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Steven Shaw

Florida Institute of Technology, USA

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{1}Robert Bosch GmbH, Germany; {2} Technical University Chemnitz, Germany

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<i>{2} Istituto di Elettronica e di Ingegneria dell'Informazione e delle Telecomunicazioni, Consiglio Nazionale delle Ricerche, Italy</i>	

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LOCATION: Lomond Auditorium

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{1} University of Southampton, UK, {2} IS Instruments Ltd, UK

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{1} Solid State Physics Laboratory, Delhi-54, India, {2} Jamia Millia Islamia University, Delhi-25, India

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MONDAY, OCTOBER 30 – POSTER SESSION

1:00 PM - 3:00 PM

A2P-G: Sensor Phenomenology, Modeling and Evaluation

LOCATION: Hall 5

SESSION CHAIRS:

Rudra Pratap, Indian Institute of Science; David Elata, Israel Institute of Technology

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<i>{1} National University of Defense Technology, China, {2} Peking University, China, {3} East China Institute of Photo-Electronic IC, China</i>	
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{1} University of Texas at Arlington, USA, {2} Flex LTD, USA

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{1} Chungnam National University, Korea, {2} KAIST, Korea, {3} Kangwon National University, Korea, {4}

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Rama Komaragiri, Bennett University; Hadi Heidari, University of Glasgow

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Falah Ali, University of Sussex; Fabio Verdicchio, University of Aberdeen

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A2P-M: Sensors for Medical Robotics II

LOCATION: Hall 5

SESSION CHAIRS:

Daniele Tosi, Nazarbayev University; Kinaouch Nazarpour, Newcastle University

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University of Glasgow, United Kingdom*

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A3P-G: Live Demonstrations

LOCATION: Hall 5

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LOCATION: Carron

SESSION CHAIRS:

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4:00

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{1}Universidad Antonio Nariño, Colombia; {2}Universidad Pedagógica y Tecnológica de Colombia, Colombia

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LOCATION: Dochart

SESSION CHAIRS:

Jacopo Iannacci, Fondazione Bruno Kessler (FBK); Prodromakis Themis, University of Southampton

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{1}Indian Institute of Technology Delhi, India; {2}Toyo University, Japan*

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{1}Landauer, Inc., United States; {2}Purdue University, United States*

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*Kaitlyn Diederichs {1},{3}, Amy Qiu {1},{4}, and George Shaker {1},{2},{5}
{1}Centre of Intelligent Antenna and Radio Systems, University of Waterloo, Waterloo, ON, Canada; {2}Department of Electrical and Computer Engineering; {3} Department of Systems Design Engineering, University of Waterloo, Waterloo, ON, Canada; {4} Department of Biomedical Engineering, University of Waterloo, Waterloo, ON, Canada; {5} Spark Tech Labs, Waterloo, ON, Canada*

4:00 PM - 5:30 PM

A4L-C: New Photodetection Technologies

LOCATION: Lomond Auditorium

SESSION CHAIRS:

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{1}Rensselaer Polytechnic Institute, United States; {2}University of New Mexico, United States

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{1}STMicroelectronics, United Kingdom; {2}University of Edinburgh, United Kingdom

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LOCATION: Alsh

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{1}King's College London, United Kingdom; {2}Queen Mary University of London, United Kingdom*

4:00 PM - 5:30 PM

A4L-E: Technologies in Sensor Networks

LOCATION: Boisdale 1

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4:00 PM - 5:30 PM

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LOCATION: Boisdale 2

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B1L-A: Sensors for Medical Robotics I

LOCATION: Carron

SESSION CHAIRS:

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{1}Johns Hopkins School of Medicine, United States; {2}Johns Hopkins University, United States

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{1}Institut hospitalo-universitaire de Strasbourg, France; {1}Institut hospitalo-universitaire de Strasbourg, Germany;

{1}Institut hospitalo-universitaire de Strasbourg, Italy; {2}Nazarbayev University, Kazakhstan; {3}Università Campus Bio-Medico di Roma

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{1}Carnegie Mellon University, United States; {2}Smith & Nephew, Inc., United States; {3}University of Pittsburgh, United States

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{1}Johns Hopkins University, United States; {2}Mahidol University, Thailand

11:00 AM - 12:30 PM

B1L-B: Emerging Materials & Methodologies for Thermal, Optical and Chemical Sensors

LOCATION: Dochart

SESSION CHAIRS:

Karthik Shankar, University of Alberta; T.K. Bhattacharya, IIT Kharagpur

11:00

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{1}CTR Carinthian Tech Research AG, Austria; {2}Infineon Technologies Austria AG, Austria; {3}Johannes Kepler
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{1}Callaghan Innovation, New Zealand; {2}University of Canterbury, New Zealand

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{1}Libera Università di Bolzano, Italy; {2}Technische Universität München, Germany

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{1}Georgia Institute of Technology, United States; {2}University of Mount Union, United States

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Simon Fraser University, Canada

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B1L-C: Novel Optical Measurement Systems

LOCATION: Lomond Auditorium

SESSION CHAIR:

Huikai Xie, University of Florida; Silas Hadjiloucas, Univeristy of Reading

11:00

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{1}ABB Switzerland, Switzerland; {2}Eidgenössische Technische Hochschule Zürich, Switzerland

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Kavita Sharma{1}, Sijing Liang{2}, Shaif-UI Alam{2}, Shanti Bhattacharya{1}, Deepa Venkitesh{1}, Gilberto Brambilla{2}

{1}Indian Institute of Technology Madras, India; {2}University of Southampton, United Kingdom

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{1}Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; {2}Max Planck Institute for the Science of Light, Germany

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InfraTec GmbH, Germany

11:00 AM - 12:30 PM

B1L-D: Sensors Systems and Processing Techniques

LOCATION: Alsh

SESSION CHAIRS:

Jan Steckel, Universiteit Antwerpen; Carlos Ruiz, Zamarreño Public University of Navarra

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*Wolfgang Granig{2}, Dirk Hammerschmidt{2}, Hubert Zangl{1}
{1}Alpen Adria Universitaet Klagenfurt, Austria; {2}Infineon Technologies Austria AG, Austria*

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{1}Korea Electronics Technology Institute, Korea; {2}Kyungpook National University, Korea*

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*Sebastian Scheurer{1}, Salvatore Tedesco{2}, Kenneth Brown{1}, Brendan O'Flynn{2}
{1}Insight Centre for Data Analytics / University College Cork, Ireland; {2}Tyndall National Institute / University
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*Trupti Lenka, M. Krishnasamy
National Institute of Technology Silchar, India*

