

16:45 **Integration path for an all-silicon MEMS based thermoelectric micro and nanogenerator** W X.3

Luis Fonseca (1), Carlos Calaza (1), Marc Salleras (1), Inci Donmez (1), Albert Tarancon (2), Alex Morata (2), Jose-Domingo Santos (2), Gerard Gadea (2)
(1) IMB-CNM (CSIC), Campus UAB, E-08193 Bellaterra, Spain, (2) IREC, Jardí de les Dones de Negre 1, E-08930 Sant Adrià de Besòs Spain



SYMPOSIUM X

**Functional materials for environmental sensors
and energy systems**

Symposium Organizers :

Albert ROMANO-RODRIGUEZ, Universitat de Barcelona, Spain

Anita LLOYD SPETZ, Linköping University/Oulu University, Sweden

Meyya MEYAPPAN, NASA Ames Research Center, Moffett Field, USA

Michele PENZA, ENEA, Brindisi, Italy

Welcome address : Michele Penza

- 13:45 Welcome address** X 0.1
Michele Penza¹, Anita Lloyd Spetz², Meyya Meyyappan³, Albert Romano-Rodriguez⁴
¹ ENEA, Italy ² Linköping University, Sweden ³ NASA, USA ⁴ Universitat de Barcelona, Spain
- Metal OX ide Nanostructures for Gas Sensing I : Albert Romano-Rodriguez**
- 14:00 Uniform Metal-OX ide Semiconductor Multilayer Porous Thin Film for Enhanced Gas Sensing Performance** X 1.1
Pingping Zhang, Shumin Zhang, Hui Zhang, Xuhui Sun*
Institute of Functional Nano & Soft Materials, Soochow University
- 14:30 Semiconductor oX ide surfaces modified by laser interference lithography (LIL) for pollutant detection** X 1.2
L. Parellada, I. Castro-Hurtado, E. Castaño, G.G. Mandayo Ceit and Tecnum (University of Navarra)
- 14:45 Site-specific growth of nanostructure oX ide for sensing applications** X 1.3
S. Barth¹, L. Hrachowina¹, J. Sama², G. Domenech-Gil², I. Gracia³, C. Cane³, A. Romano-Rodriguez²
(1) Vienna University of Technology, Institute of Materials Chemistry, Getreidemarkt 9, A-1060 Vienna, Austria, (2) Universitat de Barcelona (UB), MIND-Departament of Electronics and Institute of Nanoscience and Nanotechnology (IN2UB), c/Martí i Franquès 1, E-08028 Barcelona, Spain, (3) Consejo Superior de Investigaciones Científicas (CSIC), Institut de Microelectrónica de Barcelona (IMB-CNM), Campus UAB, E-08193 Bellaterra, Spain
- 15:00 ZnO nanorod p-n junction piezoelectric energy harvesters for self-powered wireless sensor nodes** X 1.4
Joe Briscoe
Materials Research Institute, Queen Mary University of London, UK
- 15:30 A review on Advances in Thin Film Nanotechnology and Nanofabrication of Smart Multifunctional Metal Insulating Transition OX ide Heterostructures for Next Generation Femtosecond Optoelectronic Sensors and Nanodevices** X 1.5
Mohamed Saad
Queen's University Belfast
- 16:00 Coffee break**
- Poster Session I: Materials for Environmental Sensing and Devices : Michele Penza and Albert Romano-Rodriguez**
- 16:30 Easy low temperature green route to crystalline ZnO nanostructures for H2S sensing** X PI.1
Stefano Diodati, Jörg Hennemann, b,c Bernd Smarsly, b and Silvia Grossa, a,d*
Stefano Diodati, Dipartimento di Scienze Chimiche, Università degli Studi di Padova, via Marzolo 1, 35131- Padova, Jörg Hennemann, Physikalisches-Chemisches Institut, Justus-Liebig-Universität Gießen, Heinrich-Buff-Ring 58, 35392 Giessen, Germany, Bernd Smarsly, Physikalisches-Chemisches Institut, Justus-Liebig-Universität Gießen, Heinrich-Buff-Ring 58, 35392 Giessen, Germany, Silvia Grossa, Istituto per l'Energetica e le Interfasi, IENI-CNR, Dipartimento di Scienze Chimiche, Università degli Studi di Padova, via Marzolo 1, 35131- Padova and INSTM, UdR di Padova, Italy,
- 16:30 Synthesis, structural characterization, and UV-enhanced gas-sensing properties of ZnO-SnO2 heterojunctions** X PI.2
Luís F. da Silva, Ariadne C. Catto, Osmando F. Lopes, Khalifa Aguir, Valmor R. Mastelaro, Caue Ribeiro, and Elson Longo
LIEC, Institute of Chemistry, São Paulo State University, Araraquara, São Paulo, Brazil, Instituto de Física de São Carlos, Universidade de São Paulo, São Carlos, São Paulo, Brazil, EMBRAPA Instrumentação, São Carlos, São Paulo, Brazil, Université Aix-Marseille, Faculté St Jérôme, Marseille, France.
- 16:30 Local structure and gas-sensing properties of the nanocrystalline Zn1-X CoX O films** X PI.3
Ariadne C. Catto, Luis F. da Silva, Khalifa Aguir, Valmor Roberto Mastelaro
Univ de São Paulo, São Carlos, Brazil, Institute of Chemistry, São Paulo State University, Araraquara, Brazil, Université Aix-Marseille, Faculté St Jérôme, Marseille, France, Univ de São Paulo, São Carlos, Brazil,
