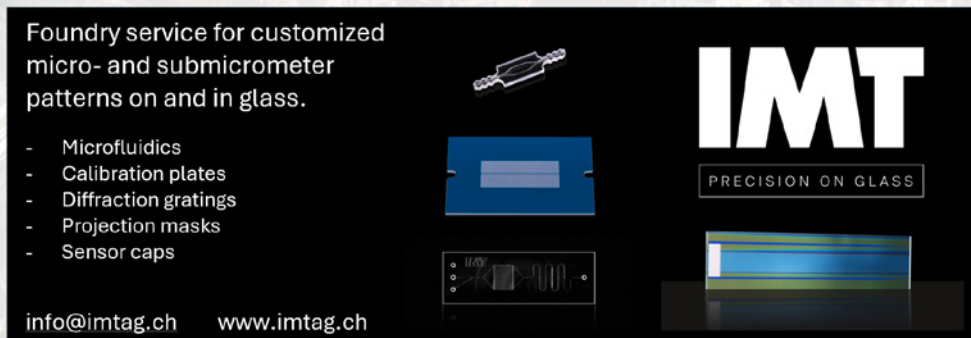
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Wednesday, September 9

08.30 – 09.00 **Arrival & Coffee**

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 Beard*¹, *Natasa Budimirovic*¹, *Tristan Kipfer*¹, *Sergey Piletsky*, *Elena Piletska*², *Sylvain Nicolay*¹

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 Travaglini*¹, *Yassar Abderrahim*², *Hafsa Karri-Youssoufi*³, *Danick Briand*¹

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*, *Christofer 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 Maier*¹, *Larissa Egger*¹, *Barbara Kosednar-Legenstein*¹, *Nigel Rising*², *Leandro Sacco*²

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

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

10.00 – 11.00 **Session 7.2 Physical Sensors**

[Room: HPH G2]

Chairs: Sven Ingebrandt & Bernhard Jakoby

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

*Satish K. Verma*¹, *Mahesh Menon*¹, *Aravind N. Warrior*¹, *Andreas Mrask*³, *Markus Gardill*¹, *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 n2STAR, 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. Dressler 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. Vassiliadi⁵, Sophie Bensing^{6,†}, Georgina Russell⁷, Kristian Lövås¹, Dimitris Margaritopoulos⁵, Ileana R. Botusan^{6,†}, Katerina Simunkova⁴, Maria Balomenaki⁵, Katarina Berinder^{8,†}, Belinda Lombard⁹, Thea Sjögren¹, Ida Lovik⁹, Bergithe E. Øftedal^{1,4}, Anette Heie¹⁰, Grethe Å. Ueland¹, Olle Kämpe^{6,†}, Stylianos Tzagarakis⁵, Stafford L. Lightman², 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 Ileana¹, Zavala E², Upton T³, Berinder K¹, Methlie P⁴, Simunkova K⁴, Vassiliadi D⁵, Grytaas M⁴, Russell G³, Tzagarakis S⁵, Lightman S³, Husebye E⁴, Kämpe O¹, Øksnes M⁴, Bensing S¹

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 G5]

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 Hendricks³, Jaehyun Ko⁴, Anna-Maria Reiche³, Frigga Dohme Meier³, Andreas T. Güntner⁴, Catherine R. Jutzeler^{1,2}

¹ Department of Health Sciences and Technology (D-HEST), ETH Zurich, Switzerland

² SIB Swiss Institute of Bioinformatics, Lausanne, Switzerland

³ Ruminant Nutrition and Emissions, Agroscope, Posieux, Switzerland

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

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

² Botnar Research Institute for Child Health, Basel, Switzerland

Volatilomics For Medical Microbiology Diagnostics Using Standard Bacterial Headspace Sampling

Mehmet Berk Bilgin¹, Norma Toccalino¹, Emma Slack^{2,3,4}, Adrian Egli⁵, Andreas Güntner¹

¹ Human-centered Sensing Laboratory, D-MAVT, ETH Zurich, Zurich, Switzerland

² Laboratory for Mucosal Immunology, Department of Health Sciences and Technology, ETH Zurich, Zurich, Switzerland

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

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

Jamila Boudaden¹, Nnaemeka Michael Mbachu¹, Karl Neumeier¹, Ignaz Eisele^{1,2}

¹ Fraunhofer Institute for Electronic Microsystems and Solid State Technologies EMFT, Germany

² 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, Spain

² Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Barcelona, Spain

³ 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 Sensing

Dulani N. Liyanage¹, Hamidah Alluhaybi², Thilini Thathsara¹, Christopher J. Harrison^{1,2}, Peter King shott¹, Ylias Sabri², Mahnaz Shafiei¹

¹ Swinburne University of Technology, Hawthorn, VIC, 3122, Australia

² 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 Bur¹

¹ Saarland University, Lab for Measurement Technology, Saarbrücken, Germany

² Fraunhofer IVW, Department of Sensory Analytics and Technologies, Freising, Germany

Unveiling Humidity-Enhanced Performance In Chemoresistive CoCu₂O₃ VOCs Sensors

Matteo D'Andrea¹, Hamin Shin¹, Yi-Hsuan Wu², Xiangchao Meng³, Patrick Zeller^{4,5}, Feng Ryan Wang³, Andreas T. Güntner¹

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

² Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy (IET-2), Forschungszentrum Jülich GmbH, 91058 Erlangen, Germany

³ Department of Chemical Engineering, University College London (UCL), London WC1E 7JE, United Kingdom

⁴ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Department of Inorganic Chemistry, Berlin, Germany

⁵ 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 Sensor

Jiri Maier¹, Pavel Ripka¹, Poki Chen²

¹ Czech Technical University in Prague, Technicka 2, 160 00 Prague, Czech Republic

² 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 Behroudj, Daniel Richter, Christof Schwenk, Heiko Stahl, Axel Grosse

Robert Bosch GmbH, Reutlingen, Germany

Chip-Scale Electrochemical Angular Accelerometer Based On SOI Substrate

Maogqi Zhu^{1,2}, Yulan Lu¹, Bowen Liu³, 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 Nexha¹, Klilton Cikalleshi², Thomas Kister¹, Stefano Mariani², Barbara Mazzolai², Tobias Kraus^{1,3}

¹ INM - Leibniz Institute for New Materials, 66123, Saarbrücken, Germany

² Bioinspired Soft Robotics Laboratory, Istituto Italiano di Tecnologia, 16163, Genova, Italy

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

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

Divya Rajagopal¹, Chen Wang¹, Barnika Chakraborty², Ajay Padunnappattu³, Bernardo Pereira Madeira¹, Norbert Stock³, Rainer Adelung², Michael Kraft¹

¹ Department of Electrical Engineering ESAI, Micro and Nano Systems (MNS), KU Leuven, 3001 Leuven, Belgium

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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 Ingebrandt¹, Dongli Zhang¹, Milad Eyyazi Hesari¹, Henning Gall², Ralf Schermuly², Hossein Ardeschir Ghofrani², Ziyu Gao¹

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 Bathaei¹, Ata Golparvar¹, Sina Hashemizadeh², Denys Nikolayev³, Filipe Arroyo Cardoso¹, Clementine M. Boutry¹

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 Maevskaia¹, Luisa Lotter², Jonas Gartmann³, André Kupferschmid³, Martin Camenzind¹, Alexander Haag⁴, Charlotte Lemièr-Franzetti^{1,5}, Tessa Eugster², René M. Rossi¹, Volker J. Schmidt², Simon Annaheim¹

¹ Empa, Laboratory for Biomimetic Membranes and Textiles, Lerchenfeldstrasse 5, 9014 St. Gallen, Switzerland

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 FRT Inter Spitzen AG, Flughafenstrasse 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}

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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}

¹ Human-Centered Sensing Laboratory, Department of Mechanical and Processing Engineering, ETH Zurich, 8092 Zurich, Switzerland

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 Vadhvana*¹, *Pallavi Arya*¹, *Piers Boshier*¹, *Sara Jamel*¹, *Ilaria Belluomo*¹, *Philip Leung*¹, *Patrik Španěl*², *Lesley Hayles*³,

*George B Hanna*¹

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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

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² Ghent University, Faculty of Medicine, Coupel Haymenslaan10, 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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² SIB Swiss Institute of Bioinformatics, Lausanne, Switzerland

³ Laboratory for Mucosal Immunology, Institute for Food, Nutrition and Health, Department of Health Sciences and Technology, ETH Zürich, Zürich, Switzerland

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 Zürich, Zürich, Switzerland

⁹ Department of Mechanical and Process Engineering, ETH Zürich, Zürich, 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}

¹ Department of Neuro-Urology, Balgrist University Hospital, University of Zürich, Zürich, Switzerland

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

13.00 – 14.00

Lunch Break

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]

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Poster Session

Monday, September 7

14.55–16.30

Actuators

[HPH Floor D]

Mo-ACT-01 Temperature Dependence Of Parametric Snap-Through In Bistable Piezoelectric ScAlN MEMS Plates

Patrick Egger¹, Mahdi Mortada¹, Ulrich Schmid¹, Michael Schneider¹

¹ Institut für Sensor- und Aktuatorssysteme, TU Wien, Gusshausstrasse 27–29, 1040 Wien, Austria

Mo-ACT-02 Electrodynamic Self-Cleaning Glass For Visibility Improvement Of Autonomous-Driving Optical Sensors

Jungwoo Yoon¹, Lin Chai¹, Dong Joo Lee¹, Sang Kug Chung¹, Kang Yong Lee²

¹ Department of Mechanical Engineering, Myongji University, Yongin, 17058, Republic of Korea

² Microsystems, Inc., Yongin, 17058, Republic of Korea

Mo-ACT-03 Asymmetric Snap-Through Dynamics In Bistable Piezoelectric MEMS Plates

Mahdi Mortada^{1,2}, Andreas Kraus^{1,2}, Jakob Gruber^{1,2}, Ulrich Schmid¹, Michael Schneider^{1,2}

¹ Institute of Sensor and Actuator Systems, TU Wien,

² Christian Doppler Laboratory for Piezoelectric Silicon MEMS with Enhanced Sensitivity and Respon sivity, Institute of Sensor and Actuator Systems, TU Wien Gusshausstraße 27-29, 1040, Vienna, Austria

Biosensors/-electronics And Biomimetic Sensors

[HPH Floor C]

Mo-BBS-01 Glyphosate Detection With Mass-Sensitive Sensors Using Molecularly Imprinted Polymers: Polymerization Strategies And Application

Ma Robellene S. Castillo^{1,2}, Peter A. Lieberzeit^{1,2}

¹ University of Vienna, Faculty of Chemistry, Department of Physical Chemistry, 1090 Vienna, Austria

² University of Vienna, Doctoral School of Chemistry (DoSChem), 1090 Vienna, Austria

Mo-BBS-02 Enhanced IgE Aptasensing Via Scaffold-Mediated Oriented Immobilization Of DNA Aptamers

Yuta Chokki¹, Akiko Tanabe², Izumi Sasaki², Hideo Nakano³, Shun'ichi Kuroda⁴, Masumi Iijima^{1,2}

¹ Dept. Nutr. Sci. Food. Saf., Grad. Sch. Appl. Bioci., Tokyo Univ. Agric., JAPAN

² Dept. Nutr. Sci. Food. Saf., Fac. Appl. Bioci., Tokyo Univ. Agric., JAPAN

³ Dept. Appl. Bioci., Grad. Sch. Bioagric. Sci., Nagoya Univ., JAPAN

⁴ SANKEN, Univ. of Osaka, JAPAN

Mo-BBS-03 Reliable Cell Concentration Prediction Using A Temperature-Compensated Four-Electrode Impedance Sensor With Machine Learning