11:00 AM - 12:30 PM

B1L-F: Tactile and Strain Sensors

LOCATION: Boisdale 2

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Vittorio Ferrari, University of Brescia; Maurizio Valle, University of Genoa

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{1}Fondazione Bruno Kessler, Italy; {2}University of Glasgow, United Kingdom*

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^{1}University of Strathclyde, United Kingdom; ^{2}VTT Technical Research Centre of Finland Ltd, Finland*

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<i>{1}Centro Italiano Ricerche Aerospaziali, Italy; {2}Politecnico di Milano, Italy</i>	

4:00 PM - 5:30 PM

B2P-H: Physical Sensors III

LOCATION: Hall 5

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{1}Manchester Metropolitan University, United Kingdom; {2}Usikov Institute of Radiophysics and Electronics National Academy of Sciences of Ukraine, Ukraine

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{1}Chiyoda Technol. Co., Japan; {2}Kanazawa Institute of Technology, Japan; {3}Osaka University, Japan

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{1}Beihang University, China; {2}University of California, Berkeley, United States

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<i>{1}Politecnico di Milano, Italy; {2}STMicroelectronics, Italy; {3}Università degli Studi di Brescia, Italy</i>	
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LOCATION: Hall 5

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J. Lee, Chosun University; Majeed Soufian, Edinburgh Napier University

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{1}Holst Centre / IMEC, Netherlands; {2}Katholieke Universiteit Leuven, Belgium

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{1}Ghent University / imec / IDLab, Belgium; {2}Vrije Universiteit Brussel / imec, Belgium

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{1}Southern University of Science and Technology, China; {2}Technische Universiteit Delft / Southern University of Science and Technology, China

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{1}Université de Bretagne Occidentale, France; {2}University of Boumerdes, Algeria

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<i>{1}Escuela Politécnica Superior de Mondragon Unibertsitatea, Spain; {2}IK4-Ikerlan, Spain</i>	
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<i>Dominik Holzmann, Thomas Arnold</i>	
<i>CTR Carinthian Tech Research AG, Austria</i>	

B-10-381
INVESTIGATION OF HOUSING ON PACKAGED MEMS WIND SENSORS FOR INDUSTRIAL APPLICATION1095
Zhenxiang Yi, Li-Feng Wang, Zhen Zhu, Qing-An Huang
Southeast University, China

1:30PM - 3:30 PM
B2P-N: Sensors Utilizing Electromagnetics for Medical Applications
LOCATION: Hall 5
SESSION CHAIRS:
Hung Cao, University of Washington, Bothell; J.-C. Chiao, University of Texas - Arlington

B-18-383
WEARABLE GRAPHENE TEXTILE-ENABLED EOG SENSING1098
Ata Jedari Golparvar, Murat Kaya Yapici
Sabanci University, Turkey

B-18-385
PASSIVE CONTINUOUS ELECTROCARDIOGRAM MONITORING OF FIREMEN USING NON-CONTACT ELECTRODES1101
Peter Ritchie{2}, Miguel Huerta{2}, Tuen Lung Lau{2}, Jules Agee{2}, Hung Cao{2}, Jung-Chih Chiao{1}
{1}University of Texas at Arlington, United States; {2}University of Washington, United States

4:00 PM - 5:30 PM
B3L-A: Medical Ultrasonics and Acoustics
LOCATION: Carron
SESSION CHAIRS:
Steven Freear, NA; James, McLaughlan, University of Leeds

4:00
ULTRASOUND SUPER-RESOLUTION WITH MICROBUBBLE CONTRAST AGENTS1104
Sevan Harput{1}, Kirsten Christensen-Jeffries{2}, Jemma Brown{2}, Robert Eckersley{2}, Chris Dunsby{1}, Meng-Xing Tang{1}
{1}Imperial College London, United Kingdom; {2}King's College London, United Kingdom

4:30
TOWARDS ACOUSTIC LOCALIZATION FOR BIOBOTIC SENSOR NETWORKS.....1107
Hong Xiong, Talha Agcayazi, Tahmid Latif, Alper Bozkurt, Mihail Sichiuiu
North Carolina State University, United States

4:45
MULTI-ELEMENT TRANSDUCER DEDICATED TO QUANTITATIVE ACOUSTIC MICROSCOPY IMAGING1110
Pierre-Antoine Meignen, Emmanuel Le Clézio, Thomas Delaunay, Gilles Despau
University of Montpellier / CNRS, France

5:00
MONOLITHIC PHOTONIC CRYSTAL FIBER ACOUSTIC SENSOR.....1113
Yu-Po Wong, Olav Solgaard
Stanford University, United States

5:15

WEARABLE SYSTEM FOR MEASUREMENT OF THORACIC SOUNDS WITH A MICROPHONE ARRAY.....1116

*Jens Kirchner, Sara Souilem, Georg Fischer
Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*

4:00 PM - 5:30 PM

B3L-B: Chemical Sensing in Liquids

LOCATION: Dochart

SESSION CHAIR:

Giuseppe Barillaro, University of Pisa

4:00

HYBRID AMPEROMETRIC AND POTENTIOMETRIC SENSING BASED ON A CMOS ISFET ARRAY1119

*Christos Giagkoulouits, Mohammed A. Al-Rawhani, Boon Chong Cheah, Christopher Martin, Christoph Busche, Leroy Cronin, David R.S. Cumming
University of Glasgow, United Kingdom*

4:30

PHOTOELECTROCHEMICAL NITRATE SENSOR UTILIZING CU/PD NANOPARTICLES ON TIO₂-NANOPARTICLES CARRIER - COMBINATION OF CATALYTIC AND PHOTOCATALYTIC MECHANISM1122

*Rita Siris, Jamila Boudaden, Armin Klumpp
Fraunhofer-Einrichtung für Mikrosysteme und Festkörper-Technologien, Germany*

4:45

HIGH PERFORMANCE EXTENDED GATE FIELD EFFECT TRANSISTOR-BASED PESTICIDE SENSING SYSTEM WITH A PLANAR MICROREFERENCE ELECTRODE1125

*Chia-Hsu Hsieh^{2}, Le-Quyen Ly^{2}, Guan-Jie Su^{2}, Yu-Cheng Lin^{1}, I-Yu Huang^{2}
^{1}National Cheng Kung University, Taiwan; ^{2}National Sun Yat-sen University, Taiwan*