- 16:30 SiNWs for crude oil Polycyclic Aromatic Hydrocarbon (PAH) detection** X PI.4
N. Nafie, M. Bouaicha
Laboratoire de Photovoltaïque, Centre de Recherches et des Technologies de l'Energie, Technopole de Borj-Cédria, BP 95, Hammam-Lif, 2050 Tunis, Tunisia
- 16:30 Tailoring the UV Photoresponse of ZnO Nanowire FETs for Environmental Monitoring** X PI.5
Ming-Pei Lu, Chieh-Wei Chen, Ming-Yen Lu,
National Nano Device Laboratories, National Applied Research Laboratories, Hsinchu 300, Taiwan, Graduate Institute of Opto-Mechatronics, National Chung Cheng University, Chia-Yi 62102, Taiwan,
- 16:30 Studies analytical for the detection of glucose based carbon nanotube** X PI.7
O.Zeggai (1,2), A.Ould-abbes (1), M. Belarbi (1), N. Sahouane (1), H. Zeggai (1), N-E. Chabane-Sari (1).
(1) Research Unit of Materials and Renewable Energies (URMER), Abou Bakr Belkaid University, B.P. 119, Tlemcen, Algeria (2) Hassiba ben bouali university, BP 151,02000 chlef
- 16:30 In-situ study of sensor response in copper oX ide materials** X PI.8
Marcelo Ornaghi Orlandi*(1), Diogo Paschoalini Volanti(2), Anderson André Felix (1), Pedro Henrique Suman(1), José Arana Varela(1)
(1) Interdisciplinary Laboratory of Electrochemistry and Ceramics, Sao Paulo State University (UNESP), Araraquara, Brazil. (2) Department of Chemistry and Environmental Science, Sao Paulo State University (UNESP), São José do Rio Preto, Brazil.
- 16:30 GRAPHENE/TITANIUM (IV) OX IDE NANOCOMPOSITE - BASED HYPOX ANTHINE SENSOR FOR ASSESSMENT OF MEAT FRESHNESS** X PI.9
Jasmine A.V. Albelda (1,2,3), Aytekin Uzunoglu (1), Gil Nonato C. Santos (2), Lia A. Stanciu (1)
(1) School of Materials Engineering, Purdue University, 701 West Stadium Avenue, West Lafayette, IN 47907, USA, (2) Physics Department, De La Salle University, 2401 Taft Avenue Manila, Philippines 1004, (3) Philippine Normal University, Taft Avenue Manila, Philippines 1000
- 16:30 Study of conducting mixture of Carbon nanotubes/Polyaniline for development of a NH3, CO2, and CO selective gas sensor** X PI.10
Stefan Ionut SPIRIDON (1), Eusebiu Ilarian IONETE (1), Bogdan Florian MONEA (1), Ioan STAMATIN (2), Ana-Maria IORDACHE (2)
(1) National R&D Institute for Cryogenics and Isotopic Technologies – ICIT Rm.Valcea, Uzinei Str. RM Valcea, No. 4, 240050, Valcea, Romania. (2) University of Bucharest. Faculty of Physics, 3Nano-SAE Research Center, P.O. BoX MG-38, 077125, Magurele, Romania.
- 16:30 Gas sensors based on sulfonated single walled carbon nanotubes** X PI.11
Ionete Eusebiu Ilarian (1) Stefan Ionut Spiridon (1) Bogdan Florian Monea (1) Daniela Ion Ebrasu (1) Ioan Stamatin (2)
(1) National R&D Institute for Cryogenics and Isotopic Technologies – ICIT Rm.Valcea, POBox 7, 4 Uzinei Str. RM Valcea, 240050, Valcea, Romania. (2) University of Bucharest. Faculty of Physics, 3Nano-SAE Research Center, P.O. BoX MG-38, 077125, Magurele, Romania.
- 16:30 Very low temperature cryogenic sensor with single walled carbon nanotubes** X PI.12
Bogdan Florian MONEA, Eusebiu Ilarian IONETE, Stefan Ionut SPIRIDON, Amalia SOARE, Alex andru RIZOIU
National R&D Institute for Cryogenics and Isotopic Technologies – ICIT Rm.Valcea, Uzinei Str., No.4, Rm. Valcea, 240050, Valcea, Romania
- 16:30 Preparation and SERS investigation of ordered arrays of Au nanotubes** X PI.13
Yonghui Chen, Jinglai Duan, Khan Maaz and Jie Liu.
Institute of Modern Physics, Chinese Academy of Sciences.
- 16:30 Influence of the electropolymerization conditions on the sensing properties of Polypyrrol/AuNP composites towards phenols** X PI.14
C. Garcia-Hernandez, C. Garcia-Cabezón, C. Medina-Plaza, F. Martín-Pedrosa, Y. Blanco², J.A. de Saja, M.L. Rodríguez-Mendez
Group of Sensors UVASens, Escuela de Ingenierías Industriales, Universidad de Valladolid, 47011 Valladolid, Spain.
- 16:30 Ultra-High Sensitive Hydrogen Sensors Based on Pd-coated wet-etched n- and p-type Si Nanowires** X PI.15
Jisun Baek?, Byungjin Jang?, Jeongmin Kim?, Sera Shin ?, Taeyoon Lee? and Wooyoung Lee*?
?Department of Materials Science and Engineering, Yonsei University, 50 Yonsei-Ro, Seodaemun-Gu, Seoul 120-749, Republic of Korea, ? School of Electrical and Electronic Engineering, Yonsei University, 50 Yonsei-Ro, Seodaemun-Gu, Seoul 120-749, Republic of Korea
- 16:30 Al-Doped ZnO Nanoparticles for the Detection of 2-CEES As a Simulant of a Mustard Gas** X PI.16
Dongmei Li, Ran Yoo, Wooyoung Lee*
Department of Material Science and Technology, YONSEI University