Xiaoye Huo^{1*}, Lihong Pan², Ding Han¹, Yongyao Niu¹, Junbo Wang^{1,2*}, Jian Chen^{1,2*}

¹ State Key Laboratory of Transducer Technology, Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing 100190, People's Republic of China

² School of Advanced Interdisciplinary Sciences, University of Chinese Academy of Sciences, Beijing 100049, People's Republic of China

Mo-BBS-04 3D Tubular Microelectrode Array Fabricated Via Rotary Surface Exposure For Deep-Tissue Electrophysiological Monitoring Of Organoids

Jie Ni¹, Han Ren², Jiaxiang Wang¹, Fengming Ye¹, Zhuoqing Yang¹

¹ National Key Laboratory of Advanced Micro and Nano Manufacture Technology, Shanghai Jiao Tong University, Shanghai, 200240, China

² Institute for Digital Molecular Analytics and Science (IDM&S), Nanyang Technological University (NTU), 59 Nanyang Drive, Experimental Medicine Building, Level 6 & 7, Singapore

Mo-BBS-05 Design And Experimental Validation Of An Impedance Based Position Sensor For Magnetic Microrobots

M.O. Heuschkel¹, D. Principi¹, D. Varela Freire¹, A. Savary², C. Besson², A. Roux¹

¹ School of Engineering, Architecture and Landscape of Geneva (HEPIA), University of Applied Sciences and Arts Western Switzerland (HES-SO), Geneva, Switzerland

² School of Engineering and Management Vaud (HEIG-VD), University of Applied Sciences and Arts Western Switzerland (HES-SO), Yverdon-les-Bains, Switzerland

Mo-BBS-06 Computational Design Of Peptide Recognition Elements For Rapid Detection Of Neurotoxin Exposure

Mustafa Al-gafari^{1,2}, Ashkan Golshani², Azam Tayabali^{1,2}

¹ Biotechnology Laboratory, Environmental Health Science and Research Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario, Canada, K1A 0K9

² Department of Biology, Carleton University, Ottawa, Ontario, Canada K1S 5B6

Mo-BBS-07 Raspberry Pi Platform For Multi-Modal Biosensing: Electrochemiluminescent And Colorimetric Analysis

Stephanía Rodríguez Muñiña¹, Francisco Javier del Campo¹, Giovanni Valenti², James F. Rusling³

¹ Basque Center for Materials, Applications and Nanostructures. UPV/EHU Science Park, Leioa, Bizkaia E-48940, Spain

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³ Department of Chemistry, University of Connecticut, Storrs, CT 06269-3060, USA

Mo-BBS-08 MEMS-Based Flexible NiTi Shape Memory Alloy Microactuator For Cochlear Electrode Applications

Pelin Ormanci^{1,2}, Haluk Kılıah^{1,2}

¹ METU-MEMS Research and Application Center, Middle East Technical University, Ankara, Turkey

² Dept. of Electrical and Electronics Engineering, Middle East Technical University, Ankara, Turkey

Mo-BBS-9 Reproducibility And Biofouling In Graphene Foam Electrodes Assessed By Direct ELISA

Lei Cuasay¹, Ioana Manea^{2,3}, Baptiste Mathmann¹, Oana Hosu-Stancioiu², Cecilia Cristea², Noemí de los-Santos-Álvarez^{2,4}, Philippe Pernod¹, Abdelkrim Talbi¹, Lorena Manzanares¹

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³ Departamento de Química Física y Analítica, Universidad de Oviedo, Av. Julián Clavería 8, 33006 Oviedo, Spain

⁴ Instituto de Investigación Sanitaria del Principado de Asturias, Av. Roma s/n, 33011, Oviedo, Spain

Mo-BBS-10 Investigation Of A Plasmonic Aptamer-Based Biosensor For Heavy Metal Ion Detection

Rebeka Kovács¹, Andr   P. G. Rocha², Tom     Lednick    , Baihui Li², Andrea Cs      , Attila Bony    

¹ Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary

² Leibniz Institute of Photonic Technology, Albert-Einstein-Str. 9, 07745 Jena, Germany

Mo-BBS-11 Development Of Plasmonic Biosensor Platform For Multiplex Sensing Of Mir-21

N     Tarpataki¹, Tom     Lednick    , L       Tibor Cs      , Attila Bony    

¹ Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, E     J       street 18, H-1111, Budapest, Hungary

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³ Optimal Optik Ltd., Dayka G     Street 6/b, H-1118 Budapest, Hungary

Mo-BBS-12 High-Resolution Inkjet Printing Of A Functional Polymer For On-Chip Biosensing

Frederic Brassard¹, William Rostain¹, Lilijana Fruk²

¹ Hitachi Cambridge Laboratory, Ray Dolby Centre, 1 J J Thomson Avenue, Cambridge CB3 0US

² Department of Chemical Engineering and Biotechnology, University of Cambridge, Philippa Fawcett Drive, Cambridge, CB3 0AS

Chemical Sensors

[HPH Floor D]

Mo-CHS-01 Rapid And Selective Sub-ppm Hydrogen Sulfide Detection Using rGO/In₂O₃ Heterojunction Sensor

Tanya Sood¹, P. Poornesh¹, Saikat Chattopadhyay²

¹ Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India

² Department of Physics, School of Basic Sciences, Manipal University Jaipur, Jaipur 303007, India

Mo-CHS-02 Humidity Enhances the Isopropyl Alcohol Detection by Co-Mn Oxide

Reinaldo dos Santos Theodoro^{1,2}, Matteo D'Andrea², Diogo Paschoalini Volanti¹, Andreas T. G        

¹ S     Paulo State University (UNESP), Rua Crist       Colombo 2265, 13054-000 S     Jos   do Rio Preto, Brazil

² ETH Zurich, CH-8092 Zurich, Switzerland

Mo-CHS-03 UV-light Activated ZnO For ppb-Level NO₂ Detection: Influence Of Modified Pechini Synthesis Route

Amokrane Yasmine, Bendahan Marc, Bernardini Sandrine

Aix Marseille Univ, Univ Toulon, CNRS, IM2NP, Marseille, France

Mo-CHS-04 Simultaneous Capacitance And DRIFTS Analysis Of Zeolites For Dosimeter-Based Epichlorohydrin Sensing At Room Temperature

Thomas W      , Ralf Moos, Daniela Sch              

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

Mo-CHS-05 Engineering The Active Layer Of SnO₂ Chemoresistive Sensors: Influence Of Deposition Methods And Film Thickness On NO₂ Detection

Davi Ladislau Ferreira, Rafael Aparecido da Silva, Ranilson Angelo da Silva, Marcelo Ornaghi Orlandi
São Paulo State University, Chemistry Institute, Brazil

Mo-CHS-06 Development Of Platinum Heater By Inkjet Printing Onto Polyimide Substrate

Mathilde Rieu, Bastien Le Porcher, Maxime Minot, Jean-Paul Viricelle
Mines Saint-Etienne, Univ Lyon, CNRS, UMR 5307 LGF, Centre SPIN, F-42023 Saint-Etienne, France

Mo-CHS-07 Inkjet-printed TiO₂ Nanoparticles For Miniaturized Gas Sensors

Alice Debot¹, Vincent Rogé¹, Stephanie Girod¹, Inci Boehme², Renaud Leturcq¹
¹ Luxembourg Institute of Science and Technology, 41 rue du Brill, L4422, Belvaux, Luxembourg
² Sciosense Germany GmbH, Gerhard-Kindler-Straße 8, 72770 Reutlingen, Germany

Mo-CHS-08 Highly Stable Pt-activated Graphene Gas Sensors With Antimony Oxide Coatings

Ahmet Barak Baloglu, Margus Kodu, Tauno Kahra, Rainer Pärna, Aarne Kasikov, Raivo Jaaniso
University of Tartu, Ülikooli 18, Tartu, Estonia

Mo-CHS-9 Electrosynthesized Porous Tin Oxide Film For Gas Sensors Applications

Abhishek Kumar, Sudalaimani Sudalaimuthu, Maxime Minot, Mathilde Rieu
Mines Saint-Etienne, Univ Lyon, CNRS, UMR 5307 LGF, Centre SPIN, 158 Cours Fauriel, F-42023 Saint-Etienne, France

Mo-CHS-10 Sub-ppm Methane Sensing By Spark-Ablation-Synthesized Nano-SnO₂

D. Gounaris¹, A. Bout², H. Shin², S. E. Pratsinis², A. Güntner² and G. Biskos^{1,3}
¹ Climate and Atmosphere Research Center, The Cyprus Institute, Nicosia, 2121, Cyprus
² Department of Mechanical and Process Engineering, ETH Zürich, 8092, Zürich, Switzerland
³ Faculty of Civil Engineering and Geosciences, Delft University of Technology, 2628-CN, Netherlands

Mo-CHS-11 Harnessing Multi-phase Interactions In Sn/SnO/SnO₂ Tri-phase Material For Gas Sensing

Gunjoo Kim, Andreas Güntner
Human-centered Sensing Laboratory, Department of Mechanical and Process Engineering, ETH Zürich, Zürich, Switzerland

Mo-CHS-12 Room-Temperature Drift Reduction In Chemoresistive Gas Sensors By UV Illumination Tuning

Paola Pellegrino^{1,2}, Albert Romano Rodriguez^{1,2}, Guillem Domenech-Gil^{1,2,3}
¹ Department of Electronic and Biomedical Engineering, University of Barcelona (UB), 08028 Barcelona, Spain
² Institute of Nanoscience and Nanotechnology (IN2UB), University of Barcelona (UB), 08028 Barcelona, Spain
³ Department of Thematic Studies - Environmental Change (TEMA M), Linköping University, Sweden

Mo-CHS-13 Dataset: Odour Sensing In Turbulent Plumes With High-Speed E-Nose And PLIF Ground Truth

Nik Dennler¹, Elle Stark², Saimon Collaku¹, Aaron True² and Andreas T. Güntner¹
¹ Human-centered Sensing Laboratory, Department of Mechanical and Process Engineering, ETH Zürich, Zürich, Switzerland
² Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, Boulder, CO, USA

Mo-CHS-14 Ethylene Glycol Detection In Pediatric Syrups: Rapid Screening MIP Based Electrochemical Sensor

Eminnur Saritas¹, Begum Sen-Dogan², Haluk Kulah^{1,2}
¹ Dept. of Electrical and Electronics Engineering, Middle East Technical University, Ankara, Türkiye
² METU MEMS Center, Ankara, Türkiye

Mo-CHS-15 Tuning Selectivity of Electrochemical Sensors through Polymer Modifications

Ines C. Weber¹, Yann Zosso², Zhenan Bao²
¹ Chalmers University of Technology, Kemivägen 10, SE-412 96 Göteborg, SWEDEN
² Stanford University, 334 Via Ortega, 94305 Stanford, USA

Mo-ESM-01 Porous WS₂ Films For Selective And Humidity-Robust NO₂ Sensing At Room Temperature

Simone Hersberger, Michael Pereira Martins, Selina Fassbind, Andreas T. Güntner

Department of Mechanical and Process Engineering, ETH Zurich, CH-8092 Zurich, Switzerland

Mo-ESM-02 Functionalized MXenes Chemiresistors For Room-Temperature NO Sensing

Eleanora Pargoletti^{1,2}, Benjamin Davis³, Yury Gogotsi³

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² Consorzio Interuniversitario per la Scienza e Tecnologia dei Materiali, Giusti 9, Florence, Italy