5:00

PENCIL-DRAWN CHEMIRERESISTIVE SENSOR FOR FREE CHLORINE IN WATER

*Aditya Aryasomayajula, Enamul Hoque, Leo H. H. Hsu, Peter Kruse, Ravi Selvaganapathy
McMaster University, Canada*

5:15

ACOUSTIC MODAL ANALYSIS OF RESONANT PHOTOACOUSTIC SPECTROSCOPY WITH DUAL-WAVELENGTH DIFFERENTIAL DETECTION FOR NONINVASIVE GLUCOSE MONITORING

*Yujiro Tanaka, Takurou Tajima, Michiko Seyama
NTT Device Technology Labs / NTT Corporation, Japan*

4:00 PM - 5:30 PM

B3L-C: Optical Sensors and Interrogation Techniques I

LOCATION: Lomond Auditorium

SESSION CHAIRS:

Carlos Ruiz Zamarreño, Public University of Navarra; Ralf Bauer, University of Strathclyde

4:00

DESIGN OF A 2D MEMS MICROMIRROR WITH INDIRECT STATIC ACTUATION1128

*Philip Kaupmann{2}, Stefan Pinter{2}, Jochen Franz{2}, Reinhard Streiter{3}, Thomas Otto{1}
{1}Fraunhofer-Institut für Elektronische Nanosysteme / Technische Universität Chemnitz, Germany; {2}Robert
Bosch GmbH, Germany; {3}Technische Universität Chemnitz, Germany*

4:15

MICROFABRICATED SINGLE-LENS SHACK-HARTMANN LIGHT ANGLE SENSOR1131

*Fariha Khan, Aishwaryadev Banerjee, Mehedy Hasan, Hanseup Kim, Carlos H. Mastrangelo
University of Utah, United States*

4:30

OPTICAL FEEDBACK INTERFEROMETRY FOR RASTER SCAN PROFILOMETRY1134

*Bastien Grimaldi{1}, Antonio Luna Arriaga{1}, Francis Bony{1}, Clement Tronche{2}, Julien Perchoux{2}
{1}LAAS-CNRS, France; {2}Université de Toulouse / LAAS - CNRS, France*

4:45

**EFFECT OF CELL SIZE ON AMBIENT LIGHT REJECTION IN SIPM-BASED TIME-OF-FLIGHT RANGE
SENSORS1137**

*Andrea Ficorella{2}, Lucio Pancheri{2}, Fabio Acerbi{1}, Claudio Piemonte{1}
{1}Fondazione Bruno Kessler, Italy; {2}Università degli Studi di Trento, Italy*

5:00

**HIGH-EFFICIENCY AND LOW DARK CURRENT CRYSTALLINE SELENIUM-BASED HETEROJUNCTION
PHOTODIODE WITH A HIGH-QUALITY TELLURIUM NUCLEATION LAYER1140**

*Shigeyuki Imura, Keitada Mineo, Kazunori Miyakawa, Masakazu Namba, Hiroshi Ohtake, Misao Kubota
NHK Science & Technology Research Laboratories, Japan*

5:15

TEMPERATURE EFFECTS UPON A MULTICORE OPTICAL FIBRE CURVATURE SENSOR1143

*Nikolitsa Papachristou, Jonathan Morton, Richard M. Carter, Robert R. J. Maier, William N. MacPherson
Heriot-Watt University, United Kingdom*

4:00 PM - 5:30 PM

B3L-D: Data Acquisition and Processing

LOCATION: Alsh

SESSION CHAIRS:

Silvio Montresor, Université du Maine; Ahrabian Alireza, University of Surrey

4:00

AN IMPROVED 6D POSE DETECTION METHOD BASED ON MULTIPLE MAGNETS TRACKING.....1146

Shuang Song^{2}, Xiaoxiao Qiu^{2}, Max Q.-H Meng^{1}

^{1}Chinese University of Hong Kong, China; ^{2}Harbin Institute of Technology, China

4:15

PROCESSING OF DIGITAL HOLOGRAMS WITH 2D WINDOWED FOURIER TRANSFORM: STUDY, PERFORMANCE ANALYSIS AND GPU IMPLEMENTATION1149

Silvio Montrésor, Florent Carlier, Pascal Picart

Université du Maine, France

4:30

DETECTING CHANGES IN THE VARIANCE OF MULTI-SENSORY ACCELEROMETER DATA USING MCMC1152

Alireza Ahrabian, Tarek Elsaleh, Yasmin Fathy, Payam Barnaghi

University of Surrey, United Kingdom

4:45

FUSION OF THERMAL IMAGERY AND LIDAR DATA FOR GENERATING TBIM MODELS1155

Antonio Adán, Tomas Prado, Samuel Prieto, Blanca Quintana

Universidad de Castilla-La Mancha, Spain

5:00

AN ANALYTIC ALGORITHM BASED POSITION AND ORIENTATION DETECTION USING A TRI-AXIAL MAGNETORESISTIVE SENSOR1158

Xianping Zeng^{1}, Shuang Song^{2}, Junsheng Wang^{1}, Houde Dai^{1}, Shijian Su^{1}

^{1}Chinese Academy of Sciences, China; ^{2}Harbin Institute of Technology, China

5:15

AN “INTERNET OF EARS” FOR CROWD-AWARE SMART BUILDINGS BASED ON SPARSE SENSOR NETWORKS1161

Xinyao Tang, Ming-Chun Huang, Soumyajit Mandal

Case Western Reserve University, United States

4:00 PM - 5:30 PM

B3L-E: Sensor Technologies for Robotics, Localization, and Scene Understanding

LOCATION: Boisdale 1

SESSION CHAIRS:

Robert Roberts, The University of Hong Kong; Hua Wang Georgia Institute of Technology

4:00

SENSORS FOR SAFE, COLLABORATIVE ROBOTS IN SMART MANUFACTURING1164

Jeremy Marvel

National Institute of Standards and Technology, United States

4:30

APPLICATION OF AN OFF-THE-SHELF FIBER OPTIC GYROSCOPE BASED INERTIAL MEASUREMENT UNIT FOR ATTITUDE AND HEADING ESTIMATION1167

Alexander Albrecht, Janko Petereit

Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung, Germany

4:45

MORPHORIDER: ACQUISITION AND RECONSTRUCTION OF 3D CURVES WITH MOBILE SENSORS1170

Tibor Stanko{1}, Nathalie Saguin-Sprynski{1}, Laurent Jouanet{1}, Stefanie Hahmann{2}, Georges-Pierre Bonneau{2}

{1}Commissariat à l'Energie Atomique et aux Energies Alternatives / Université Grenoble Alpes, France; {2}Institut National de Recherche en Informatique et Automatique, France