16:30	Detection of pollutant gases by nanostructured cobalt ferrite M. Arab 1, Ch. Leroux 1, V. Madigou 1, A.-L. Lopes Moriyama 2, C. Pereira de Souza 2 1 Université de Toulon, CNRS, IM2NP UMR 7334, 83957 La Garde, France 2 Universidade Federal do Rio Grande do Norte, L. Nova, 59072-970 Natal, Brazil	X PI.17	16:30	Metal Functionalized ZnO Nanorods for Hazardous Gas Sensing at Room Temperature Sadullah Öztürk ^{1*} , Arif Kösemen ² , Zühal Alpaslan Kösemen ⁴ , Necmettin Kılınç ⁵ , Zafer Ziya Öztürk ² , Michele Penza ⁶ 1Fatih Sultan Mehmet Vakıf University, Faculty of Engineering, 34080, Istanbul, Turkey, 2Gebze Institute of Technology, Science Faculty, Department of Physics, 41400, Gebze-Kocaeli, Turkey, 3 Mus Alparslan University, Department of Physics, 49100 Mus, Turkey, 4 TÜBİTAK-UME, Optic Laboratory, 41470 Gebze, Kocaeli, Turkey, 5Nigde University, Faculty of Engineering, Mechatronics Engineering Department and Nanotechnology, Application & Research Center, Nigde University, 51245 Nigde, Turkey, 51245 Nigde, Turkey, 6ENEA, C. R. Brindisi, Materials and New Technologies Unit SS. 7 km 714, 72100 Brindisi, Italy	X PI.28
16:30	Sensitive detection of hydrocarbon gases using electrochemically Pd-doped ZnO-based chemiresistors Elena Dilonardo, ^{1,2} Michele Penza, ³ Marco Alvisi, ³ Gennaro Cassano, ³ Cinzia Di Franco, ⁴ Francesco Palmisano, ¹ Luisa Torsi, ¹ Nicola Cioffi ¹ 1Department of Chemistry, Università degli Studi di Bari Aldo Moro, Bari, Italy, 2Department of Electrotechnics and Electronics, Politecnico di Bari, Bari, Italy, 3Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Department for Sustainability - Lab Functional Materials and Technologies for Sustainable Applications - Brindisi, Italy, 4CNR-IFN Bari, Bari, Italy.	X PI.18	16:30	Single crystalline α In₂O₃ layers with defined doping to identify and improve the gas-sensing mechanism: The example of In₂O₃ Oliver Bierwagen (a), Julius Rombach (a), Alexandra Papadogianni (a), Markus Mischo (b), Volker Cimalla (c), Lutz Kirste (c), Oliver Ambacher (b,c), Theresa Berthold (d), Stefan Krischok (d), Marcel Himmerlich (d) (a) Paul-Drude-Institut für Festkörperelektronik, Hausvogteiplatz 5-7 10117 Berlin, Germany, (b) Institut für Mikrosystemtechnik, Georges-Köhler-Allee 106, 79110 Freiburg, Germany, (c) Fraunhofer Institut für Angewandte Festkörperfysik, Tullastraße 72 79108 Freiburg, Germany, (d) Institut für Physik und Institut für Mikro- und Nanotechnologien MacroNano, Technische Universität Ilmenau, PF 100565, 98684 Ilmenau, Germany.	X PI.29
16:30	SERS Using Gold Nanoparticles at Liquid-Liquid Interfaces Yi Huang, Dr. Joshua Edel Imperial College London	X PI.19	16:30	Metal OX ide based gas sensors operating at room temperature D. Katerinopoulou ^{1,2} , K. Moschovis ^{1,2} , E. Gagaoudakis ^{1,2} , E. Aperathitis ² , V. Binas ² , and G. Kiriakidis ^{1,2} 1 Physics Department, University of Crete, P.O. Box 2208, 71003 Heraklion, Crete, Greece 2 Institute of Electronic Structure & Laser (IESL), Foundation for Research and Technology (FORTH) Hellas, P.O. Box 1385, Heraklion 70013, Crete, Greece	X PI.31
16:30	ADSORPTION OF PARA-NITROPHENOL ON CYCLODEX TRIN BASED-MATERIAL COATED BY BENTONITE C.H. MEMOU 1, A. MANSRI 1, I. BENABADJI 1 1Laboratoire d'Application des Electrolytes et des Polyelectrolytes Organiques (LAEPO). Université de Tlemcen. Département de Chimie. B. P. 119 13000 Tlemcen. Algeria. E-mail : cherifa_h1996@yahoo.fr	X PI.20	16:30	Development of an impedancemetric Perchlorate microsensor with a picomolar detection limit based on nanostructured CoPc N. Ben Messaoud a,b, A. Baraket c, C. Dridi a,b, M. Ben Ali b, A. Ali d, M. N. Abbas d, A. Errachid c aCentre for Research on Microelectronics and Nanotechnology CRMN of Sousse, Technopark of Sousse B.P. 334, Sahloul, 4034 Sousse, TUNISIA bUniversité de Sousse, ISSAT de Sousse, Cité Ettafala, 4003 Ibn Khaldoun Sousse, TUNISIA cUniversité de Lyon, Lyon1, Institut des Sciences Analytiques (ISA), UMR 5280, 5 Rue de la Doua, 69100 Villeurbanne Cedex, FRANCE dAnalytical Laboratory, Department of Applied Organic Chemistry, National Research Centre, Cairo, EGYPT	X PI.32
16:30	Determination of Nonylphenol and Pentachlorophenol at an Electrode Modified with a ZnS/g-C₃N₄ /DNA Nanocomposites Film X in Zhou, Wanyun Gong, Ming Pan, Sheng Zhang, Jing Zou, Qijin Wan Jing Zou	X PI.21	16:30	Preparation and characterization of porous clay ceramic used to remove salt from the saline soils Jalali Jailla (a,b), Balghouthi Moncef (a), Ezzaouia Hatem (a) (a) Centre des Recherche et des Technologies de l'Energie Bordj Cedria CRTEn, Tunisia, (b) Faculté des Sciences de Bizerte	X PI.33
16:30	Effects of violet-, green-, and red-laser illumination on gas-sensing properties of SnO thin film Vu Xuan Hien(1), Kwang-Min Jo(2), Sangwook Lee(2), Joon-Hyung Lee(2), Jeong-Joo Kim(2), Young-Woo Heo(2)* (1) School of Engineering Physics, Hanoi University of Science and Technology, No. 1 Daicoviet, Hanoi, Vietnam. (2) School of Materials Science and Engineering, Kyungpook National University, Daegu, Republic of Korea	X PI.22	16:30	CVD TRANSFER FREE GRAPHENE FOR SENSING APPLICATION T. Polichetti ¹ , S. Vollebregt ² , B. Alfano ^{1,3} , E. Massera ¹ , M. L. Miglietta ¹ , G. Di Francia ¹ and P. M. Sarro ² 1ENEA C.R. Portici P.le E. Fermi 1, I-80055 Portici (Naples), Italy 2Delft University of Technology, Department of Microelectronics, Delft, The Netherlands 3Department of Physical Sciences University of Naples Federico II, Via Cinthia, I-80126, Naples, Italy	X PI.34
16:30	On the Role of the Device Geometry in the Gas Sensing Performance of Metal OX ide Nanowires Roman Jiménez-Díaz (a,b), Albert Romano-Rodríguez (b), Olga Casals (b), Cristian Fábrega (b), J. Daniel Prades (b), Francisco Hernández-Ramírez (a,b) a. Catalonia Institute for Energy Research (IREC), Sant Adrià del Besòs E-08930, Spain b. Department of Electronic, University of Barcelona, Barcelona E-08028, Spain	X PI.23	16:30	AB-INITIO AND DFT STUDY OF FLUORINE AND CHLORINE SUBSTITUTED POLY-ACETYLENE ISOMERIZATION KINETICS D. Taharchaouche ¹ , F. Mechachti ¹ , A. Djebaili ^{1*} , J.P. Chopart ² , B. Frederic ² 1 Laboratory of chemistry and environmental chemistry L.C.C.E - University of Batna-Algeria 2 Laboratory of Mechanical Stress-Transfer Dynamics at Interfaces – LACMDTI URCA, BP 1039, 51687 University of Reims Cedex 2, France	X PI.35
16:30	Influence of Annealing Temperature on Performance of on-chip hydrothermally growth ZnO nanorod gas sensor Mingzhi Jiao*, Nguyen Van Duy**, Nguyen Duc Hoa**, Nguyen Van Hieu**, Klas Hjort*, Hugo Nguyen* * Uppsala University, Department of Engineering Sciences, Lägerhyddsvägen 1, 751 21 Uppsala, Sweden ** International training Institute for Materials Science, Hanoi University of Science and Technology, No 1 Dai Co Viet, Hanoi, Vietnam	X PI.24	16:30	The control of the structural properties of ZrO₂ nanopowders via co-doping with Cu and Y N. Korsunskaya, T. Stara, Yu. Polishchuk, I. Vorona, S. LAVORIK, V. Kladko, L. Khomenkova V.Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, 45 Pr.Nauky, 03028 Kyiv, Ukraine	X PI.36
16:30	Nanostructured TiO₂-based gas sensors with enhanced sensitivity W. Maziarz (a), A. Kusior (b), A. Trenczek-Zajac (b) (a) Faculty of Computer Science, Electronics and Telecommunications, AGH University of Science and Technology, al. A. Mickiewicza 30, Krakow 30-059, Poland, (b) Faculty of Materials Science and Ceramics, AGH University of Science and Technology, al. A. Mickiewicza 30, Krakow 30-059, Poland	X PI.25	16:30	AGD and DC Reactive Sputtering synthesis of WO₃ thin films for gas sensors A.A.Sobekti ^{1*} , R.M. Piticescu ¹ , L. Osterlund ² , U. Cindemir ² , D. Ulueru ³ , C.F.Rusti ¹ 1 - National Institute for Non-ferrous and Rare Metals – IMNR, Pantelimon, Ilfov, Romania, 2 - Department of Engineering Sciences, The Ångström Laboratory, Uppsala University, Uppsala, Sweden, 3 - SITEX 45, Bucharest, Romania	X PI.37
16:30	Studies and characterizations of α In₂O₃ idizing pollutants interactions on nanocarbons for filtering and sensing applications Jérôme BRUNET, Alain PAULY, Amadou NDIAYE, C. VARENNE 1Clermont Université, Université Blaise Pascal, Institut Pascal, BP 10448, F-63000 Clermont-Ferrand, France, 2 CNRS, Institut Pascal, F-63171 Aubière, France	X PI.26			
16:30	A NEW CHEMICAL SENSING MATERIAL FOR ETHANOL DETECTION: GRAPHENE-LIKE B. Alfano, M. Alfè, V. Gargiulo, T. Polichetti, E. Massera, M. L. Miglietta, G. Di Francia ENEA C.R. Portici P.le E. Fermi 1, I-80055 Portici (Naples), Italy, Department of Physical Sciences University of Naples Federico II Via Cinthia, I-80126, Naples, Italy, Institute for Research on Combustion (IRC)-CNR, p.le V. Tecchio, 80, 80125 Naples, Italy	X PI.27			