³ A.J. Drexel Nanomaterials Institute, Materials Science & Engineering, Drexel University, Philadelphia, PA, US

Mo-ESM-03 Hybrid Nanomaterial Networks For Dynamic VOC Sensing

Lukas Mielke¹, Yudhajit Bhattacharjee¹, Sophia Caroline Bittinger², Gabriele Carelli¹, Hendrik Schlicke^{1*}

¹ Leibniz Institute of Polymer Research Dresden, Hohe Straße 6, 01069 Dresden, Germany

² University of Hamburg, Institute of Physical Chemistry, Grindelallee 117, 20146 Hamburg, Germany

Mo-ESM-04 Plasma-Fabricated Metasurfaces for SERS Detection of Warfare Chemicals

Vasyl Shvalya¹, Oleg Baranov^{1,2}, Uroš Cvelbar^{1,3}

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² O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

³ Jozef Stefan International Postgraduate School, Jamova cesta 39, SI-1000 Ljubljana, Slovenia

Mo-ESM-05 Characterization Of Aluminum Nitride On Vertical Sidewalls

Maria-Theresia Becker¹, Mano Bhavdeep Venkatesan¹, Achim Bittner¹, Alfons Delé^{1,2}

¹ Hahn-Schickard-Gesellschaft für angewandte Forschung e.V., Wilhelm-Schickard-Str. 10, 78052 Villingen-Schwenningen, Germany

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

Mo-ESM-06 Direct Sputter Deposition Of Gold Thin-Film Sensors On Wood Substrates Toward Chip-On-Wood Integration

Paul Reber, Nursultan Daupayev, Moritz Lang, Sören Hirsch

Brandenburg University of Applied Science, Department of Engineering, Magdeburger Str. 50, 14770 Brandenburg/Havel, Germany

Mo-ESM-07 Synthesis Of Nitrogen And Phosphorus Doped Carbon Dots And Study Of Their Photoluminescence In The Solid State

Spyridon N. Katsantonis^{1,2}, Spiros Gardelis³, Marko Bošković⁴, Danijela Randjelović⁴, Nikola Vuković⁵, Srdan Matijašević⁵, Sowmya Dean⁶,

Maryam A. Saeed⁶, Yaaqoub Malallah⁶, Konstantinos V. Kardatos², Christos Tsamis¹

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⁴ Institute of Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia, University of Belgrade, Njegoševa 12, 11000 Belgrade, Serbia

⁵ Institute for Technology of Nuclear and Other Mineral Raw Materials, Bulevar Franš d'Eperea 86, 11000 Belgrade, Serbia

⁶ Energy and Building Research Center, Kuwait Institute for Scientific Research, 13109 Kuwait City, Kuwait

Mo-ESM-08 Sputtered Permalloy As Novel Material For THz-Thin Film Technology:

Deposition Process, Physical And Electrical Properties

Pranesh Kondamari¹, Julien Petit¹, Andras Kovacs¹, Ulrich Mescheder¹, Volker Bucher¹, Anil Badisa², Michal Herbko², Adam Zywicki², Marcin Ziolkowski², Przemyslaw Lopata²

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² West Pomeranian University of Technology, Szczecin, al. Piastow 17, Poland

Mo-ESM-09 A New Approach For Production Of Nanofilament-Based Chemoresistive Sensors

A.Schmidt-Ott^{1,2}, L. Sacco¹, K.C. Petalidou², P. Kováčik³, G. Biskos^{2,3}

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³ Faculty of Civil Eng. and Geosciences, Delft University of Technology, 2628 CN Delft, Netherlands, 4National Research Council of Canada, K1A 0R6, Ottawa, Canada

Energy Harvesting For Sensors

[HPH Floor D]

Mo-EHS-01 Multiplexed Power Management Circuit For Low-Power Thermoelectric Generators

Filippo Leoncini¹, Mohamad Ridwan², Ferran Reverter²

¹ Department of Information Engineering, Università Degli Studi di Brescia, Brescia, Italy

² Department of Electronic Engineering, Universitat Politècnica de Catalunya-BarcelonaTech, 08860 Castelldefels, Spain

Mo-EHS-02 Powering A Sensor Node With An Organic PV Module Under Low-Light Indoor Conditions

Ricardo Alan Retana-González, Ferran Reverter, Manel Gasulla

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

[HPH Floor D]

Mo-MLO-01 Full-Hydrogel-Based Real-Time Sensor And Drug Deliverer In Organ on Chip Devices

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Mo-MLO-02 Microwell For EIS Based Viability Analysis Of Cells

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Mo-MLO-03 Acquisition System For Real-Time Monitoring Of Glucose And Lactate In Recirculating Multi-Organ on Chip

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Mo-MLO-04 Centrifugal Microfluidic Automation Of Protein Sample Preparation For Nanopore Sensing

Carolin Kleber¹, Carolin Hensel¹, Ida Suppanz³, Michelle Hinrichs², Sebastian Gutsch², Tobias Hutzenlaub^{1,2}, Felix von Stetten^{1,2}, Nils Paust^{1,2}, Gerhard Mittler³, Andreas Schreiber^{1,2}, Jan-Niklas Klatt^{1,2}

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Mo-MLO-05 Integrated Resistive Heating Systems In A Microfluidic Platform For Biological Applications

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Mo-MLO-06 A Miniaturized Portable Device For Continuous Sensing Of Environmental Contaminants

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Mo-POS-01 SPR-grating: Spectral vs Intensity Interrogation for Ethanol Detection

Miquel Giménez-Conejo¹, Víctor González-Morote^{1,2}, Sergi González-Martínez^{1,2,3}, Ignasi Fort-Grandas^{1,2,3}, Anna Estany-Macià^{1,2}, Daniel Sainz^{2,3}, Albert Romano-Rodríguez^{1,2}, Mauricio Moreno-Sereno^{1,2}

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Mo-POS-02 Real-Time Resonance Tracking For Acoustic Resonator Enhanced Photoacoustic Gas Sensors

Daniel Sieg, Raj Patel, Vincent Kuczys, Stefan Palzer

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Mo-POS-03 Atomic Structure And Temperature-Dependent Photoluminescence Of Si-Doped Epitaxial Diamond Layer On Nitrogen-Rich HPHT Single Crystal Diamond

T. Izsak¹, I. Kozak¹, V. Vretenar², M. Matko², M. Hulman¹, A. Kozak¹, M. Varga¹

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Mo-POS-04 Enhanced Optical NO₂ Sensing At Room Temperature Through Chemical Reaction-Mediated Plasmonic Interaction

Michael Pereira Martins, Andreas T. Güntner

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

Mo-POS-05 DMOAP-Aligned Bimesogenic Dimers For Wide-Band Spectral Tuning

Rohan Sonar¹, Agus Budi Dharmawan¹, Ismael Benito-Altamirano^{1,2,3}, J. Daniel Prades¹

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Mo-POS-06 Real-Time Imaging Of Microcrystal Growth And Dynamics By Lensless Microscopy In A Cell

Alexey Rybakov, Agus Budi Dharmawan, J. Daniel Prades

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Mo-POS-07 Label-Free Detection Of Exosome Components Via A Novel SPR-Raman Platform

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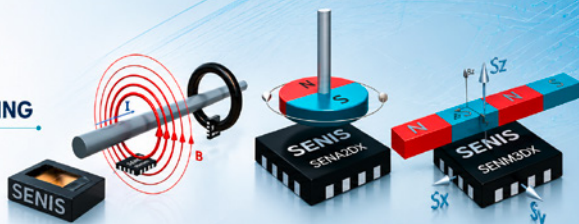
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[HPH Floor D]

Mo-PHS-01 Improving Cavity Pressure Stability As Enabler For High-Performance 2-Cavity MEMS Chips

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Mo-PHS-02 Surface-Micromachined 3-Omega Gas Sensor

Philipp Raimann¹, Guy Laurent Tchoffo¹, Frank Hedrich¹, Sophie Billat¹, Alfons Dehé^{1,2}

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Mo-PHS-03 Synthesis And Sensing Properties Of SnS₂/rGO Composite Towards NO₂ Gas At Room Temperature

Julia Coelho Tagliaferro, Amanda Akemy Komarizono, Valmor Roberto Mastelaro

Institute of Physics of São Carlos, São Carlos, Brazil

Mo-PHS-04 Nanowire-Based Micro-Sensor For Wall Pressure Measurement In Hydrodynamical Flow

A. Serrure¹, M. Abolhassan Araghi², M. Manrique Reyes³, L. Gimeno⁴, V. Consonni⁵, S. Hoerner², G. Ardila¹, C. Ghouila-Houri¹

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Mo-PHS-05 Harmonic Generation To Improve Ultrasound Image Using Piezoelectrical Micromachined Ultrasound Transducers

Francesc Torres, Arantxa Uranga, Núria Barniol

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Mo-PHS-06 Robust In-Cavity Thin-Film Temperature Sensor Array For Real-Time Flow-Front Monitoring In Recycled Material Injection Molding

Li Zhao¹, Martin Rekowski¹, Marcel Haab², Frederic Timmann², Anna Schott¹, Christoph Herrmann¹, André Hürkamp², Klaus Dröder²

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Mo-PHS-07 Development Of A Dipole Antenna Sensitive To Corrosion Of Steel

Benjamin Mugabo Nduhura, Stéphane Rioual, Benoit Lescop, Philippe Talbot

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Mo-PHS-08 Experimental Investigation Of The Thermal Conductivity Behavior Of Ne-Ar, Ne-N₂ and Ar-N₂ Binary Gas Mixtures

Svenja Jung^{1,2}, Mike Benkendorf¹, Hans-Fridtjof Pernau¹, Markus Graf^{2,3}, Laura Maria Comella², Jürgen Wöllenstein^{1,4}, Katrin Schmitt^{1,4}

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Mo-PHS-09 Enhancing Cardiac Magnetomechanical Sensing Via A Tunable Non-Linear Spring Transduction Layer

Alessandro Ascani Orsini¹, Yijun Lai¹, Haoyu Xu^{1,2}, Daniel Guo¹, Chang Liu², Nitish Thakor^{1,2}

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Mo-PHS-10 Piezoelectrically Induced Resonance Frequency Tuning of Buckled-Diaphragm MEMS Ultrasonic Sensors for Multi-Frequency Measurement

Kaoru Yamashita, Junpei Yamamoto

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Mo-PHS-11 Calculation Of Far Field Acoustic Radiation from Transmission Line Models Of PMUT–Horn Systems

Philipp Möhrle, Gabriele Schrag

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Sensing For Medical Diagnostics And Monitoring

[HPH Floor C]

Mo-SMD-01 A Miniaturized Electrochemical Biosensor For Real-Time In Vivo Potassium Monitoring In The Inner Ear

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Mo-SMD-02 Enhanced Split-Ring Resonator Sensing Platform For Gas Monitoring In Medical Applications

David Bailey¹, Moritz Hitzemann¹, Christian Thoben¹, Tobias Hennig², Erik Rohloff², Andreas Schneider², Andreas Schaate², Stefan Zimmermann¹

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Mo-SMD-03 Engineering Spatially Patterned Selective Membranes For Scalable Multiplex Electrolyte Sensors

Azadeh Nilghaz¹, Citsabehsan Devendran², and Nicolas H. Voelcker^{1,3}

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Mo-SMD-04 High-Sensitivity Electrochemical Detection Of Point Mutations: Optimization Of BRAF V600E Analysis From Liquid Biopsy