5:00

SENSOR DATA FUSION OF LIDAR WITH STEREO RGB-D CAMERA FOR OBJECT TRACKING1173

Thomas Dieterle, Florian Particke, Lucila Patino-Studencki, Jörn Thielecke

Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

5:15

AUTONOMOUS QUADROTOR TERRAIN-FOLLOWING WITH A LASER RANGEFINDER AND GIMBAL SYSTEM1176

Matthew Clark{1}, Robert C. Roberts{2}

{1}Corvidae Technology (HK) Limited, Hong Kong; {2}University of Hong Kong, Hong Kong

4:00 PM - 5:30 PM

B3L-F: Physical Sensors I

LOCATION: Boisdale 2

SESSION CHAIRS:

Jens Anders, University of Ulm

4:00

PASSIVE CHIPLESS WIRELESS PRESSURE SENSOR BASED ON DIELECTRIC RESONATORS.....1179

Christian Schuster, Peter Schumacher, Martin Schüßler, Alejandro Jiménez-Sáez, Rolf Jakoby

Technische Universität Darmstadt, Germany

4:15

GMI LOW FREQUENCY NOISE CHARACTERIZATION VERSUS WIRE DIAMETERS1182

Alexandre Esper{2}, Elodie Portalier{2}, Basile Dufay{2}, Christophe Dolabdjian{2}, Sorin Corodeanu{1}, H. Chiriac{1}

{1}National Authority for Scientific Research and Innovation, France; {2}Université de Caen Normandie, France

4:30

MESOPOROUS TITANIA-COATED LOVE WAVE SENSORS AND FEM MODEL APPLIED TO VISCOSITY MICRO-MEASUREMENTS1185

Ollivier Tamarin{3}, Wassim Ouelhazi{1}, Jean-Luc Lachaud{1}, Hamida Hallil{3}, Vincent Raimbault{4}, Cedric Boissière{5}, Marie Paule Bonnet{2}, Dominique Rebière{3}, Corinne Dejous{3}

{1}IMS Bordeaux, France; {2}IRD Montpellier, France; {3}Université de Bordeaux, France; {4}Université de Toulouse / LAAS - CNRS, France; {5}Université Pierre et Marie Curie/CNRS/LCMCP, France

4:45	
LOW-POWER AND HIGH-SENSITIVITY SYSTEM-ON-CHIP HALL EFFECT SENSOR.....	1188
<i>Bin Liu, Yongshun Sun, Yinjie Ding, Patrick Cao, Aaron Liu, Shiang Yang Ong, Michael Tiong, Gong Cheng, Mohd Nurul Islam, Ruchil Jain, Tam Lyn Tan, Elgin Quek, Eng-Huat Toh</i>	
<i>GLOBALFOUNDRIES Singapore Pte, Ltd, Singapore</i>	
5:00	
A DENSITY AND VISCOSITY SENSOR UTILIZING A LEVITATED SPHERE.....	1191
<i>Dominik Breuer, Stefan Clara, Friedrich Feichtinger, Bernhard Jakoby</i>	
<i>Johannes Kepler Universität Linz, Austria</i>	
5:15	
GRAPHENE NANOPATELETS-BASED SMART TEXTILE FOR KINESTHETIC MONITORING.....	1194
<i>Andrea Rinaldi, Alessio Tamburrano, Maria Sabrina Sarto</i>	
<i>Sapienza – Università di Roma, Italy</i>	

WEDNESDAY, NOVEMBER 1

10:30 AM - 12:00 PM

C1L-A: Near-Zero Power Sensor Systems

LOCATION: Carron

SESSION CHAIRS:

Matteo Rinaldi, Northeastern University; Benjamin Griffin, Sandia National Laboratories

10:30

SPECIAL-PURPOSE OPTICS TO REDUCE POWER DISSIPATION IN COMPUTATIONAL SENSING AND IMAGING SYSTEMS.....1197

David G. Stork, Patrick R. Gill

Rambus Labs, United States

11:00

THRESHOLD SCALING OF NEAR-ZERO POWER MICROMECHANICAL PHOTOSWITCHES USING BIAS VOLTAGE1200

Vageeswar Rajaram, Zhenyun Qian, Sungho Kang, Nicol McGruer, Matteo Rinaldi

Northeastern University, United States

11:15

NEAR-ZERO POWER ACCELEROMETER WAKEUP SYSTEM.....1203

Robert Reger, Bryson Barney, Sean Yen, Michael Satches, Michael Wiwi, Andrew Young, Matthew Delaney, Benjamin Griffin

Sandia National Laboratories, United States

11:30

NANO-GAP VAPOR SENSOR1206

Chayanjit Ghosh, Shakir-UI Khan, Samuel Broadbent, Hao-Chieh Hsieh, Seungbeom Noh, Aishwaryadev Banerjee, Navid Farhoudi, Carlos H. Mastrangelo, Ryan Looper, Hanseup Kim

University of Utah, United States

11:45

A 113 PW FULLY INTEGRATED CMOS TEMPERATURE SENSOR OPERATING AT 0.5 V.....1209

Hui Wang, Patrick Mercier

University of California, San Diego, United States

10:30 AM - 12:00 PM

C1L-B: Chemical Sensing in Gas and Vapours I

LOCATION: Dochart

SESSION CHAIRS:

Julian Gardner, Warwick University; Alton Horsfall, Newcastle University

10:30

SELF-POWERED HUMIDITY SENSOR BASED ON TRIBOELECTRIC NANOGENERATOR.....1212

Yuanjie Su, Guangzhong Xie, Si Wang, Huiling Tai, Qiuping Zhang, Hongfei Du, Xiaosong Du, Yadong Jiang

University of Electronic Science and Technology of China, China

10:45

**CAPACITIVE MICROWAVE SENSOR FOR TOXIC VAPOR DETECTION
IN POLLUTED ENVIRONMENTS.....1215**

Prince Bahoumina^{3}, Hamida Hallil^{3}, Katrin Pieper^{3}, Jean-Luc Lachaud^{1}, Dominique Rebière^{3}, Corinne Dejous^{3}, Aymen Abdelghani^{5}, Kamel Frigui^{5}, Stephane Bila^{5}, Dominique Baillargeat^{5}, Qing Zhang^{2}, Philippe Coquet^{6}, E. Pichonat^{4}, H.