<p>16:30 Novel Zwitterionic Polymer Modified Ag Nanocubes Based SERS Substrates as Sensitive Biosensors in Human Blood Serum Po-Chun Liu 1, Yung Chang 2, and Ten-Chin Wen *1 1 Department of Chemical Engineering, National Cheng Kung University, Tainan 70101, Taiwan, 2 R&D Center for Membrane Technology and Department of Chemical Engineering, Chung Yuan Christian University, Chung-Li, Taoyuan 320, Taiwan</p>	X PI.38	<p>16:30 SILVER DECORATION OF GRAPHENE FOR EFFECTIVE TUNING OF THE SENSING SPECIFICITY Maria Lucia Miglietta1, Brigida Alfano1,2, Tiziana Polichetti1, Ettore Massera1, Chiara Schiattarella2 and Girolamo Di Francia1 1 ENEA C.R. Portici P.le E. Fermi 1, I-80055 Portici (Naples), Italy 2 Department of Physical Sciences University of Naples Federico II Via Cinthia, I-80126, Naples, Italy</p>	X PI.49
<p>16:30 Probing the role of Point Defects in sensing mechanism of chemoresistive Metal Oxide Gas Sensors Vinayak B. Kamble Indian Institute of Science Education and Research Thiruvananthapuram, India</p>	X PI.39	<p>16:30 Three-nanosensor array microsystem to monitor infections P. I. Gouma, J. Huang, Y. Lin and M. Stanacevic Center for Nanomaterials and Sensor Development, SUNY Stony Brook, NY, USA</p>	X PI.50
<p>16:30 HYBRID NANOSTRUCTURES FOR THE DETECTION OF THE VOLATILE ORGANIC COMPOUNDS PhD Eng. Cosmin Petrica1, Dr. Eng Laura Madalina Popescu 1, Dr. Eng. RoXana Piticescu 1, Prof Dr. Radu Ionescu 2 1 National R&D Institute for Non-ferrous and Rare Metals, Pantelimon, Ilfov, Romania, 2 Universitat Rovirai Virgili, Taragona, Carrer de l'Escorxador, s/n, 43003 Tarragona, Spain</p>	X PI.40	<p>16:30 Superficial modification effects by catalysts on the gas sensor response of SnO₂ structures P.H. Suman(1,2), M.S. Barbosa(1), J.A. Varela(1), H.L. Tuller(2) and M.O. Orlandi(1) (1) Department of Physical-Chemistry, São Paulo State University, Araraquara, SP14800-060, Brazil. (2) Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA.</p>	X PI.51
<p>16:30 Benzene and its derivatives detection with ethylene vinyl acetate – nanostructured carbon composite Santa Stepina, Gita Sakale, Maris Knite Institute of Technical physics, Faculty of Material Science and Applied Chemistry, Riga Technical University, Paula Valdena Street 3/7, Riga, LV-1048</p>	X PI.42	<p>16:30 Single Ga₂O₃ NW-based gas sensors Guillem Domènech-Gil1, Jordi Samà1, Irimina Peiró-Riera1, Paolo Pelegrino1, Sven Barth2, I. Gracia3, C. Cane3, Albert Romano-Rodríguez1 1. Universitat de Barcelona (UB), MIND-Departament d'Electrònica and Institute of Nanoscience and Nanotechnology (IN2UB), E-08028 Barcelona, Spain 2. Vienna University of Technology (TUW), Institut für Materialchemie, A-1040 Vienna, Austria 3. Consejo Superior de Investigaciones Científicas (CSIC), Centro Nacional de Microelectrónica, Institut de Microelectrónica de Barcelona (IMB-CNM-CSIC) 08193 Bellaterra, Spain</p>	X PI.52
<p>16:30 Conduction mechanism in gas sensors based on ZnO nanowire networks N. Caicedo, S. Girod, R. Leturcq, D. Lenoble LIST</p>	X PI.43		
<p>16:30 Phthalocyanine thin film/TiO₂ nanotubes hybrid for VOC sensing at room temperature E. Şennik1,2, N. Kılınc1,3, D. Atilla4, A. G. Gürek4, V. Ahsen4, Z.Z. Öztürk3 1 Nigde University, Nanotechnology Application and Research Center, 51245 Nigde, Turkey, 2 Gebze Technical University, Department of Physics, 41400 Kocaeli, Turkey, 3 Nigde University, Mechatronics Engineering Department, Nigde 51245, Turkey, 4 Gebze Technical University, Department of Chemistry, 41400 Kocaeli, Turkey zozturk@gtu.edu.tr</p>	X PI.44		
<p>16:30 SnO₂ NWs network site-selectively synthesised as ammonia sensor in dry and humid air Jordi Samà 1, Sven Barth 2, Guillem Domènech-Gil 1, Joan Daniel Prades 1, Nuria Lopez 3, Olga Casals 1, Francisco Hernández-Ramírez 1 4, Isabel Gràcia 5, Carles Cané 5, Albert Romano-Rodríguez 1 1 Universitat de Barcelona (UB), MIND-Departament of Electronics and Institute of Nanoscience and Nanotechnology (IN2UB), c/Martí i Franquès 1, E-08028 Barcelona, Spain, 2 Vienna University of Technology (TUW), Institut of Materials Chemistry, Getreidmarkt 9/BC/02, A-1060 Vienna, Austria, 3 Institute of Chemical Research of Catalonia (ICIQ), Av. Països Catalans 16, E-43007 Tarragona, Spain, 4 Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, E-08930 Sant Adrià de Besòs, Spain, 5 Consejo Superior de Investigaciones Científicas (CSIC), Institut de Microelectrónica de Barcelona (IMB-CNM), Campus UAB, E-08193 Bellaterra, Spain</p>	X PI.45		
<p>16:30 Room temperature humidity sensing of NiO films, electrospun NiO nanofibers and NiO nanofibers/NiO films systems Maria Luisa Grilli a, Francesca Romana Lamastra b, Andrea Bearzotti c, Antonella Macagnano c, Francesca Nanni b,d a) Energy Technologies Department, ENEA Casaccia, Via Anguillarese 301, 00123 Rome, Italy, b) Italian Interuniversity Consortium on Materials Science and Technology (INSTM), Research Unit Roma Tor Vergata, Via del Politecnico 1 - 00133 Rome, Italy, c) Italian National Research Council, Institute of Atmospheric Pollution Research, Via Salaria 300, Monterotondo, 00015 Rome, Italy, d) Department of Enterprise Engineering, University of Rome Tor Vergata, Via del Politecnico 1 - 00133 Rome, Italy</p>	X PI.46		
<p>16:30 Gas sensing characteristics of thin film SnO₂-ZnO composite metal-oxide semiconductor sensors P. Chesler1, C. Hornoiu1, M. Gartner1, S. Mihaiu1, M. Zaharescu1, C. Moldovan2, B. Firtat2, I. Stan3 1 "Ilie Murgulescu" Institute of Physical Chemistry of the Romanian Academy, 060021 Bucharest-Romania, 2 National Institute for Research and Development in Microtechnologies, 077190 Bucharest - Romania, 3 Romelgen SRL, Bucharest – Romania,</p>	X PI.47		
<p>16:30 Fabrication and gas sensing characteristics of CNT/metal hybrid gas sensors Yong Jung Kwon, Sung Yong Kang, Myung Sik Choi, Jae Hoon Bang, Hyoun Woo Kim Department of Materials Science and Engineering, Hanyang University, 222 Wangsimni-ro, Seongdong-Gu, Seoul, 133-791, Korea</p>	X PI.48		