Ludmila Moráňová¹, Karolína Itterheimová^{1,2}, Johana Strmisková^{1,2}, Martin Bartošik¹

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Mo-SMD-05 Online Bacterial Headspace Sampling Setup For Medical Microbiology Diagnostics With Sensors

Mehmet Berk Bilgin¹, Norma Tocalino¹, Emma Slack^{2,3,4}, Adrian Egli⁵, Andreas Güntner¹

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⁴ Sir William Dunn School of Pathology, University of Oxford, Oxford, UK

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

Mo-SMD-06 Electrochemical And Electrochemiluminescence In Vitro Detection Methods Of A Human Cytomegalovirus In Oncology Patients

Ludmila Moranova¹, Aneta Fried^{1,2}, Karolina Itterheimova^{1,2}, Michal Hendrych³, Martin Bartosik¹

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³ 1st Dept. of Pathology, St. Anne's Univ. Hospital and Faculty of Medicine, Masaryk University, Brno, Czech Republic

Mo-SMD-07 A Data Management Platform For Early Diagnosis And Follow-Up Of Human Diseases:

Architecture Design, Development And Analysis

Michele Sansone^{1*}, Jolanda Palmisani^{1*}, Alessia Di Gilio¹, Marirosa Rosaria Nisi¹, Lucia Pastore¹, Miriana Cosma Mazzola¹, Egidio De Benedetto², Gianluigi de Gennaro¹

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² Department of Electrical Engineering and Information Technologies, University of Naples Federico II, 80125, Naples, Italy

Mo-SMD-08 An Adaptable Electrochemical Platform For Detection Of Oncogenic Point Mutations Using Rolling Circle Amplification

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Mo-SMD-09 Enhancing Ostomy Management: Design And Development Of A Smart Pouch Diagnostics Device

Sebastian Leonties, Emma Stephenson, James Davis

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Mo-SMD-10 High-Performance Miniaturized Reference Electrodes For Electrochemical Sensors

Davide Migliorelli¹, Guillaume Bouvilly¹, Ayian Speck², Silvia Demuro¹, Jakoba Heidler¹, Jaemin Kim¹, Loïc Burr¹, Felix Kurth¹, Eric Bakker²

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Sensor Applications: Environment, Food And Space

[HPH Floor C]

Mo-EFS-01 Remote Sensing For Monitoring Hydric Stress In Farm Animals

Elise Saoutieff¹, Sébastien Brulais¹, Ilaria Sorrentino¹, Marie Escudé¹, Mahfod Benessalah¹, Laura belle Gauthier¹, Claire Verplanck¹, Romain Anciant¹, Isabelle Texier¹, Caroline Xavier², Lucile Hervé², Anne Boudan², Florence Gondret²

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Mo-EFS-02 Development Of A Radiofrequency Sensor For Detecting Bacteria In The Food Industry

Youness Hsana^{1,2}, Anne-Gabrielle Mathot¹, Olivier Couvert¹, Philippe Talbot², Stéphane Rioual², Benoit Lescop²

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Mo-EFS-03 Synthesis Of Gold Nanostructures For Optical Fiber Biosensors Towards The Detection Of Salmonella Typhimurium

Khent Ivan Duerme¹, Maciej Ptak¹, Roberto Scotti²

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² University of Milano-Bicocca, Milan, Italy

Mo-EFS-04 Smell-Based Molecular Communication For Mobile Robots Using Gas Sensing

Sensor Applications: Environment, Food And Space

Ali Abdali¹, Dadi Bi², Hayeong Lee¹, Ruifan Zhu³, and Yansha Deng¹

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Mo-EFS-05 MOS Sensors Characterization For Fermentation Monitoring Using GC-SOMSA

Lucia Corrà¹, Gina Zeh², Tilman Sauerwald², Laura Capelli¹, Michael Czerny²

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Mo-EFS-06 Portable And Smart Ion Analyser For Automated Monitoring Of Alkali Metals In Battery Recycling Industries Towards Circular Economy

Renato Gil¹, Samuel Silva¹, Olesia Dudik¹, Álvaro Geraldes¹, João Piteira¹, Ana Carolina Costa^{2,3}, Maria João Regufe², Rui Jorge Sousa², Raquel Queirós¹

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³ LSRE-LCM, ALICE, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal

Sensor Arrays And Networks, Integrated Systems

[HPH Floor D]

Mo-SAN-01 Polymer-Coated Quartz Microbalance Array For Discriminating VOCs And Ammonia

F. Corlese¹, R. Capuano¹, A. Catini¹, E. Stoleru², M. Brebu², C. Di Natale¹

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² P. Poni¹ Institute of Macromolecular Chemistry, Iasi, Romania

Mo-SAN-02 An Adaptive Embedded Readout System For Resistive Sensor Arrays

Deepika Balraj¹, Mohd Tarique², Leon Abelmann², Peter Woias¹, Suman Kundu^{1*}

¹ Department of Microsystems Engineering – IMTEK, Albert-Ludwigs-Universität Freiburg, Georges Köhler-Allee 102, 79110 Freiburg, Germany

² Department of Microelectronics, TU Delft, Mekelweg 4, 2628CD Delft, Netherlands

Mo-SAN-03 Engineering Opposing Response Evolution in ZnWO₄-WO₃ Sensor Pair For Deterministic Decoding Of NO₂ In Reducing Gas

Shivam K Singh¹, Cylin Neeraj¹, Anuj Kumar Dwivedi¹, Vinayak B Kamble¹

¹ School of Physics, Indian Institute of Science Education and Research, Thiruvananthapuram, India

Sensor Fundamentals & Modelling

[HPH Floor C]

Mo-SFM-01 Physics-Based Power-Law Discrimination Of CO₂ And Isoprene Using A Single NdFeO₃ Perovskite Sensor

Abhijit Narayan Eshore¹, Subhobrata Banerjee², Priyanka Dutta³, Prasanta Kumar Guha^{3*}

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² School of Nano Science and Technology, IIT Kharagpur, India

³ Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, India

Mo-SFM-02 Artificial Wind-Assisted Control Of Hydrogen Gas Leaks For Improved Sensor Detection: A CFD Study

Subhashish Dasgupta¹, Pedro Castro-Fernandez², Axel Kramer²

¹ ABB Corporate Research, Bangalore, India

² ABB Corporate Research, Baden-Dättwil, Switzerland

Mo-SFM-03 Impact Of Water On The Temperature Homogeneity In A High-Temperature Gas Sensor

Julia Herrmann, Gunter Hagen, Ralf Moos

Department of Functional Materials, University of Bayreuth, Bayreuth, 95440, Germany

Mo-SFM-04 Revealing And Modeling Frequency-Dependent Field Redistribution

For Calibration-Free Wideband Four-Electrode Impedance Spectroscopy

Lihong Pan^{1,2}, Ding Han¹, Yongyao Niu¹, Jiahe Zheng¹, Junbo Wang^{1,2*}, Jian Chen^{1,2*}, Xiaoye Huo^{1*}

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² School of Advanced Interdisciplinary Sciences, University of Chinese Academy of Sciences, Beijing 100049, People's Republic of China

Signal Analysis, Machine Learning, Physics-Informed Machine Learning And Artificial Intelligence For Sensing

[HPH Floor C]

Mo-SML-01 Reliable TVOC Sensing: A Lab-to-Field Calibration Approach

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² Institute of Energy and Environmental Technology e.V. (IUTA), 47229 Duisburg, Germany

Mo-SML-02 Progressive Domain Adaptation Under Sensor Drift For Gas Classification With Limited Calibration Labels

Han Fa, Achim J. Lilienthal

Munich Institute of Robotics and Machine Intelligence, Chair of Perception for Intelligent Systems, Technical University of Munich, Germany

Mo-SML-03 Characterizing Resonance Scaling In Cattle Eructation Sounds For Methane Emission Estimation

Yujia Hu, Jarred Fastier-Wooler, Shun Muramatsu, Michitaka Yamamoto, Toshihiro Itoh

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

Mo-SML-04 Jacobian-Initialized Parametric Physics-Informed Neural Network For Anomaly Position And Size Estimation From Simulated Electrical Impedance Tomography Data

Shilpa Sharma¹, Kerstin Eckert^{1,2}, Zhe Lei^{1,2}

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Biosensors/-electronics And Biomimetic Sensors

[HPH Floor C]

Tu-BBS-01 Design And Optimization Of A Traveling Surface Acoustic Wave (TSAW) Microfluidic Platform For Controlled Liposome Manipulation

Yugyeong Je, Hande Nur Açıköz, Sabina Caneva

Department of Precision and Microsystems Engineering, Delft University of Technology, Mekelweg 2, 2628 CD Delft, The Netherlands

Tu-BBS-02 Bacteria Collection From Static Millilitre Samples Using A DC Field

Giuseppina Sacco^{1,2}, Catalin Ciubotaru¹, Lucia Gigli³, Martina De Conti¹, Dan Cojoc¹

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Tu-BBS-03 Smart Lateral Flow Device With Embedded Gradient Nanoparticle Lines Towards Enhanced Quantification Via Smartphone

Silvia Demuru¹, Miha Markocić¹, Peter Spies², Dominik Meinel², Stefano Cattaneo¹, Maren Schinz³, Stefanie Dobitz³, Vitalijs Zubkovs¹

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² University of Applied Sciences and Arts Northwestern Switzerland (FHNW), Muttenz, Switzerland

³ Diabetes Center Berne (DCB), Bern, Switzerland

Tu-BBS-04 Development Of Multiplexing LAMP On lateral Flow Assay (LAMP-LFA) For Rapid Detection Of Respiratory Viruses

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

Department of Biotechnology and Biomedicine, Technical University of Denmark (DTU-Bioengineering), DK-2800 Kgs. Lyngby, Denmark

Tu-BBS-05 Rapid Temperature Cycling Miniaturized PCR Thermocycler With Switchable Heat Pipe Cooling

Passar Bamerni, Christian Weber, Jürgen Wollenstein

University of Freiburg, Georges-Köhler-Allee 102, Germany

Tu-BBS-06 Laser-Induced Graphene Paper-Based Electrodes For Detection Of The Pancreatic Cancer Biomarker CA19-9 In Real Samples

Gabriella Onila do Nascimento Soares¹, Andrey Coatrini Soares², Gustavo G Dalkiranis³, Bruno Bassi Millan Torres³, Débora Gonçalves³

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Tu-BBS-07 Electrochemical Biosensing Of HPV: From Molecular Detection To Clinical Impact

Martin Bartosik¹, Milan Anton², Ludmila Moranova¹, Johana Strmiskova¹

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Tu-BBS-08 Decoupling Optical and Electrical Transduction Mechanisms In Peptide-Functionalized Graphene Biosensors for Immune Cell Detection

Ahmar Hasnain, Heiko Heilmann, Prof. Dr. Bernd Bufe, Prof. Dr. Alexey Tarasov¹

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Tu-BBS-09 Electrochemical Redox Label Multiplexing On Single Carbon Electrodes For The Real-Time Detection Of Bacterial Wound Infections

Dominic Kleinknecht^{1,2}, Martin Trotter¹, Cornelia Keß¹, Justus Kloeppel¹, Dimitra Kiriati^{3,4}, Nadine Borst^{1,2}, Felix von Stetten^{1,2}, Andreas Schreiber^{1,2}

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Tu-BBS-10 Development Of A MEMS-Based Electrochemical Platform For Label-Free Viral Antibody Sensing

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Tu-BBS-11 Gold-Mediated Functionalization Of NEMS-FTIR Resonators For Selective Molecular Detection