^{1}IMS Bordeaux, France; ^{2}Nanyang Technological University, Singapore; ^{3}Université de Bordeaux, France; ^{4}Université de Lille, France; ^{5}Université de Limoges, France; ^{6}Université Lille 1 / Nanyang Technological University / CINTRA, Singapore

11:00

**CONDUCTING POLYMER NANOWIRES VOLATILE ORGANIC COMPOUNDS SENSOR ARRAY
FABRICATED BY SOFT LITHOGRAPHY1218**

Ning Tang, Yang Jiang, Hemi Qu, Yanyan Wang, Xuexin Duan
Tianjin University, China

11:15

**IDENTIFICATION OF H₂S IMPURITY IN HYDROGEN USING TEMPERATURE MODULATED METAL OXIDE
RESISTIVE SENSORS WITH A NOVEL SIGNAL PROCESSING TECHNIQUE**

Julian Gardner, Barbara Urasinska-Wojcik
University of Warwick, United Kingdom

11:30

**TWO DIMENSIONAL TUNGSTEN OXIDE NANOSHEETS WITH UNPRECEDENTED SELECTIVITY AND
SENSITIVITY TO NO₂1221**

Hareem Khan, Ali Zavabeti, Jian Zhen Ou, Torben Daeneke, Yongxiang Li, Kourosh Kalantar-Zadeh
RMIT University, Australia

11:45

**AN INNOVATIVE APPROACH TO OVERCOME SATURATION AND RECOVERY ISSUES OF CVD
GRAPHENE-BASED GAS SENSORS.....1224**

Filiberto Ricciardella^{2}, Sten Vollebregt^{2}, Tiziana Polichetti^{1}, Brigida Alfano^{1}, Ettore Massera^{1}, Pasqualina Maria Sarro^{2}

^{1}ENEA, Italy; ^{2}Technische Universiteit Delft, Netherlands

10:30 AM - 12:00 PM

C1L-C: Optical Sensors and Interrogation Techniques II

LOCATION: Lomond Auditorium

SESSION CHAIRS:

Patricia Scully, University of Manchester; Huikai Xie; University of Florida

10:30

**COMPARISON OF PHOTOACOUSTIC AND WAVELENGTH MODULATION SPECTROSCOPY IN A 3D-
PRINTED RESONANT GAS CELL1227**

Oscar Elías Bonilla-Manrique, Pedro Martín-Mateos, Pablo Acedo, Marta Ruiz-Llata
Universidad Carlos III de Madrid, Spain

10:45
PERFORMANCE OF A AZIMUTHALLY EXCITED 3D-PRINTED RESONATOR FOR MULTI-PASS SPECTROSCOPIC APPLICATIONS.....1230
Gordon Humphries, Ralf Bauer, Michael Lengden
University of Strathclyde, United Kingdom

11:00
INTERROGATION OF FIBER BRAGG GRATING ARRAYS BY ILLUMINATION USING A LOW COHERENCE INTERFEROGRAM.....1233
Shivasiddharth Uma, Kieran O'Mahoney, Ken Thomas
Waterford Institute of Technology, Ireland

11:15
REFRACTIVE INDEX SENSING PERFORMANCE OF A BRAGG GRATING BUILT UP ON THE TIP OF AN OPTICAL FIBER BY REACTIVE SPUTTERING1236
Joaquin Ascorbe, Jesus Corres, Francisco Javier Arregui, Ignacio Raul Matias
Universidad Publica de Navarra, Spain

11:30
SURFACE MODIFICATION OF TITANIUM-COATED GLASS SUBSTRATE EMBEDDED ACRYLATE-BASED HYDROGEL FILM FOR OPTICAL METAL CLAD LEAKY WAVEGUIDE (MCLW) BIOSENSORS1239
Siti Rabizah Makhsin^{2}, Peter Gardner^{2}, Nicholas J Goddard^{1}, Patricia J Scully^{2}
^{1}Process Instruments Ltd, United Kingdom; ^{2}University of Manchester, United Kingdom

11:45
BILAYER METASURFACES INTEGRATED WITH MEMS SWITCHES FOR TUNABLE TRANSMISSIVE IR FILTERS.....1242
Luke Currano, Konstantinos Gerasopoulos, David Shrekenhamer
Johns Hopkins University, United States

10:30 AM - 12:00 PM
C1L-D: Emerging Medical Sensors Utilizing Electromagnetics & RF Technologies
LOCATION: Alsh
SESSION CHAIRS:
J.-C. Chiao, University of Texas – Arlington; Hung Cao, University of Washington - Bothell

10:30
RECENT DEVELOPMENTS IN MINIMALLY AND TRULY NON-INVASIVE BLOOD GLUCOSE MONITORING TECHNIQUES1245
Heungjae Choi
Cardiff University, United Kingdom

11:00
DEVELOPMENT OF BASIC SYSTEM OF INGESTIBLE CORE BODY THERMOMETER WITH SMALL SIZE AND LOW ENERGY CONSUMPTION POWERED BY GASTRIC ACID BATTERY1248
Shinya Yoshida, Hiroshi Miyaguchi, Tsutomu Nakamura
Tohoku University, Japan

11:15
SMART T-SHIRT WITH WIRELESS RESPIRATION SENSOR.....1251
Stepan Gorgutsa, Simon Bellemare-Rousseau, Philippe Guay, Amine Miled, Younès Messaddeq
Université Laval, Canada

11:30
A CMOS RADIO FREQUENCY BIOSENSOR FOR RAPID DETECTION AND SCREENING OF SPUTUM-MUCIN VISCOSITY1254
Subhajit Guha{2}, Katrin Ramaker{1}, Thorsten Krause{1}, Christian Wenger{2}
{1}Forschungszentrum Borstel, Germany; {2}Leibniz-Institut für innovative Mikroelektronik, Germany

11:45
PASSIVE NANOTECHNOLOGY BASED SENSORS FOR THE REMOTE DETECTION OF ENVIRONMENTAL POLLUTANTS IMPACTING PUBLIC HEALTH1257
Krishna Naishadham{3}, Elena Bekyarova{1}, Patrizia Savi{2}
{1}Carbon Solutions, Inc., United States; {2}Politecnico di Torino, Italy; {3}Wi-Sense, United States

10:30 AM - 12:00 PM

C1L-E: Advanced Sensors for Environmental and Biomedical Monitoring

LOCATION: Boisdale 1

SESSION CHAIRS:

Robert Roberts, The University of Hong Kong; Paddy French, Delft University of Technology

10:30
AGE-SENSITIVE DIFFERENCES IN SINGLE AND DUAL WALKING TASKS FROM FOOTPRINT FLOOR SENSOR DATA.....1260
Omar Costilla-Reyes, Patricia J Scully, Krikor Ozanyan
University of Manchester, United Kingdom