Functional Materials for Environmental Sensing : Hossam Haick

- 09:00 CVD grown n-type metal oxide nanowires decorated with p-type core-shell nanoparticles for the detection of traces of environment** X II.1
Sergio Roso, Toni Vilic, Eduard Llobet
MINOS-EMaS, Universitat Rovira i Virgili, Avda. Països Catalans, 26, 43007 Tarragona, Spain
- 09:30 Detection of heavy metals using epitaxial graphene on SiC** X II.2
Ivan Shteplyuk, Volodymyr Khranovskyy, Jens Eriksson, Anita L. Spetz, Rositsa Yaki-mova
Linköping University, Department of Physics, Chemistry, and Biology (IFM), 583 81, Linköping, Sweden
- 09:45 COST Action TD1105: New Sensing Technologies for Air-Pollution Control and Environmental Sustainability** X II.3
Michele Penza - on behalf of EuNetAir Consortium
ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development - Lab Functional Materials and Technologies for Sustainable Applications - PO BoX 51 Br4, I-72100 Brindisi, ITALY
- 10:00 Coffee break**
- Metal Oxide Nanostructures for Gas Sensing II : Jens Eriksson**
- 10:30 Nanowires Metal Oxides as Environmental Chemical Sensors** X III.1
E. Comini, A. Bertuna, N. Kaur, D. Zappa, V. Sberveglieri, G. Sberveglieri
SENSOR, Dipartimento di Ingegneria dell'Informazione, Università degli studi di Brescia e CNR-INO, via Branze, 38, Brescia, Italy
- 11:00 NH₃ sensing with self-assembled ZnO-nanowire μHP sensors in isothermal and temperature-pulsed mode** X III.2
Feng Shao (a,b), Jian D Fan (a,c), Francisco Hernandez-Ramirez (a,d), Cristian Fábrega (d), Teresa Andreu (a), Andreu Cabot (a), J. Daniel Prades (d), Nuria López (e), Florin Udrea (f,g), Andrea D Luca (f), Syed Z Ali (g), Joan R Morante (a,d)
a. Catalonia Institute for Energy Research (IREC), Sant Adrià del Besòs E-08930, Spain b. School of Electronic Science and Engineering, Nanjing University, Nanjing 210023, China c. Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, United Kingdom d. Department of Electronic, University of Barcelona, Barcelona E-08028, Spain e. Institute of Chemical Research of Catalonia (ICIQ), Tarragona 43007, Spain f. Department of Engineering, University of Cambridge, Cambridge, United Kingdom g. Cambridge CMOS Sensors Ltd, Cambridge, United Kingdom
- 11:15 Nanowire-based microsensors and the influence of the bottom-electrode configuration in the performance and reliability of gas detectors** X III.3
S. Vallejos, I. Gracia, O. Chmela, E. Figueras, J. Hubalek, C. Cané
SIX Research Centre, Brno University of Technology, 601 90 Brno, Czech Republic
Institut de Microelectrònica de Barcelona (IMB-CNM, CSIC), 08193 Cerdanyola, Barcelona, Spain
- 11:30 Response of indium oxide nano-octahedra activated by switching UV light** X III.4
Oriol González, Sergio Roso, Eduard Llobet, Xavier Vilanova
MINOS-EMaS, Universitat Rovira i Virgili, Tarragona, Spain
- 11:45 Near Infrared Plasmonic Gas Sensing with Doped Metal Oxide Nanocrystals** X III.5
M. Sturaro¹, E. Della Gaspera², M. Guglielmi¹, A. Martucci¹
¹ Dipartimento di Ingegneria Industriale, Università di Padova, Italy. ² CSIRO Manufacturing Flagship, Clayton, Australia
- 12:00 CMOS integrated metal oxide nanowire devices for environmental sensing** X III.6
Anton Koeck, Johanna Krainer, Eva Lackner, Florentyna Sosada, Robert Wimmer-Teubenbacher, Stephan Steinhauer, Karl Rohrer, Ewald Wachmann, Martin Schrems
Materials for Microelectronics, Materials Center Leoben Forschung GmbH, Roseggerstrasse 12, 8700 Leoben, Austria, Okinawa Institute of Science and Technology (OIST) Graduate University, 1919-1 Onna-Son, Okinawa 904-0495, Japan, ams AG, Tobelbaderstrasse 30, 8141 Unterpremstaetten, Austria
- 12:30 Lunch**

Modelling of Sensors and Sensor/Gas Interaction : Eduard Llobet

- 14:00 New Insights into the Sensing Mechanism of Shape Controlled ZnO Particles** X IV.1
Massimiliano D'Arenzo, Matteo Redaelli, Franca Morazzoni, Barbara Di Credico, Roberto Scotti
University of Milano-Bicocca, Department of Materials Science, via R. Cozzi 55, 20125 Milano, Italy
- 14:15 Single-emitter all-inorganic ratiometric pressure sensitive paints based on dual-emitting dot-in-bulk nanocrystals** X IV.2
Monica Lorenzon (1), Wan Ki Bae (2), Valerio Pinchetti (1), Francesco Meinardi (1), Victor I. Klimov (3), Sergio Brovelli (1).
Monica Lorenzon, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano Bicocca, Milano, Italy, Wan Ki Bae, Korea Institute of Science and Technology, Seoul, Korea (the Republic of), Valerio Pinchetti, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano Bicocca, Milano, Italy, Francesco Meinardi, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano Bicocca, Milano, Italy, Victor I. Klimov, Chemistry Division and Center for Advanced Solar Photophysics, Los Alamos National Laboratory, Los Alamos, New Mexico, United States, Sergio Brovelli, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano Bicocca, Milano, Italy
- 14:30 Hybrid phenyl-silica xerogel films to detect volatile organic compounds. Determination of the molar enthalpy of adsorption** X IV.3
Calleja, I., Echeverría, J.C., Moriones, P., Garrido, J.J.
Departamento de Química Aplicada. Universidad Pública de Navarra. Campus Arrosadía, 31006 Pamplona. Spain.
- 14:45 Photonic Crystals for Gas Sensing: Hydrogen Measurements with Tungsten Oxide Inverse Opals** X IV.4
Sabrina Amrehn, Simon Vetter, Thorsten Wagner
University of Paderborn
- 15:00 Conductivity and gas sensing mechanism of nanocrystalline TiO₂ – SnO₂ – a review** X IV.5
K. Zakrzewska (a), M. Rekas (b), M. Radecka (b)
(a) Faculty of Computer Science, Electronics and Telecommunications, AGH University of Science and Technology, al. A. Mickiewicza 30, Krakow 30-059, Poland, (b) Faculty of Materials Science and Ceramics, AGH University of Science and Technology, al. A. Mickiewicza 30, Krakow 30-059, Poland
- 15:30 Coffee break**
- Carbon Nanomaterials for Chemical Detection : Mohamed Saad**
- 16:00 Carbon-based hybrid materials for the development of sensor-systems dedicated to environmental gaseous pollutants** X V.1
Jérôme BRUNET, Alain PAULY, Amadou NDIAYE
Clermont Université, Université Blaise Pascal, Institut Pascal, BP 10448, F-63000 Clermont-Ferrand, France, CNRS, UMR 6602, Institut Pascal, F-63178 Aubière, France
- 16:30 Fabrication of hydrogen gas sensor using single walled carbon nanohorn based hybrid nanostructure** X V.2
Shivani Dhall and B.R. Mehta
Department of Physics, Indian Institute of Technology, Delhi-110016, India.
- 16:45 Mesoporous nitrogen containing carbon for highly sensitive electrochemical detection of heavy metals** X V.3
Anju Joshi* and Tharamani C. Nagaiah
Department of Chemistry, Indian Institute of Technology Ropar, Rupnagar, Punjab 140 001, India
- 17:00 The role of surface chemistry in functionalized CNTs-based gas sensors: material design and application to atmospheric pollutant** X V.4
A. L. Ndiaye (1,2), J. Brunet (1,2), C. Varenne (1,2), A. Pauly (1,2)
(1) Clermont Université, Université Blaise Pascal, Institut Pascal, BP 10448, F-63000 Clermont-Ferrand, (2) CNRS, UMR 6602, Institut Pascal, F-63178 Aubière
- 17:15 Gas sensing properties of MWCNTs layers electrodeposited with Au and Pd nanoparticles** X V.5
Elena Dilonardo, 1,2 Michele Penza, 3 Marco Alvisi, 3 Riccardo Rossi, 3 Gennaro Casano, 3 Cinzia Di Franco, 4 Francesco Palmisano, 1 Luisa Torsi, 1 Nicola Cioffi
1 Department of Chemistry, Università degli Studi di Bari Aldo Moro, Bari, Italy, 2 Department of Electrotechnics and Electronics, Politecnico di Bari, Bari, Italy, 3 Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Department for Sustainability - Lab Functional Materials and Technologies for Sustainable Applications - Brindisi, Italy, 4 CNR-IFN Bari, Bari, Italy.