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Tu-BBS-12 Design Rules For CMOS-Compatible OECTs: Impact Of Geometry And Architecture On Ionic–Electronic Transport

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Tu-BBS-13 Competitive Electrochemical Detection of SARS-CoV-2 Antigen On A 2D MoWSe₂-Based Biosensor

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Tu-BBS-14 Strategies For Improving The Performance Of Aptasensors: Protocol Optimization And Design Considerations

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Tu-BBS-15 Optimization Of ssDNA Immobilization For A CRISPR/Cas12a Electrochemical Biosensor For Friedreich's Ataxia

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Tu-BBS-16 Biochemical Modulation Of Ionic Transport In Asymmetric Nanochannels For Label-Free Biosensing

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Chemical Sensors

[HPH Floor D]

Tu-CHS-01 Manganese Spinel Boost Gas Sensitivity In Humid Environments

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Tu-CHS-02 Controlling DNA Translocation Velocities Through Nanopores By In-Situ Aperture Size Control

Justin N. Cronk, Alessio Angeli Bufalini, Morteza Aramesh

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Tu-CHS-03 Sub-ppm Gas Detection With Metal Organic Frameworks Functionalized Quartz Microbalances

Sujitha Murugaiyan¹, Rosamaria Capuano^{1,2}, Gabriele Magna^{2,3}, Manuela Stefanelli^{2,3}, Alexandro Catini^{1,2}, Kishore Pushparaj¹, Valerio Allegra¹,

Yuvaraj Sivalingam⁴, Roberto Paolesse^{2,3}, Corrado Di Natale^{1,2}

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Tu-CHS-04 W-Bi₂Sn₂O₇ Ultrafine Nanocrystals For Chemiresistive Monitoring Of Volatile Organic Compound

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Tu-CHS-05 Engineering Selective Detection Of Hazardous H₂ And NO₂ Using Pd Functionalized MXene/WS₂ Gas Sensors

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Tu-CHS-06 Self-Powered Gas Sensing In Interface Engineered 2D Layered Heterostructures

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Tu-CHS-07 Pyrene-Based Probes With Tunable AIE-ICT Emissions For Amyloid Sensing And Imaging

Dharini Arumugam, Sarthak Mandal

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Tu-CHS-08 Morphology-Governed Diffusion Enables CH₄/H₂ Discrimination In Metal Oxide Chemiresistor

Mohit Verma, Eduard Llobet

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Tu-CHS-09 AuAg Nanocage-Based Colorimetric Sensor For Silver Detection

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Tu-CHS-10 Pd-Decorated Mesoporous TiO₂ Nanospheres For High Performance Hydrogen Gas Sensors At Room Temperature

Thilini Thathsara¹, Dulani Liyanage¹, Caiden J. Parker², Christopher J. Harrison², Mahnaz Shafiei¹

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Tu-CHS-11 Highly Selective Ethanol Sensor Based On SnO₂/MWCNTs Nanocomposite

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Knarik Hambardzumyan, Gnel Stepanyan, Hayk Kasaparyan, Rima Papovyan

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Tu-CHS-12 A Physics-Informed Inverse Problem For Tracking Gas Chromatography Column Degradation

Antoine Riaud, Balint Toth, Yannick Maret, Kai Hencken

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Tu-CHS-13 Optimising Organic Bilayer Heterojunction Sensors Through Device Geometry And Operating Bias

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Flexible, Stretchable And Wearable Sensors

[HPH Floor D]

Tu-FSW-01 Fully Printed MWCNT/PEDOT: PSS/Ecoflex Tactile–Thermal Sensor With Dual-Mode Piezoresistive And Thermoresistive Transduction

Nadeem Tariq Beigh, Mohammed Al Hadi, Nouha Alcheikh

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Tu-FSW-02 Influence Of Piezoresistive Material And Thickness On The Electromechanical Response Of Flexible Pressure Sensors

Rachel Neveu, Gurvan Jodin, Sara Bretin, Florence Razan

Univ Rennes, ENS Rennes, CNRS, IETR - UMR 6164, F-35000 Rennes, France

Tu-FSW-03 Stretchable Carbon Flower Sensors For Sensitive Estradiol Detection

Ines Weber, Manoj Jayaram Gowda, Zhenan Bao

Chalmers University of Technology, Gothenburg, Sweden

Tu-FSW-04 Aerosol-jet Printed Carbon For stretchable Sensors

HongZe Zhu ^{1,2}, Nouredine Adjerdou ¹, Yves Decoster ³, Sebastjan Glinsek ¹

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² Department of Physics and Materials Science, University of Luxembourg, 41 rue du Brill, L-4422 Belvaux, Luxembourg

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Tu-FSW-05 Stretchable Piezoelectrics Based On PVDF-Elastomer Blends

Gulshan Khurana ^{1,2}, Junling Zhao ³, Sebastjan Glinsek ¹

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Tu-FSW-06 Flexible Wearable MXene-Based Printed Temperature Sensor for Multifunctional Applications

Hamid Nawaz ¹, Nadeem Tariq Beigh ¹, Nouha Alcheikh ¹

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Tu-FSW-07 Endometrial Receptivity Monitoring By Impedance Technology On A Soft And Adhesive MEA

Dongyang Tang ¹, Liubov Izmaylova ², Sven Ingebrandt ¹, Rudolf E. Leube ², Ziyu Gao ^{1*}

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² Institute of Molecular and Cellular Anatomy (MOCA), RWTH Aachen University, D-52074 Aachen, Germany

Tu-FSW-08 A Flexible Wearable Platform With On-Device TinyML For Context-Aware Bio-Signal Monitoring

Shu-Wei Shen ¹, Shin-Lan Lin ¹, Chris Buchowiecki ², Chen-Hao Hong ¹, Jui-En Lee ¹, Yan-Ling Chen ¹, Yung-Chun Yang ¹, Si-Yuan You ¹, Shi-Yu Hung ¹,

Hsu-Fan Tseng ¹, Hiroyuki Fujita ^{3,4}, Cheng-Yao Lo ^{1,2,3*}

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Tu-FSW-09 Natural Flax Fibres For Sustainable Sensor Applications

Yi Chen ¹, Anna de Lena ¹, Sansan Shen ^{1,3}, Robert Abbel ¹, Sofiane Guessama ², Kate Parker ¹, Xuejun Li ³

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³ Department of Electrical and Electronic Engineering, Auckland University of Technology, Auckland, 1010, New Zealand

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

[HPH Floor D]

Tu-MLO-01 Electrohydrodynamic Oscillatory Deformation Of Viscoelastic Droplets As An Interfacial Microrheometer

*Chintak Kamalesh Parashar, Omkar S Deshmukh, Dipankar Bandyopadhyay**

Indian Institute of Technology Guwahati, Guwahati, Assam-781039, India

Tu-MLO-02 Finite Element Modeling, Design And Characterisation Of SAW Transducers For Acoustofluidic Systems

Anita Bányai¹, Eszter Leelössyné Tóth¹, M. Varga², Péter Fűrjes¹

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Tu-MLO-03 Cyclic Olefin Copolymer (COC) Based Organ-on-a-chip (OOC) Device With Integrated Sensing For Monitoring Of The Cell Culture

Elisa Simioni^{1,2,4}, Suzana Macuvele^{2,3}, Arsénio M. Fialho^{2,3}, Catarina R. F. Caneira¹, Onelia Gagliano⁴

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Tu-MLO-04 Fully Automated Skeletal Muscle-on-chip Platform For Contraction Analysis

Giorgia Curci¹, Daniele Durante², Corrado Mazzaglia¹, Arianna Mencattini¹, Monica Ballarino², Eugenio Martinelli¹

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Tu-MLO-05 A Microreactor Workflow For Spatial Proteomics Sample Preparation

Manuel Metzger^{1,2}, Maximilian Maldacker^{3,4}, Tobias Hutzenlaub^{1,2}, Nils Paust^{1,2}, Oliver Schilling³, Jan-Niklas Klatt^{1,2}

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Tu-MLO-06 A Microfluidic Device Integrating Electrical Impedance Spectroscopy Enables Label-Free Monitoring Of C. Elegans In Egg-Laying

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Photonics And Optical Sensors

[HPH Floor D]

Tu-POS-01 Rapid Vaccine Screening And Component Analysis Via A SERS Platform With Plasmonic Concentric Nanostructure Enhancers

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Tu-POS-02 MEMS-based Microplasma Devices On Glass Substrates For Optical Emission Spectroscopy

Enrique Escobedo-Cousin, Karolina Milenko, Michael Getz, Do Chi Huong Hoang, Aina Kristin Herbjørnrad, Elizaveta Vereshchagina

SINTEF Digital, Smart Sensors and Microsystems, Gaustadalléen 23C, 0373 Oslo, Norway

Tu-POS-03 A Hitchhikers Wave Guide To Evanescent Microchips

Jan Voigt, Christian Bilgeri, Marcel Flemming, Gian-Andrea Rezzoli, Winfried Arens

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

Tu-POS-04 Interface-Controlled Transport And Broadband Photoresponse In ZnO photodetectors Modified With Nitrogen And Phosphorus-Doped Carbon Dots

Nikolaos Ganotis¹, Spyridon N. Katsantonis^{1,2}, Spiros Gardelis³, Marko Bašković⁴, Danijela Randjelović⁴, Maryam A. Saeed⁵, Sowmya Dean⁵, Yaqoub Malallah⁵, Konstantinos V. Kordatos², Emmanouel Hourdakis⁶, Christos Tsamis¹

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Tu-POS-05 A Low-Cost Fully 3D-Printed Automated Magnetic Bead Capture System With Real-Time Optical Monitoring

Pulkrit Saluja, Sirio Vittorio Feltrin¹, Maria Dimaki¹, Winnie Edith Svendsen¹

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Tu-POS-06 Beyond iSCAT Sensitivity: Mechanistic Control Of Photodamage In Label-Free Biosensing

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Tu-POS-07 Equivalent Emissivity Of Poly-Si, SiO₂, And SiNx For Accurate Heated-Membrane Optical Radiator Design

Reinoud F. Wolffenbuttel

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

Tu-POS-08 Irreversible Microstructured Optical RH Threshold Indicator With A Binary Visual Readout

Jakub Orlikowski¹, Joanna Cybińska^{1,2}

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Tu-POS-09 Nanowire Geometry Engineering for Enhanced Fluorescence Biosensing Performance

Farhana Akter Mou, Nicklas Anttu

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Tu-POS-10 Tailoring Acoustic Modes For Ultra-Sensitive Photoacoustic Gas Detection

Mh. S. Moussa¹, R. Viard², J-F Lampin¹, Sophie Eliet¹, S. Khattou³, M. Amrani³, A. Mazzamuro¹, O. Bou Matar¹, B. Djafari-Rouhani¹, P. Pernod¹, E. H. El Boudouti³, A. Talbi¹

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Physical Sensors

[HPH Floor D]

Tu-PHS-01 LVIT Position Sensor With Improved Linearity

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Tu-PHS-02 Frequency Mixing Magnetic Detection For Viscosity Sensitive Biosensing Using Magnetic Nanoparticle Relaxation

Ali Mohammad Pourshahidi¹, Timur Bikulov¹, Amirreza Gholivand², Abdalhalim Abuwad¹, Ulrich M. Engelmann³, Hans-Joachim Krause^{1,3}

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Tu-PHS-03 A Drift-Resistant Amine-based Chemiresistive Printed Sensor For Carbon Dioxide Monitoring

Pavlos Tzourmpakis¹, Mohammad Vaseem², Igor Getmanov², Adarsh Sivan Pillai³, Atif Shamim²