10:45
STRETCHABLE PH SENSING PATCH IN A HYBRID PACKAGE1263
Wenting Dang{3}, Libu Manjakkal{3}, Leandro Lorenzelli{1}, Vincenzo Vinciguerra{2}, Ravinder Dahiya{3}
{1}Fondazione Bruno Kessler, Italy; {2}STMicroelectronics, Italy; {3}University of Glasgow, United Kingdom

11:00
ULTRA-THIN RELATIVE HUMIDITY SENSORS FOR HYBRID SYSTEM-IN-FOIL APPLICATIONS1266
Mourad Elsobky{1}, Björn Albrecht{1}, Harald Richter{1}, Joachim Burghartz{1}, Pirmin Ganter{2}, Katalin Szendrei{2}, Bettina Lotsch{2}
{1}Institut für Mikroelektronik Stuttgart, Germany; {2}Max-Planck-Institut für Festkörperforschung, Germany

11:15
TOWARDS A WEARABLE PERSPIRATION SENSOR1269
Murat Yokus, Cheyanne Hass, Talha Agcayazi, Alper Bozkurt, Michael Daniele
North Carolina State University, United States

11:30

THREE-DIMENSIONAL PRINTED INSULATION FOR DYNAMIC THERMOELECTRIC HARVESTERS WITH ENCAPSULATED PHASE CHANGE MATERIALS

*Michail Kiziroglou^{2}, Thomas Becker^{1}, Steven Wright^{3}, Eric Yeatman^{3}, James Evans^{4}, Paul Wright^{4}
^{1}Airbus Group Innovations, Germany; ^{2}ATEI Thessaloniki, Greece; ^{3}Imperial College London, United Kingdom; ^{4}University of California, Berkeley, United States*

11:45

HOUSING DESIGN FOR TWO-DIMENSIONAL AIR FLOW SENSORS.....1272

*Reiner Jedermann, Nico Hartgenbusch, Mykhailo Borysov, Walter Lang
Universität Bremen, Germany*

10:30 AM - 12:00 PM

C1L-F: Microfluidic & Biosensors I

LOCATION: Boisdale 2

SESSION CHAIRS:

Hua Wang, Georgia Institute of Technology; Wen Li, Michigan State University

10:30

MICROFLUIDIC PLANT, SOIL AND NEMATODE ASSAY CHIPS FOR HIGH-THROUGHPUT PLANT PHENOTYPING AND SUSTAINABLE AGRICULTURAL MANAGEMENT1275

*Liang Dong
Iowa State University, United States*

11:00

DETECTION OF FOOD DECAY PRODUCTS USING FUNCTIONALIZED ONE-DIMENSIONAL TITANIA NANOTUBULAR ARRAYS

*Pankaj Kumar, Swomitra K. Mohanty, S. Guruswamy, York R. Smith, Mano Misra
University of Utah, United States*

11:15

SALIVA BASED NONINVASIVE OPTICAL UREA BIOSENSOR1278

*Anuradha Soni, Sandeep Jha
Indian Institute of Technology Delhi, India*

11:30

HUMAN IGM DETECTION USING AN OPTICAL FIBRE LONG PERIOD GRATING SENSOR.....1281

*Liangliang Liu^{2}, Leonel Marques^{2}, Ricardo Correia^{2}, Stephen Morgan^{2}, Seung-Woo Lee^{1}, Paddy Tighe^{2}, Lucy Fairclough^{2}, Serhiy Korposh^{2}
^{1}University of Kitakyushu, Japan; ^{2}University of Nottingham, United Kingdom*

11:45

POROUS SILICON INTERFEROMETERS FOR HIGH-SENSITIVITY LABEL-FREE DETECTION OF BIOMOLECULES.....1284

*Stefano Mariani^{2}, Lucanos Strambini^{3}, Lorena Tedeschi^{1}, Giuseppe Barillaro^{2}
^{1}Consiglio Nazionale delle Ricerche, Italy; ^{2}Università di Pisa, Italy; ^{3}Università di Pisa / IEIT/ Consiglio Nazionale delle Ricerche, Italy*

1:30 PM – 3:30 PM

C2P-G: Chemical, Electrochemical, and Gas Sensors

LOCATION: Hall 5

SESSION CHAIRS:

Giuseppe Barillaro, University of Pisa Sergiy; Korposh, University of Nottingham

C-3-3

LIQUID INTERROGATOR FOR SECURITY APPLICATIONS1287

Souvik Dubey, Kien Ta, Jung-Chih Chiao

University of Texas at Arlington, United States

C-3-6

THE FABRICATION OF ALL SOLID-STATE AMMONIUM ION SELECTIVE ELECTRODES USED IN AQUACULTURE1290

Keqi Wu, Linfeng Fu, Xishan Guo, Songming Zhu

Zhejiang University, China

C-3-9

BATTERY-POWERED WEARABLE RESPIRATION SENSOR CHIP WITH NANOCRYSTAL THIN FILM1293

Shinya Kano, Minoru Fujii

Kobe University, Japan

C-3-12

SH-SAW VOCS SENSOR BASED ON INK-JET PRINTED MWNTS / POLYMER NANOCOMPOSITE FILMS1296

Hamida Hallil^{3}, Qing Zhang^{2}, Emmanuel Flahaut^{5}, Katrin Pieper^{3}, Loic Olçomendy^{1}, Philippe Coquet^{4}, Corinne Dejous^{3}, Dominique Rebière^{3}

^{1}IMS Bordeaux, France; ^{2}Nanyang Technological University, Singapore; ^{3}Université de Bordeaux, France;

^{4}Université Lille 1 / Nanyang Technological University / CINTRA, Singapore; ^{5}Université Toulouse III / cirimat - CNRS, France

C-3-15

HIGH PERFORMANCE NITROGEN DIOXIDE SENSORS WITH SULFUR DOPED GRAPHENE AND MICRO-HOTPLATFORM1299

Lianfeng Guo, Yuelin Wang, Tie Li

Chinese Academy of Sciences, China

C-3-18

TOWARDS PARALLEL, 192 CHANNEL, 40MS/S/CH DATA ACQUISITION FOR OPTICAL TOMOGRAPHY: A SYSTEM FOR AERO-ENGINE EXHAUST EMISSION DIAGNOSTICS.....1302

Edward Fisher^{2}, Alex Tsekenis^{2}, Yunjie Yang^{2}, Taweechai Ouypornkochagorn^{1}, Andrea Chighine^{2}, Nick Polydorides^{2}, Paul Wright^{3}, Hugh McCann^{2}