<p>17:30 Novel Pt-free Micro- and nano-structured carbon materials with electrocatalytic activity in oX ygen reduction reactions Stefania Marzorati, Serban N. Stamatina, Joana Vasconcelos, Roman Ivanov, Mariangela Longhi, Irina Hussainova, Paula E. Colavita School of Chemistry and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), University of Dublin Trinity College, College Green, Dublin, Dublin D2, Ireland, Università degli Studi di Milano, Dipartimento di Chimica, Via Golgi 19, 20133 Milano, Italy, Tallinn University of Technology, Ehitajate 5, 19180 Tallinn, Estonia</p> <p>17:45 INKJET PRINTED GRAPHENE-BASED CHEMIREISTIVE SENSORS T. Polichetti¹, F. Villani¹, F. Loffredo¹, C. Schiattarella², B. Alfano¹, M. L. Miglietta¹, E. Massera¹, G. Di Francia¹ ¹ ENEA - R.C. Portici, Piazzale E. Fermi 1, Portici (Naples), I-80055, Italy, ² Department of Physics, University of Naples 'Federico II', Via Cinthia, I-80126, Naples, Italy</p> <p>18:00 ELECTROCHEMICAL SENSOR BASED ON GOLD NANOPARTICLES-POROUS CARBON NANOCOMPOSITE FOR THE DETERMINATION OF MERCURY Laura Asturias-Arribas (1), Pengfei Niu (1), Martí Gich (1), César Fernández-Sánchez (2), Anna Roig (1) 1) Institute of Material Science of Barcelona (ICMAB-CSIC), UAB Campus, 08193 Bellaterra, Spain 2) Institute of Microelectronics of Barcelona (CNM-CSIC), UAB Campus, 08193 Bellaterra, Spain</p>	<p>X V.6</p> <p>X V.7</p> <p>X V.8</p>	<p style="text-align: right;">4 May 2016</p> <p style="text-align: center;">Graphene-based Chemical Sensors : Naureen Akhtar</p> <p>09:00 2D-Materials on Silicon Carbide as a Platform for Highly Sensitive and Selective Gas Sensors J. Eriksson¹, R. Yakimova^{1,2}, A. Lloyd Spetz¹ ¹ Division of Applied Sensor Science, Department of Physics, Chemistry, and Biology, Linköping University, SE-58183, Sweden, ² Graphensic AB, SE-58333 Linköping, Sweden</p> <p>09:30 Graphene oX ide for sensing applications: investigation of electrical properties and correlation with oX ygen functionalities S. Scalse 1, S. Baldo 12, D. D'Angelo 1, S. Filice 13, C. Bongiorno 1, I. Deretzis 1, A. La Magna 1 ¹ - CNR-IMM, Ottava Strada n.5, I-95121, Catania (Italy), ² - Dipartimento di Fisica e Astronomia, via S. Sofia n.64, I-95123 Catania (Italy), ³ - Dipartimento di Scienze Chimiche, Università degli Studi di Catania, viale Andrea Doria 6, I-95125 Catania (Italy),</p> <p>09:45 Laser deposition on graphene – a versatile method for developing environmental sensors Margus Kodu, Artjom Berholts, Tauno Kahro, Markus Veinla, Tea Avarmaa, Ahti Niilisk, Harry Alles, Raivo Jaaniso Institute of Physics, University of Tartu, Ravila 14c, 50411, Tartu, Estonia</p> <p>10:00 Coffee break</p> <p style="text-align: center;">Catalytic Materials for Environmental Sensing : Anton Köck</p> <p>10:30 Laser shaped thick-film IDE for nanoparticle detection at high frequencies. Maciej Sobocinski¹, Sami Myllymäki¹, Mikko Nelo¹, Mike Andersson^{1,2}, Jari Juuti¹, Joni Kilpijärvi¹, Niina Halonen¹, Tuomo Siponkoski¹, Heli Jantunen¹, Anita Lloyd Spetz^{1,2} ¹. Microelectronics and Materials Physics Laboratories, University of Oulu, P.O. Box 4500, FI-90014 University of Oulu, Finland ². Division of Applied Sensor Science, Department of Physics, Chemistry and Biology, Linköping University, SE-58183 Linköping, Sweden</p> <p>11:00 Design process of an autonomous–operating hydrogen sensor using nanostructured Palladium Platinum and Surface Acoustic Wave Leonardo Perez-Cortes, Camilo Hernandez-Rodríguez, Thomas Mazingue, Marc Lomello-Tafin Université Savoie Mont Blanc, Laboratoire SYMME.</p> <p>11:15 Recognition abilities of nano-tweezers based on polyoX ometalates bis-functionalized with organic chromophores Marcella Bonchio, Mauro Carraro University of Padova - Department of Chemical Sciences and ITM-CNR, Via Marzolo 1, 35131, Padova, Italy</p> <p>11:30 Polymer and co-Polymer Coated Quartz Crystal Microbalance for Volatile Organic Compounds Detection at Room Temperature Sadullah Öztürk^{1*}, Derya Malkoç¹, Arif Kösemen^{2, 3}, Zafer Şen⁴, Necmettin Kılınç⁵, Mika Harbeck⁴, Zafer Ziya Öztürk² ¹Fatih Sultan Mehmet Vakıf University, Faculty of Engineering, 34080, Istanbul, Turkey, ²Gebze Institute of Technology, Science Faculty, Department of Physics, 41400, Gebze-Kocaeli, Turkey, ³ Mus Alparslan University, Department of Physics, 49100 Mus, Turkey, ⁴ TUBİTAK-MAM, 41470 Gebze, Kocaeli, Turkey, ⁵Nigde University, Faculty of Engineering, Mechatronics Engineering Department and Nanotechnology, Application & Research Center, Nigde University, 51245 Nigde, Turkey, 51245 Nigde, Turkey</p> <p>11:45 High sensitivity and low operating temperature acetone sensors based on ZnO: Au and ZnO: Pd compounds Melina Alexiadou, Maria Kandyła, Michael Kompitsas Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation</p> <p>12:00 Under-Water Superoleophobic Sapphire (0001) Surfaces Naureen Akhtar, Várin R. A. Holm, Peter J. Thomas, Benny Svandal, Simen H. Askeland, and Bodil Holst Department of Physics and Technology, University of Bergen, Norway</p> <p>12:30 Lunch</p>	<p>X VI.1</p> <p>X VI.2</p> <p>X VI.3</p> <p>X VII.1</p> <p>X VII.2</p> <p>X VII.3</p> <p>X VII.4</p> <p>X VII.5</p> <p>X VII.6</p>
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Poster Session II - Materials for Energy Systems and Devices :
Anita Lloyd Spetz and Michele Penza