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³ SMART Lab, School of Computing, Engineering & the Built Environment, Edinburgh Napier University, Edinburgh EH10 5DT, Scotland, UK

Tu-PHS-04 Detection Of The Oscillation Of A Magnetic Artificial Cilium Using An Electromagnetic Pickup

Jonas Astl, Wolfgang Hilber¹, Sebastian Lang¹, Bernhard Jakoby¹

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Tu-PHS-05 Sensing Of Microplastics In Water Using Gold Nanoparticle-Coated Multimode Optical Fiber

Vikas Kumar¹, Shrabya Shukla¹, Maria Asunción Illarramendi², Joel Villatoro^{1,3}

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Tu-PHS-06 A Robust Capacitive Sensor Platform For On-Line Dielectric Constant Measurement Of Liquid Mixtures

Pascal Schläpfer, Julia Schläpfer¹, Marcel Giger¹

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Tu-PHS-07 Overcoming Thermal Inertia In Robust Anemometers Via Observer-Based Virtual Thermal Isolation

Samuel Huber, Mathias Mächler¹, Tobias Lamprecht¹, Lars Kamm¹, Dietmar Bertsch¹, Christoph Würsch¹

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Tu-PHS-08 LVDT Position Sensor With External Armature

Mehran Mirzaei, Jiri Maier, Pavel Ripka

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Tu-PHS-09 Investigating Slip-Induced Frequency Relationship In Dual Channel PVDF Sensor Applied To Robotic Grippers

Zerun Wang, Vivek Kamat¹, Shekhar Bhansali^{1*}

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Tu-PHS-10 High Temperature Investigation Of Polymer-Free Strain Gauges For Integration In DED-LB Components

Eileen Müller, Julia Eisfelder, Rico Ottermann, Folke Dencker, Daniel Klaas, Marc Christopher Wurz

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Sensing For Medical Diagnostics And Monitoring

[HPH Floor C]

Tu-SMD-01 Measurement Of Stress Relaxation During The Indentation Of Human Gastric Tissues

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Tu-SMD-02 A Non-Invasive Biosensor For Albumin Detection In Tear Fluid Based On Molecularly Imprinted Polymers

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Tu-SMD-03 Fatigue Detection During Wall-Sit Exercise Using Statistical Features Of Chest ECG-Derived EMG

Chanki Park, Chul Huh¹, Hyung Ju Park¹

¹ Digital Biomedical Research Division, Digital Convergence Research Laboratory, Electronics and Telecommunications Research Institute (ETRI), Republic of Korea

Tu-SMD-04 Clinical Validation Of A New Radar System For Multi-Parameter Vital Sign Detection In Patients

Michael Gottinger¹, Samuel Kranz¹, Nicola Notari², Tindaro Pittorino¹, Christoph Würsch²

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² Institute for Computational Engineering (ICE), Ostschweizer Fachhochschule, Werdenbergstrasse 4, 9470 Buchs, Switzerland

Tu-SMD-05 Miniaturized GC-MOS Platform For Exhaled Breath Analysis

Antonio Rodrigo Murgia¹, Asya Kalinichenko¹, Jan Mitrovics¹, Christian Bur², Andreas Schüttze²

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Tu-SMD-06 Enabling Large-Area Tactile Imaging via Multiplexed CB PDMS Flexible Pressure Sensor Arrays

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

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Tu-SMD-07 Electrochemical Monitoring Of Circulating Phosphoglucose Isomerase For Early Diagnosis Of Obesity-Associated Metabolic Disorders

Jia Guo¹, Hervé Le Stunff², Yacir Benomar¹, Laurent Salmon¹, Hafsa Karri-Youssefi¹

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² Université Paris-Saclay, Institut des Neurosciences, NeuroPSI, CNRS UMR 9197, Allée des Neurosciences, bâtiment 151, 91190 Gif-sur-Yvette, France

Tu-SMD-08 Inductive Wireless Power Transfer For Miniature Rodent Brain Implants Enabling Untethered Neural Recordings

Kian Mehdi Azadmehr¹, Pegah Haghsomar¹, Baard Nossom², Enrique Escobedo-Cousin²

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Tu-SMD-09 Development Of A Transistor-Based Gas Sensor For Biomedical Applications

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Tu-SMD-10 Discriminating Between Viable And Non-Viable Bacteria With A Field-Effect Transistor Based On Nano-Channels

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Sensor Applications: Environment, Food And Space

[HPH Floor C]

Tu-EFS-01 Direct Comparison Between An Analog MOS Sensor Array And A Single Temperature-Modulated Digital MOS Sensor For Food Spoilage Status Classification

Lucia Carrà¹, Christian Ratti¹, Sara Bettinaglio¹, Emanuele Zanni², Francesca Pianca³, Raffaele Del Iacà², Laura Capelli¹

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Tu-EFS-02 A Lensless Microscope-Based Sensor For 3D Displacement Measurement In Infrastructure Monitoring

Luqi Yan¹, Agus Budi Dharmawan¹, Jan Gülink², Izabela Zrazinska³, Francisco Hernandez³, J. Daniel Prades¹

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² QubeDot GmbH, Braunschweig, Germany

³ WorldSensing S.L., Barcelona, Spain

Tu-EFS-03 From Measurements To Perceptions:

Sensors And Structural Equation Modelling To Evaluate Indoor Comfort In University Buildings

Chiara Visentin^{1,}, Matteo Pellegatti¹, Arianna Rossi², Marco Magoni^{2,3}, Danila Azzolina⁴, Domenico Iervolino⁵, Elena Marrocchino⁴,*

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* These authors are co-first authors of this work

Tu-EFS-04 Theoretical-Experimental Investigation Of A Surface Acoustic Wave Sensor Based On Dual Substrates

Hiba Taleb, Meddy Vanotti, Virginie Blondeau-Patissier

Université Marie et Louis Pasteur, SUPMICROTECH, CNRS, Time and Frequency department, FEMTO-ST Institute, Besançon 25000, France

Tu-EFS-05 Magnetic Microfluidics Biosensor For Environmental Applications: A Simulation Approach

F. Shانهsazadeh¹, R. Askari Moghadam^{2,}, A. Rabehi¹, S. Neveu³, G. Klisnick, H. Kokabi²*

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³ Laboratoire Physicochimie des Electrolytes et Nanosystèmes, Sorbonne University, CNRS, France

Sensor Arrays And Networks, Integrated Systems

[HPH Floor D]

Tu-SAN-01 Sensor Placement In Energy Systems Based On Residual Uncertainty

Philipp Kersten, Sören Hirsch

University of Applied Sciences Brandenburg, Magdeburger Straße 50, 14770, Brandenburg an der Havel, Germany

Tu-SAN-02 A Multisensor-Array Device For Breath Analysis:

Development Of A Data Quality Assessment Framework And Application In The Clinical Practice

Valentina Pizzillo^{1,2*}, Jolanda Palmisani^{1,2*}, Alessia Di Gilio^{1,2}, Annamaria Catino³, Alba Quarato³, Gianluigi de Gennaro^{1,2}, Sergio Ivan Lopes⁴

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* co-first authors

Tu-SAN-03 Integrated Nitrate Sensor For Real-Time Soil Monitoring

Elise Saoutieff¹, Arthur Ohl¹, Vincent Elhorga¹, Célia Boko¹, Iris Vogeler², Nivedha Surendran³, Axel Wille³, Han Shao⁴, Alan O'Riordan⁴,

Patryk Kalkowski⁵, Lukasz Kulas⁵, Henrique Trindade⁶, Safi Ullah⁷, Lukas Kohl⁷

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⁵ Gdansk University of Technology, Gdansk, Poland

⁶ University of Trás os Montes e Alto Douro, Quinta de Prados, Portugal

⁷ University of Eastern Finland, Kuopio, Finland

Tu-SAN-04 Scalable Flux Using Chamber Embedded Integrated Selective Multigas Sensing

Fabian Sievers, Moritz Zimmer, Álvaro Ortiz Pérez, Natalie Schütz, Stefan Palzer

TU Dortmund, Professorship for Sensors, Otto-Hahn-Straße 8, 44227 Dortmund, Germany

Tu-SAN-05 Biosensing Network For Real-time Water Monitoring

Elise Saoutieff¹, Célia Boko¹, Arthur Ohl¹, Clément Garaffa¹, Guillaume Nonglaton¹, Luana Cuvillier¹, Richard Murray², Alan O'Riordan², Sana Muzaffar²,

Ajran GJ Tibbe³, Jinane Elias³, Gabriela Dudnik⁴, Abdessamad Fallhi⁴, André Fivaz⁴, Cecilia Jimenez-Jorquera⁵, Josep Maria Margarit-Taulé⁵,

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⁴ CSEM, Neuchâtel, Switzerland

⁵ IMB-CNM, CSIC, Barcelona, Spain

⁶ Wageningen University, Wageningen, Netherlands

⁷ RIVM, Bilthoven, Netherlands

Tu-SAN-06 Low-Cost Electronic Nose for Environmental Applications

Guillem Domenech Gil, David Bastviken

Department of Thematic Studies - Environmental Change (TEMA M), Linköping University, Sweden

Tu-SAN-07 Is The Initial Response Of Gas Sensors Enough For Gas Recognition?

Luiz Miranda^{1,2}, Ítalo Santos¹, Bernadette Dorizzi¹, Dijana Petrovska Delacretaz¹, Mossaab Hariz¹, Jerome Boudy¹, Nathalie Redon²,

Alberto Gregori², Jugurta Montalvão³

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³ Universidade Federal de Sergipe, UFS, São Cristóvão, Brazil

Sensor Fundamentals & Modelling

[HPH Floor C]

Tu-SFM-01 Precision In Gas Sensing: A Quantitative And Qualitative Analysis Of Comparative Bias In Reported Metrics

Pedro P. Ortega¹, Sandra Gherardi^{2,3}, Michele Astolfi^{2,3}, Miguel A. Ponce⁴, Cesare Malagù^{2,3}, Elson Longo¹

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Tu-SFM-02 PMUT And CMUT Array – Design, Technology And Experimental Validation

Alexey Shaparin¹, Rahul Nagaraja², Akshay Rameshbhai Dudhat¹, Chris Stöckel¹, Andrew Tweedie²

¹ Fraunhofer ENAS, Technologie Campus 3, 09126, Chemnitz, Germany

² Quanscient, Peltokatu 34 B, 33100 Tampere, Finland

Tu-SFM-03 A Metasurface Acoustic Fabry-Perot Interferometer For Ultrasonic Passive Strain Sensing

Sira Bielefeldt¹, Roman Furrer², Christofer Hierold¹, Mathieu Luisier¹, Cosmin Roman¹

¹ ETH Zürich, Rämistrasse 101, 8092 Zürich, Switzerland

² EMPA, Überlandstrasse 129, 8600 Dübendorf, Switzerland

Tu-SFM-04 Fast Tactile Sensor Array Normalization Of An Artificial Silicone Fingertip Using A Pressure Chamber

Katja Meier, Florin Püntener, Sira Bielefeldt, Christofer Hierold, Cosmin Roman

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

Tu-SFM-05 Efficient Prediction Of Damping In Acceleration Sensors By Physical Compact Modelling

F. Michael¹, K. Hiller², S. Weidlich², R. Forke³, S. Pregl⁴, G. Schrag¹

¹ Technical University of Munich, Munich, Germany

² TU Chemnitz, Chemnitz, Germany

³ Fraunhofer Institute for Electronic Nano Systems ENAS, Chemnitz, Germany

⁴ Infineon Technologies AG, Dresden, Germany

Tu-SFM-06 Engineering Nanopipettes For Probing Neuronal Communication At The Nanoscale