^{1}Srinakharinwirot University, Thailand; ^{2}University of Edinburgh, United Kingdom; ^{3}University of Manchester, United Kingdom

C-3-21	
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LOCATION: Hall 5
SESSION CHAIRS:
Leandro Lorenzelli, Fondazione Bruno Kessler; Md Abdul Kafi, University of Glasgow

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<i>^{1}Albert-Ludwigs-Universität Freiburg, Germany; ^{2}Eidgenössische Technische Hochschule Zürich, Switzerland</i>	
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<i>^{1}Mayo Clinic, United States; ^{2}University of Washington, United States; ^{3}Vietnam National University, Vietnam</i>	

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C2P-J: Optical Sensors and Systems II

LOCATION: Hall 5

SESSION CHAIRS:

Pawel Niewczas, University of Strathclyde; Ambarish Paul, University of Glasgow

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{1}North Carolina State University, United States; {2}Profusa, Inc., United States

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Southern Taiwan University of Science and Technology, Taiwan
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^{1}Consiglio Nazionale delle Ricerche, Italy; ^{2}STMicroelectronics, Italy; ^{3}University of Notre Dame / Russian Academy of Sciences, Russia
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^{1}Galway Clinic, Ireland; ^{2}Harbin Engineering University, China; ^{3}University of Limerick, Ireland
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^{1}CTR Carinthian Tech Research AG, Austria; ^{2}Infineon Technologies Austria AG, India; ^{2}Infineon Technologies Austria AG, Germany; ^{3}Johannes Kepler Universität Linz, Austria

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*Antonio Rendon Romero, Noor Masdor, Matthew Partridge, Stephen James, Ibtisam Tohill, Ralph Tatam
Cranfield University, United Kingdom*

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*Ognyan Ivanov{2}, Stefan Karatodorov{2}, José Luis Pérez Díaz{1}
{1}Escuela Politécnica Superior, Universidad de Alcalá, Alcalá de Henares, Spain; {2}Georgi Nadjakov Institute of Solid State Physics, Bulgaria*

1:30 PM - 3:30 PM

C2PK: Acoustics and Ultrasonic Sensors

LOCATION: Hall 5

SESSION CHAIRS:

Sevan Harput, Imperial College; Matteo Rinaldi, Northeastern University

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*Constanze Tschöpe{2}, Frank Duckhorn{2}, Christian Richter{2}, Peter Blüthgen{2}, Matthias Wolff{1}
{1}Brandenburgische Technische Universität Cottbus-Senftenberg, Germany; {2}Fraunhofer-Institut für Keramische Technologien und Systeme, Germany*

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University of Strathclyde, United Kingdom*

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*Marcus Ingram{2}, Anthony Gachagan{2}, Anthony Mulholland{2}, Alison Nordon{2}, Jerzy Dziewierz{2}, Martin Hegarty{1}, Edo Becker{1}
{1}BP Chemicals Ltd, United Kingdom; {2}University of Strathclyde, United Kingdom*

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*Yansheng Zhang{2}, Ralf Bauer{2}, William Whitmer{1}, Owen Brimijoin{1}, Deepak Uttamchandani{2}, James Windmill{2}, Joseph Jackson{2}
{1}MRC/CSO Institute of Hearing Research, United Kingdom; {2}University of Strathclyde, United Kingdom*

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*Roger Domingo-Roca, Joseph Jackson, James Windmill
University of Strathclyde, United Kingdom*

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<i>{1}Brunel University London, United Kingdom; {2}Plant Integrity, United Kingdom</i>	
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<i>{1}Northumbria University, United Kingdom; {2}University of the West of Scotland, United Kingdom</i>	
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<i>{1}Fondazione Bruno Kessler, Italy; {2}Technische Universität Wien, Austria; {3}Università di Bologna, Italy</i>	
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{1}CentraleSupélec / Université de Lorraine, France; {2}Moscow Power Engineering Institute, Russia; {3}Université de Lorraine, France; {4}Université Lille 1, France; {5}Université Paris-XIII, France

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Graz University of Technology, Austria*

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*José Guerreiro, Andrew Reid, Joseph Jackson, James Windmill
University of Strathclyde, United Kingdom*

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C2P-L: Sensors for Smart Living II

LOCATION: Hall 5

SESSION CHAIRS:

Jurgen Kosel, KAUST; Majeed Soufian, Edinburgh Napier University

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*Abderraouf Hadj Henni{1}, Ouafae Bennis{2}, Rym Ben Bachouch{2}, Yves Parmantier{2}, Nacim Ramdani{2}
{1}Université d'Orléans, France; {2}Université d'Orléans, France*

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*Daniel Kuratomi Cruz{3}, Ger de Graaf{3}, Jaap Haartsen{2}, Frank Hooijschuur{1}, Paddy French{3}
{1}Dopple, Netherlands; {2}Plantronics, United States; {3}Technische Universiteit Delft, Netherlands*

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Tata Consultancy Services Limited, India*

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Nanjing University of Science and Technology, China*

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David Cowell, University of Leeds; Matteo Rinaldi, Northeastern University	
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University of Tokyo, Japan

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{1}Quaturi, Finland; {2}VTT Technical Research Centre of Finland Ltd, Finland

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Marco Demori, Mehedi Masud, Marco Baù, Marco Ferrari, Vittorio Ferrari
Università degli Studi di Brescia, Italy

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Walter Besio, University of Rhode Island; Mike McShane, Texas A&M University

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University of Washington, United States

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Nara Institute of Science and Technology, Japan

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LOCATION: Carron
SESSION CHAIRS:
Benjamin Griffin, Sandia National Laboratories; Matteo Rinaldi, Northeastern University

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{1}Northeastern University, United States; {2}Shanghaitech University, China

4:15

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*Luca Colombo, Mary Beth Galanko, Hoda Abdelsalam, Abhay Kochhar, Gabriel Vidal-Álvarez, Tamal Mukherjee, Jeyanandh Paramesh, Jeffrey Weldon, Gary K. Fedder, Gianluca Piazza
Carnegie Mellon University, United States*

4:30

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*Pouyan Bassirian^{2}, Jesse Moody^{2}, Anming Gao^{1}, Tomas Manzaneque^{1}, Benton Calhoun^{2}, Scott Barker^{2}, Songbin Gong^{1}, Steven Bowers^{2}
^{1}University of Illinois at Urbana Champaign, United States; ^{2}University of Virginia, United States*