- 14:00 Electrodeposited Ag₂S onto porous TiO₂ thin films for semiconductor-sensitized photocatalytic and photoelectrochemical** X PII.1
Ibtissem Ben Assaker*, Aymen Bourezgui, Jamila Ben Naceur, Mounir Gannouni, Radhouane Chtourou
Laboratoire Photovoltaïque, Centre de Recherches et des Technologies de l'Energie Technopole borj cedria, Bp 95, hammamm lif 2050, Tunisie
- 14:00 Low sintering with improved performance BaTiO₃ piezoelectric ceramics** X PII.2
Rémy Ul, Elodie Leveugle, Mai Pham Thi
Thales Research & Technology Palaiseau France, INSA Blois France, Thales Research & Technology Palaiseau France, Thales Research & Technology Palaiseau France
- 14:00 Combined experimental/theoretical study of the optoelectronic properties of non-stoichiometric pyrochlore bismuth titanate** X PII.3
Dalal Noureldine, SheikhaLarchi, Ahmed Ziani, MoussabHarb, Luigi Cavallo, Kazuhiro Takanabe
Division of Physical Sciences and Engineering, KAUST Catalysis Center (KCC), King Abdullah University of Science and Technology (KAUST), 4700 KAUST, Thuwal, Saudi Arabia
- 14:00 One-step hydrothermal synthetic electroactivity POM-MOF for electrocatalysis methanol oxidation** X PII.4
Zhichao Jin, Kaikai Ma, Yanfang Gao (Contact Author)
College of Chemical Engineering, Inner Mongolia University of Technology
- 14:00 Control of Selective Ion Transportation through Pt film coated PTFE Membrane under Electrical Bias** X PII.5
Jeong Hwan Kim, Sun A Jung, Sung Woong Lee, Hyun Jung Yoon, Jae-Sung Yoon, and Yeong-Eun Yoo
Department of Nano Manufacturing Technology, Korea Institute of Machinery and Materials (KIMM), Department of Nano-Mechatronics, University of Science and Technology (UST)
- 14:00 Hydride formation thermodynamics and hysteresis in individual Pd nanocrystals with different size and shape** X PII.6
Svetlana Syrenova, Carl Wadell, Ferry A. A. Nugroho, Tina A. Gschneidner, Yuri A. Diaz Fernandez, Giammarco Nalin, Dominika Switlik, Fredrik Westerlund, Tomasz J. Antosiewicz, Vladimir P. Zhdanov, Kasper Moth-Poulsen, Christoph Langhammer
Department of Physics, Chalmers University of Technology, 412 96 Göteborg, Sweden Svetlana Syrenova, Carl Wadell, Ferry A. A. Nugroho, Tomasz J. Antosiewicz, Vladimir P. Zhdanov, Christoph Langhammer. Department of Chemistry and Chemical Engineering, Chalmers University of Technology, 412 96 Göteborg, Sweden Tina A. Gschneidner, Yuri A. Diaz Fernandez, Giammarco Nalin, Kasper Moth-Poulsen Centre of New Technologies, University of Warsaw, Banacha 2c, 02-097 Warsaw, Poland Dominika Switlik, Tomasz J. Antosiewicz. Department of Biology and Biological Engineering, Chalmers University of Technology, 412 96 Göteborg, Sweden Fredrik Westerlund. Borskov Institute of Catalysis, Russian Academy of Sciences, Novosibirsk 630090, Russia Vladimir P. Zhdanov.
- 14:00 Nanoforest of Hierarchical Core/Shell CuO@NiCo₂O₄ Nanowire Heterostructure Arrays on Nickel Foam for High-performance Supercapacitors** X PII.7
Chun Wu, Junjie Cai, Qiaobao Zhang, Ying Zhu, Kaili Zhang
Department of Mechanical and Biomedical Engineering, City University of Hong Kong, 83 Tat Chee Avenue, Hong Kong
- 14:00 Supercapacitive behavior investigation of the activated microporous carbon derived from almond shell** X PII.8
Shaoran YANG, Chun WU, Kaili ZHANG
City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong SAR.
- 14:00 Sulfur Impregnated N, P-doped Hierarchical Porous Carbon as Cathode for High Performance Li-S Batteries** X PII.9
Junjie Cai, Kaili Zhang*
Department of Mechanical and Biomedical Engineering, City University of Hong Kong, 83 Tat Chee Avenue, Hong Kong
- 14:00 ORDERED β -CYCLODEX TRIN-FUNCTIONALIZED MCM-41: SYNTHESIS AND INVESTIGATION** X PII.10
Trofymchuk I.M., Belyakova L.A.
Chuiiko Institute of Surface Chemistry, National Academy of Sciences of Ukraine, 17 General Naumov Str., Kyiv 03164, Ukraine
- 14:00 A quantum chemical investigation of electronic and optical properties of fullerene linked acceptors dyads by conjugated bridges.** X PII.11
Massimo Ottoneilli (a), Marina Alloisio (a), Ivana Moggio (b), Massimo Maccagno (a), Eduardo Arias (b)
(a) Dipartimento di Chimica e Chimica Industriale, Università di Genova, Via Dodecaneso 31, 16146 Genoa, Italy. (b) Centro de Investigación en Química Aplicada (CIQA), Blvd. Enrique Reyna 140, 25294, Saltillo, Méx ico.
- 14:00 High sensitive combustion gas sensors based on silicon carbide MOS structure** X PII.12
Jenica Neamtu 1, Florea Craciunoiu2, Dragos Ovezea1, Razvan Pascu 2
1 National Institute for Research&Development in Electrical Engineering, 2 National Institute for Research&Development in Microtechnology, Bucharest Romania
- 14:00 Treatment of fly ash from power plant using thermal plasma** X PII.13
Sulaiman AIMAYMAN 1, Imed Ghiloufi 2, Ibrahim AlShunaifi 1, Abdullah Albeladi 1, Meshal Aljuhni 1
1 King Abdulaziz City for Science and Technology (KACST), National Center for Combustion & Plasma Technology, Riyadh, Saudi Arabia, 2 Al Imam Mohammad Ibn Saud Islamic University (IMSIU), College of Sciences, Riyadh, Saudi Arabia.
- 14:00 Protonic Conductivity of Dense BaZrO₃ Ceramic Synthesized by Flash Pyrolysis Process for PCFC Applications** X PII.14
Deepash Shekhar Saini, Debasis Bhattacharya
Indian Institute of Technology Kharagpur, Kharagpur, India -721302
- 14:00 Effect of heat treatment on structural and optical properties of CdO films deposited by sol-gel method** X PII.15
I. Ben Miled*1, M.Jlassi 2, I.Sta 1, M.Hajji 3, and H. EZZAOUA1.
1 Laboratoire de Photovoltaïque, Centre de Recherche et des Technologies de l'Energie, Technopole de Borj-Cédria, BP 95, 2050 Hammam-Lif, Tunisie, 2Institut supérieur des beaux arts de Tunis, Université de Tunis, Tunisie. 3Institut Supérieur d'Electronique et de Communication de Sfax, Université de Sfax, BP 868, 3018 Sfax, Tunisie. Faculté des sciences de Bizerte
- 14:00 Transferable Self-assembled monolayer modified crystalline ZnO as a hole transport layer for inverted organic solar cells** X PII.16
Cheng-Yu Chi, Chun-Han Shih, Sandeep Das, Hsiang-Ting Lien, Yian Tai*
Department of Chemical Engineering, National Taiwan University of Science and Technology, Center for Condensed Matter Sciences, National Taiwan University
- 14:00 High-performance ultraviolet photodetector design based on TiO₂ thin film** X PII.17
K. Kacha1, F. Djeflal1,2,* , H. Ferhati1 and D. Arar1
1) LEA, Department of Electronics, University of Batna, Batna 05000, Algeria. 2) LEPCEM, University of Batna, Batna 05000, Algeria. *) E-mail: faycal.djeflal@univ-batna.dz, faycaldzdz@hotmail.com Tel/FaX : 0021333805494
- 14:00 P-type Li-doped Cu₂O films for p-n heterojunction thin film piezoelectric nanogenerators** X PII.18
Kyung Su Cho, Do-Hee Kim, Han-Ki Kim
Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Yongin-si, Gyeonggi-do, 446-701, South Korea
- 14:00 Polymer/nanostructured carbon composites with stress dependent dielectric permittivity for electrostatic energy harvesters** X PII.19
J.Blums, K.Ozols, M.Knite
Institute of Technical Physics, Faculty of Material Science and Applied Chemistry, Riga Technical University, Riga, Latvia
- 14:00 Ammonia gas sensing by microwave transduction : influence of hematite nanorods aspect ratio** X PII.20
Guillaume Bailly, Jérôme Rossignol, Valentin Collin, Brice de Fonseca, Pierre Pribetich, Didier Stuerger
Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB), UMR 6303 CNRS-Université Bourgogne Franche-Comté
- 14:00 Body-attachable active matrix temperature sensor array of polyaniline nanofibers** X PII.21
Soo Yeong Hong1, Yong Hui Lee1, Heun Park1, Sang Woo Jin2, Yu Ra Jeong1, Junyeong Yun1, Jeong Sook Ha1,2
1 Department of Chemical and Biological Engineering, Korea University, Seoul, South Korea 2 KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, South Korea