Amelie Viol¹, Morteza Aramesh¹, János Vörös²

¹ Laboratory of Single-Molecule and Single-Cell Biophysics, Institute for Biomedical Engineering, ETH Zürich

² Laboratory of Biosensors and Bioelectronics, Institute for Biomedical Engineering, ETH Zürich

Tu-SFM-07 A Two-Layer Micro-Electrical Impedance Tomography Platform For Three-Dimensional Image Reconstruction Using Machine Learning

Chang Liu^{1,2}, Thomas E. Winkler^{1,3,*}, Iordania Constantinou^{1,2,*}

¹ Institute of Microtechnology (IMT), Technische Universität Braunschweig, Alte Salzdahlumer Straße 203, 38124 Braunschweig, Germany

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³ Department of Micro and Nanosystems (MST), Digital Futures & SciLifeLab, KTH Royal Institute of Technology, Malvins väg 10, 100 44 Stockholm, Sweden

Signal Analysis, Machine Learning, Physics-Informed Machine Learning And Artificial Intelligence for Sensing

[HPH Floor C]

Tu-SML-01 Recovery Of Characteristic Thiabendazole Raman Peaks From Ethanol-Dominated Spectra Toward Microfluidic SERS-Based Pesticide Sensing

Karolina Milenka¹, Kari Anne Hestnes Bakke¹, Elizaveta Verschegina¹, Angela Baracu², Adrian Dinescu², Oana Rasoga³, Konrad Gizyński⁴

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⁴ Institute of Physical Chemistry, Polish Academy of Sciences, Kasprzaka 44/52, 01-224 Warsaw, Poland

Tu-SML-02 Dual-Descriptor VAE Characterisation Of AE-Band Structural Signals In Reinforced Concrete

Xiang Zhang

HafenCity University Hamburg, Henning-Vosschauer-Platz 1, 20457 Hamburg, Germany

Tu-SML-03 Field Measurement-Based Analysis Of Impulsive Bridge Vibrations For Energy Harvesting

Shuchen Du, Marcus Illguth, Gesa Kapteina

HafenCity University Hamburg, Hamburg, Germany

Tu-SML-04 Impact Of Sensor Selection On Signal Quality Of Physiological Monitoring In Demanding Conditions

Aline F. Renz¹, Ekaterina Maevskaia¹, Frederik Bauer¹, Denis Bron², Andreas Stier³, René M. Rossi^{1,4}, Simon Annaheim¹

¹ Empa, Laboratory for Biomimetic Membranes and Textiles, 9014 St. Gallen, Switzerland

² Swiss Air Forces, Aeromedical Center, Dubendorf, Switzerland

³ Armassuisse, Bern, Switzerland

⁴ Department of Health Sciences and Technology, ETH, Zurich, Switzerland

Tu-SML-05 Multi-Season Field Evaluation Of A Temperature-Modulated SMOX Sensor Array For NO₂ And O₃ Monitoring

Felix Schmidt¹, Arne Kobald¹, Pietro Tosato², Andrea Gaiardo², Udo Weimar¹, Nicolae Barsan¹

¹ Institute of Physical and Theoretical Chemistry, University of Tuebingen, Tuebingen, Germany

² Sensors and Devices Center, Bruno Kessler Foundation, Via Sommarive 18, Trento, 38123, Italy

Tu-SML-06 Generation and Real-Time Detection of High-Fidelity Odour Plumes

Amirreza Gholivand¹, Anantha Padmanabhan¹, Florian Paul Schmidt², Tobias Ackels¹

¹ University of Bonn, Faculty of Medicine, Sensory Dynamics and Behaviour Laboratory, Institute of Experimental Epileptology and Cognition Research, Venusberg-Campus 1, 53127 Bonn, Germany

² Bielefeld University, Faculty of Biology, Biological Cybernetics, Universitätsstr. 25, 33615 Bielefeld, Germany

Tu-SML-07 Empowering Self-Powered Sensors Via Agentic RAG: A Domain-Specific LLM Framework For Building Physics Retrieval

Sobhan Saadatnasab

The Hong Kong University of Science and Technology, New Territories, HK



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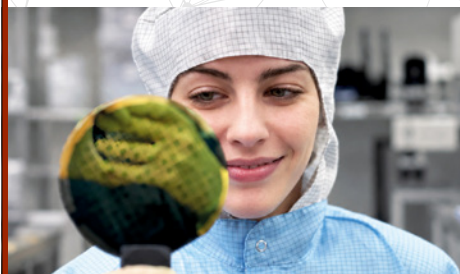
Sensors

Microelectronics

Electronic Packaging

Embedded Systems + AI

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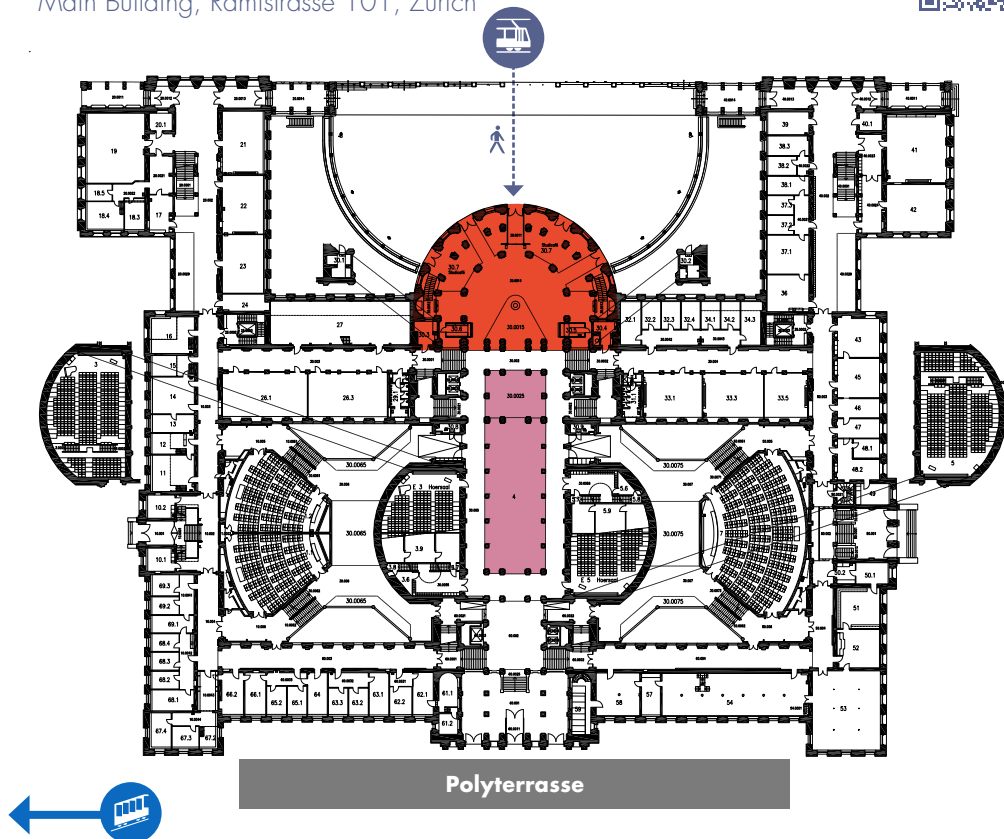


Floor Plan

Registration starting 18.30 followed
by Welcome Reception:

ETH Zürich

Main Building, Rämistrasse 101, Zürich



Tram / Street Car Stop Area

ETH Universitätsspital
(Nr. 6, 9, 10)



Polybahn

(Schedule: Page 37)

More Info: www.polybahn.ch



Entrance ETH Main Building

Rämistrasse 101, 8006 Zürich
floor E



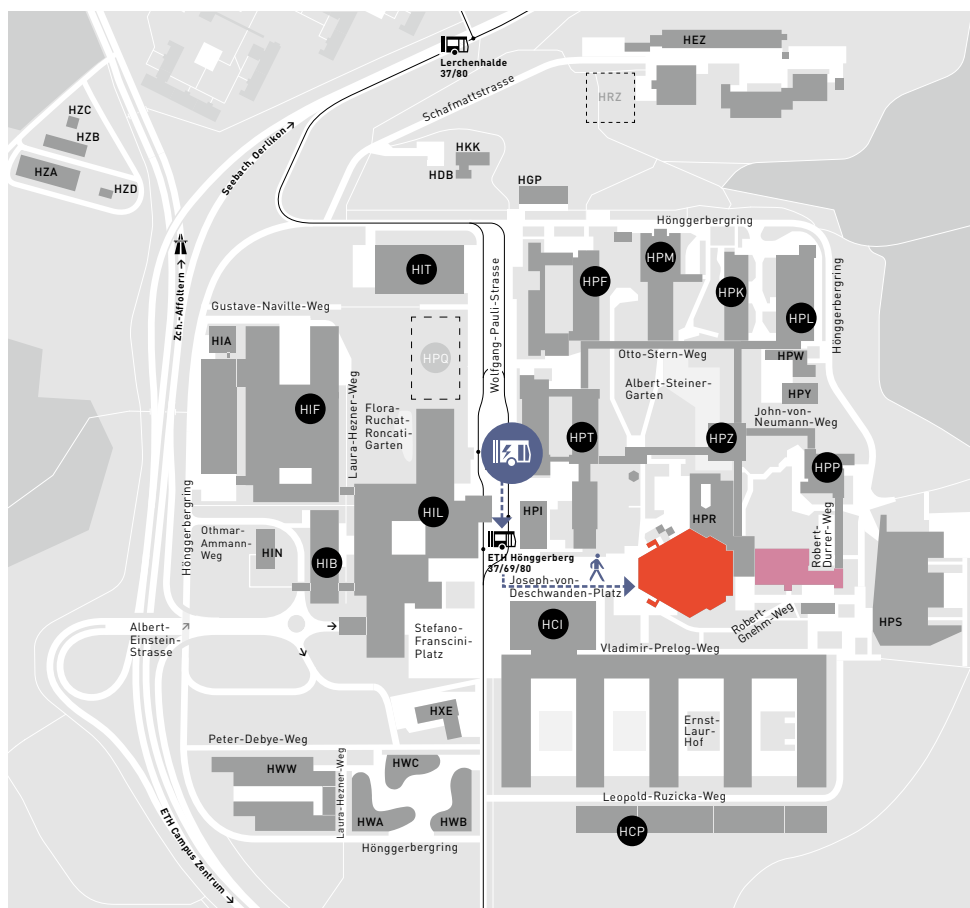
Registration +
Welcome Reception

Floor Plan

Conference Location:

ETH Hönggerberg

Joseph-von-Deschwanden-Platz 1, 8093 Zürich



Bus Stop Area
ETH eLink + Public Bus
(Time Table: Page 46/47)