4:45

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*Visarute Pinrod, Alexander Ruyack, Robin Ying, Benyamin Davaji, Alyosha Molnar, Amit Lal
Cornell University, United States*

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*Nishit Goel^{2}, Stephen Bart^{1}, Srinivas Tadigadapa^{2}
^{1}MKS Instruments, Inc., United States; ^{2}Pennsylvania State University, United States*

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*Markus Reusch^{2}, Katarzyna Holc^{2}, Agnė žukauskaitė^{2}, Vadim Lebedev^{2}, Nicolas Kurz^{1}, Oliver Ambacher^{1}
^{1}Albert-Ludwigs-Universität Freiburg, Germany; ^{2}Fraunhofer-Institut für Angewandte Festkörperphysik, Germany*

4:00 PM - 5:30 PM

C3L-B: Chemical Sensing in Gas and Vapours II

LOCATION: Dochart

SESSION CHAIR:

Camilla Baratto, University of Brescia; Kouros Kalantar-zadeh, RMIT University

4:00

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*Robert Sokolovskij^{3}, Elina Iervolino^{1}, Changhui Zhao^{1}, Fei Wang^{1}, Hongyu Yu^{1}, Fabio Santagata^{2}, Pasqualina Maria Sarro^{2}, Guo Qi Zhang^{2}
^{1}Southern University of Science and Technology, China; ^{2}Technische Universiteit Delft, Netherlands; ^{3}Technische Universiteit Delft / Southern University of Science and Technology, China*

4:15
SOLVENT SENSING FOR EXTREME ENVIRONMENTS N/A
Ryan Siddall, Michael Varey, Nick Wright, Alton Horsfall
Newcastle University, United Kingdom

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{1}Technische Universität Wien, Austria; {2}Universidad de Castilla-La Mancha, Spain

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Kyushu University, Japan

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University of Nottingham, United Kingdom

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Karlsruher Institut für Technologie, Germany

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C3L-C: Sensors for Smart Living I

LOCATION: Lomond Auditorium

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Majeed Soufian, Edinburgh Napier University; Jurgen Kosel, KAUST

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King Abdullah University of Science and Technology, Saudi Arabia; King Abdullah University of Science and Technology, United States

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National Institute of Advanced Industrial Science and Technology, Japan

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Dhirubhai Ambani Institute of Information and Communication Technology, India

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University of Glasgow, United Kingdom

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King Abdullah University of Science and Technology, Saudi Arabia

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Mike McShane, Texas A&M University; Walter Besio, University of Rhode Island

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Holst Centre / IMEC, Netherlands

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{1}CREmedical Corp., United States; {2}University of Rhode Island, United States

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Universität Bremen, Germany

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Fianti Femmilia Darmawan{2}, Dhany Arifianto{2}, Mahfudz Al Huda{1}, Warsito P Taruno{1}
{1}CTech Labs Edwar Technology, Indonesia; {2}Institut Teknologi Sepuluh Nopember, Indonesia

5:30
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Antonio Maria Chiarelli{3}, Filippo Zappasodi{3}, Francesco Di Pompeo{3}, Arcangelo Merla{3}, Massimo Mazzillo{2}, Giorgio Fallica{2}, Sebania Libertino{1}, Salvatore Lombardo{1}
{1}Consiglio Nazionale delle Ricerche, Italy; {2}STMMicroelectronics, Italy; {3}Università degli Studi 'G. d'Annunzio' Chieti-Pescara, Italy

4:00 PM - 5:30 PM

C3L-E: Sensors Applications for Online Process Monitoring

LOCATION: Boisdale 1

SESSION CHAIRS:

Duncan Bremner, University of Glasgow; Ashish Pandharipande, Philips Research

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Alexandre Leclerc{1}, Yasuaki Matsugi{1}, Yasuhiro Goshu{1}, Mitchell Kane{2}, Jeremy Miller{2}
{1}Azbil Corporation, Japan; {2}Spirax Sarco, United Kingdom

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Maddalena Bertolla{3}, Mario Scotoni{2}, Mauro Caldara{1}, Gianmarco Giacomelli{1}, Michele Preghenella{1}, Emanuele Pasqualini{1}
{1}Aquafil Spa, Italy; {2}Università degli Studi di Trento, Italy; {3}Università degli Studi di Trento & Aquafil Spa, Italy

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Peter Heilmann{2}, Roland Weiss{2}, Robert Weigel{1}, Lukas Schwarz{1}
{1}Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; {2}Siemens AG, Germany

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Detlef Pape{2}, Sebastian Abegg{2}, Louis-Philippe Bibeau{1}, Alex Ouellet-Belanger{1}
{1}ABB Inc., Canada; {2}ABB Schweiz AG, Switzerland

5:00
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Fabrice Auzanneau, Christophe Layer
Commissariat à l'Energie Atomique et aux Energies Alternatives, France

5:15

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Yuxin Xing{2}, Timothy Vincent{2}, Marina Cole{2}, Julian Gardner{2}, Han Fan{1}, Victor Hernandez Bennetts{1}, Erik Schaffernicht{1}, Achim Lilienthal{1}
{1}Orebro University, Sweden; {2}University of Warwick, United Kingdom

4:00 PM - 5:30 PM

C3L-F: Microfluidic & Biosensors II

LOCATION: Boisdale 2

SESSION CHAIRS:

Leandro Lorenzelli, Fondazione Bruno Kessler; Hua Wang, Georgia Institute of Technology

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Md. Abdul Kafi, Ambarish Paul, Ravinder Dahiya
University of Glasgow, United Kingdom

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Markus Gusenbauer, Giulia Mazza, Martin Brandl, Thomas Schrefl
Danube University Krems, Austria

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Tanmay Kulkarni{2}, Md Qumrul Hasan{1}, Gymama Slaughter{1}
{1}University of Maryland Baltimore County, United States; {2}University of Maryland, Baltimore County, United States

4:45

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Salvatore Andrea Pullano, Marta Greco, Sebastiano Messineo, Antonio Brunetti, Antonino S Fiorillo
Università degli studi Magna Græcia di Catanzaro, Italy

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Martin Oellers, Frank Bunge, Frieder Lucklum, Poornanchandra Papireddy Vinayaka, Christian Habben, Melanie Kirsch, Sander van Den Driesche, Michael J. Vellekoop
Universität Bremen, Germany

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Sayan Dey, Sumita Santra, Sabyasachi Sen, Debasree Burman, Samit Ray, Prasanta Kumar Guha
Indian Institute of Technology Kharagpur, India

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