HPH Building
Main Conference Venue
Lunch Break /
Coffee Break Area / Poster Area



HPV Building
Breakout Session

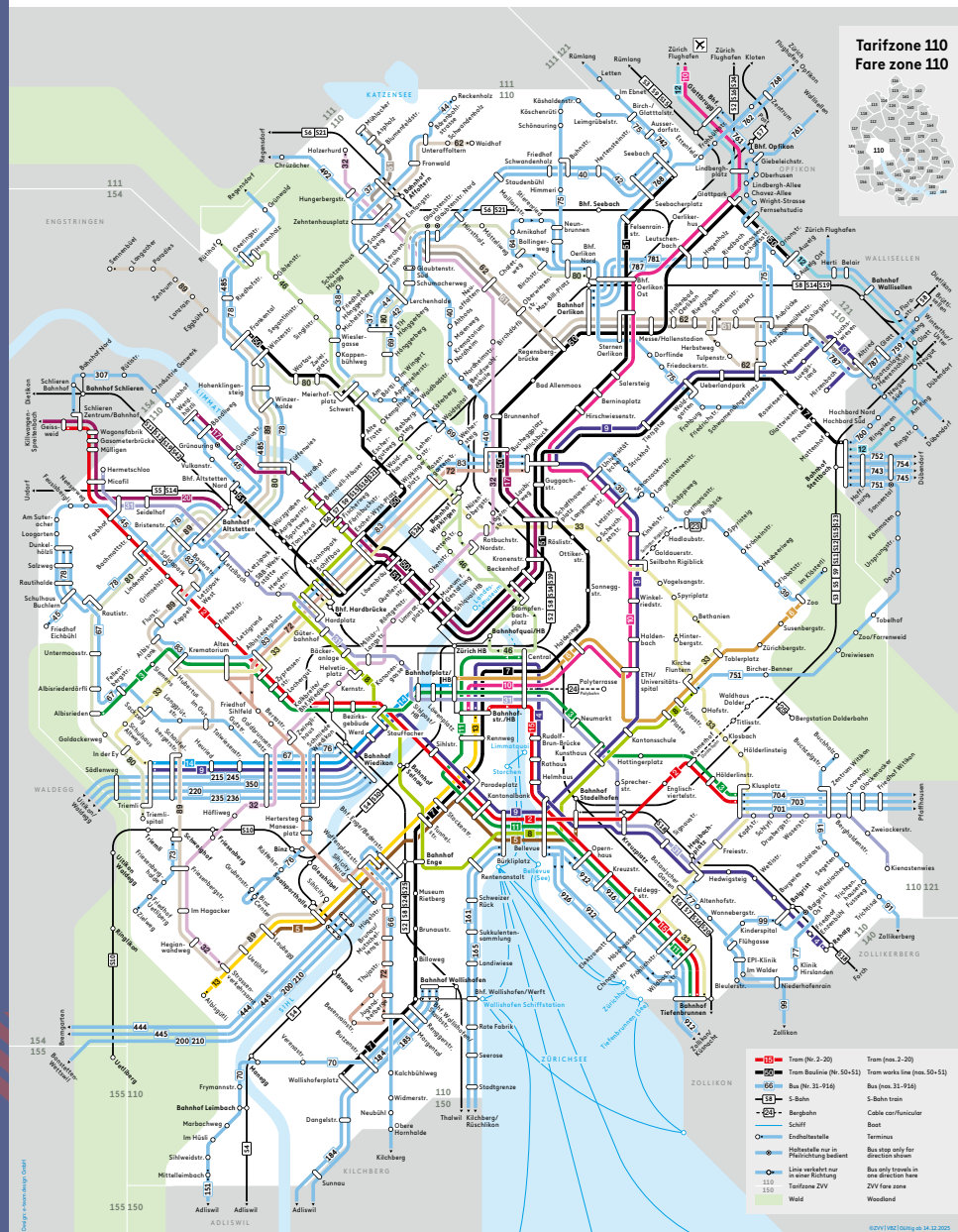
Network Map (Daytime)

ZVV-Online
Network Maps:



Stadt Zürich | Zurich City

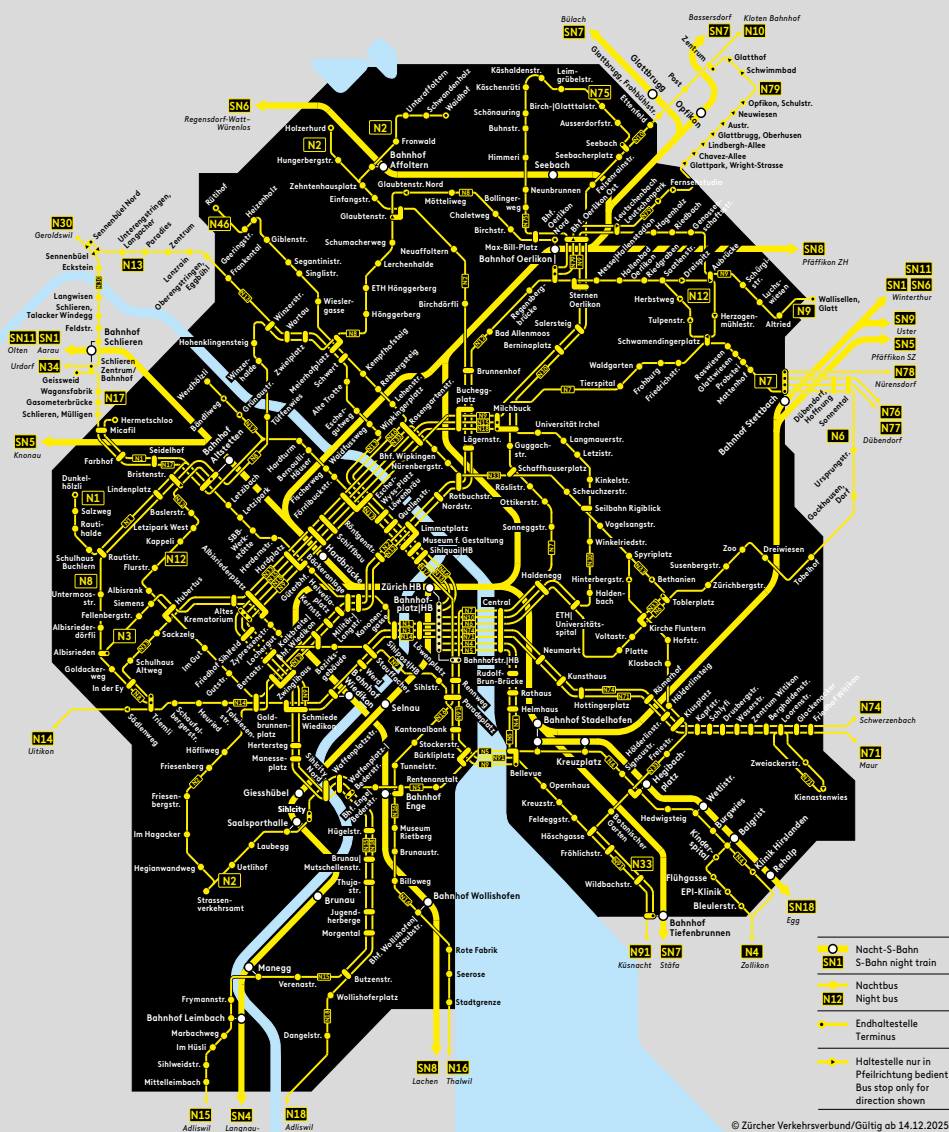
Tarifzone 110
Fare zone 110



- Tram (No. 2-30)
- Tram Busline (No. 50-51)
- Bus (No. 31-914)
- S-Bahn
- Regional Lines
- Boat
- Ferry
- Terminus
- Haltestelle nur in Fahrtrichtung
- Haltestelle nur in einer Richtung
- Line verkehrt nur in einer Richtung
- Tarifzone ZVV
- Wald
- Tram (nos. 2-30)
- Tram works line (nos. 50-51)
- S-Bahn train
- Cable car/funicular
- Boat
- Terminus
- Bus stop only for direction street
- Bus only travels in one direction
- ZVV fare zone
- Woodland



Nachtnetz Stadt Zürich Nighttime network Zurich City

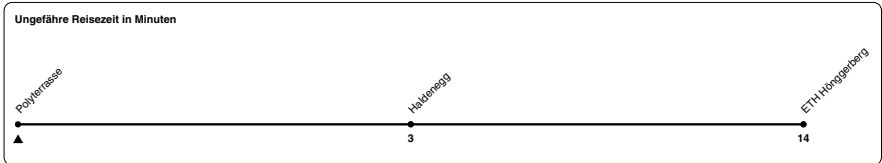




ETH Polyterrasse
Direction **ETH Honggerberg**



h	Montag – Mittwoch		
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Gultig ab 14.12.2025



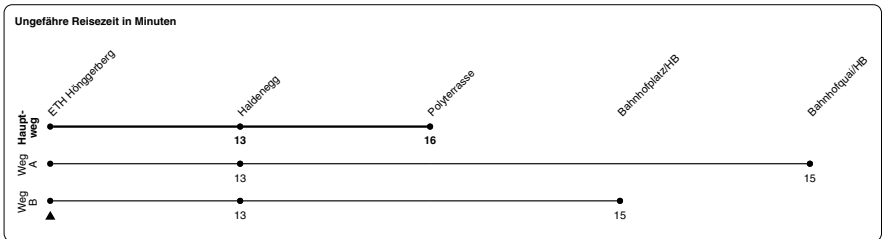
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ETH Hnggerberg
Direction **ETH Polyterrasse**



h	Montag – Mittwoch		
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Gltig ab 14.12.2025



GEMEINSAM VORWRTS. ZVV

Program 2026 at a Glance

Time	Sunday September 6	Monday September 7	Tuesday September 8	Wednesday September 9
08.30 – 09.00	Registration followed by Welcome Reception [ETH Zürich, Main Building, Remonstrasse 101, Zürich] Starting: 18.30	Opening	Arrival & Coffee	Arrival & Coffee
09.00 – 09.55		Plenary Talk 1 [HPH G1] Hatice Altug	Plenary Talk 3 [HPH G1] Achim J. Lilienthal	Plenary Talk 5 [HPH G1] Michael Snyder
10.00 – 11.00		Session 1.1 [HPH G1] Session 1.2 [HPH G2] Session 1.3 [HPH G3] Session 1.4 [HPV G4]	Session 4.1 [HPH G1] Session 4.2 [HPH G2] Session 4.3 [HPH G3] Session 4.4 [HPV G4]	Session 7.1 [HPH G1] Session 7.2 [HPH G2] Session 7.3 [HPH G3] Special Session 1.1 [HPV G4] Special Session 1.2 [HPV G5]
11.00 – 11.30		Coffee Break	Coffee Break	Coffee Break
11.30 – 13.00		Session 2.1 [HPH G1] Session 2.2 [HPH G2] Session 2.3 [HPH G3] Industry Session 1 [HPV G4]	Session 5.1 [HPH G1] Session 5.2 [HPH G2] Session 5.3 [HPH G3] Industry Session 3 [HPV G4]	Session 8.1 [HPH G1] Session 8.2 [HPH G2] Session 8.3 [HPH G3] Special Session 2.1 [HPV G4] Special Session 2.2 [HPV G5]
13.00 – 14.00		Lunch Break	Lunch Break	Lunch Break
14.00 – 14.55		Plenary Talk 2 [HPH G1] Mark Allen	Plenary Talk 4 [HPH G1] John Rogers	Plenary Talk 6 [HPH G1] Attila Bonyár
14.55 – 16.30		Poster Session & Coffee Break [HPH Floor D]	Poster Session & Coffee Break [HPH Floor D]	Awards & Closing [HPH G1]
16.30 – 18.00		Session 3.1 [HPH G1] Session 3.2 [HPH G2] Session 3.3 [HPH G3] Industry Session 2 [HPV G4]	Session 6.1 [HPH G1] Session 6.2 [HPH G2] Session 6.3 [HPH G3] Industry Session 4 [HPV G4]	
18.05 – 18.55		Awards [HPH G2]		
Starting: 19.00		Social Evening [HPH G1]	Conference Dinner [Lake Side]	

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