16:15 **Plenary session**
EU-40 Materials Prize
Reach.Out Award
Graduate students awards ceremony
followed by social event

Nanomaterials for Optical Gas Sensing : Joan Daniel Prades

09:00 **Luminescence Probing of Adsorption Phenomena on InGaN/GaN Nanowire Arrays** X VIII.1
Konrad Maier*, Andreas Helwig*, Gerhard Müller**, Jörg Teubert***, Martin Eickhoff***
* Airbus Group Innovations, D-81663 München, Germany, ** Munich University of Applied Sciences, Fachbereich 06, Lothstraße 34, D-80335 München, Germany, *** I. Physikalisches Institut, Justus-Liebig-Universität Gießen, D-35392 Gießen, Germany.

09:30 **Plasmonic nanomaterials for sensing applications** X VIII.2
Rashad Hajimammadov, Krisztian Kordas
Microelectronics Research Unit, Faculty of Information Technology and Electrical Engineering, University of Oulu P.O. BoX 4500, FI-90570 Oulu, Finland

09:45 **Ellipsometric characterization of metal doped SnOX thin films for SPREE-based gas sensors** X VIII.3
Daniel Fischer (a), Andreas Hertwig (a), Uwe Beck (a), Martin Kormunda (b), Norbert Esser (c)
(a) BAM Federal Institute for Materials Research and Testing, Division 6.7, Unter den Eichen 87, 12205 Berlin, Germany, (b) J.E. Purkyne University, Faculty of Science, Department of Physics, Ceske mladeze 8, 400 96 Usti nad Labem, Czech Republic, (c) Leibniz Institut für Analytische Wissenschaften ISAS-e.V., Department Berlin, Schwarzschildstr. 12, 12489 Berlin, Germany

10:00 **Coffee break**

Hybrid Materials for Environmental Sensing : Danick Briand

10:30 **ADVANCED HYBRID MATERIALS FOR ENVIRONMENTAL SENSORS** X IX .1
M. Bouvet, J.-M. Suisse, R. Meunier-Prest
Institut de Chimie Moléculaire de l'Université de Bourgogne, Univ. Bourgogne Franche-Comté, Dijon, FRANCE

11:00 **Composite Structure Based on Graphene OX ide and Metal OX ide Nanomaterials for Chemical Sensors.** X IX .2
Vardan Galstyan, Elisabetta Comini, Iskandar Kholmanov, Andrea ponzoni, Veronica Sberveglieri, Nicola Poli, Mona Mirmotallebi, Guido Faglia, Giorgio Sberveglieri
Vardan Galstyan, Sensor Lab, CNR, National Institute of Optics (INO) and Department of Information Engineering, University of Brescia, Via Valotti 9, 25133 Brescia, Italy, Elisabetta Comini, Sensor Lab, Department of Information Engineering, University of Brescia, Via Valotti 9, 25133 Brescia, Italy, Iskandar Kholmanov, Sensor Lab, CNR, National Institute of Optics (INO), Via Valotti 9, 25133 Brescia, Italy and Department of Mechanical Engineering, The University of TeX as at Austin, Austin, TX 78712, USA, Andrea ponzoni, Sensor Lab, CNR, National Institute of Optics (INO) and University of Brescia, Via Valotti 9, 25133 Brescia, Italy, Veronica Sberveglieri, Sensor Lab, CNR, National Institute of Optics (INO), Via Valotti 9, 25133 Brescia, Italy, Nicola Poli, Sensor Lab, Department of Information Engineering, University of Brescia, Via Valotti 9, 25133 Brescia, Italy, Mona Mirmotallebi, Department of Physics, Sharif University of Technology, Tehran, Iran P.O.BoX :11155-9161, Guido Faglia, Sensor Lab, Department of Information Engineering, University of Brescia, Via Valotti 9, 25133 Brescia, Italy, Giorgio Sberveglieri, Sensor Lab, CNR, National Institute of Optics (INO) and Department of Information Engineering, University of Brescia, Via Valotti 9, 25133 Brescia, Italy,

11:15 **Electronic ammonia sensor based on hybrid polyaniline/metal oX ides nanocomposites** X IX .3
S. Mikhaylov**, J-L. Wojkiewicz*, A. Pud**, N. Ogurtsov**, Yu. Noskov** N. Redon*, P. Coddeville*
* Ecole des Mines-Douai, Atmospheric Science and Environment Engineering, F-59508 Douai, France ** Institute of Bioorganic Chemistry and Petrochemistry, National Academy of Sciences of Ukraine, 50 Kharkivske Shose,02160, Kyiv, Ukraine

11:30 **Semiconducting 2D materials for highly sensitive sensing** X IX .4
Torben Daeneke Kourosh Kalantar-Zadeh
School of Engineering, RMIT University, School of Engineering, RMIT University

11:45 **Au@Cu2O Core-Shell Nanocrystals EX hibited Remarkable PeroX idase-like Catalytic Activity** X IX .5
Ming-Yu Kuo and Yung-Jung Hsu*
Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu, Taiwan.

12:00 **Strategies for Low Power Gas Sensor** X IX .6
O. Monereo, N. Markiewicz, J. Samà, O. Casals, C. Fàbrega, F. Hernandez-Ramirez, A. Cirera, A. Romano-Rodríguez, A. Waag, J.D. Prades
MIND/IN2UB, Departament d'Electrònica, Universitat de Barcelona, Spain Institute for Semiconductor Technology, Braunschweig University of Technology, Germany

12:30 **Lunch**

Advanced Transducers for Chemical Sensing : Anita Lloyd Spetz

- 14:00 GaN based sensor for ultra-low-power air quality monitoring** X X .1
Peter Offermans, Ahmed Si-Ali, Greja Brom-Verheyden and Rob van Schaijk
imec/Holst Centre High Tech Campus 31 5656AE Eindhoven the Netherlands
- 14:15 Air Quality Networks- where do we go from here?** X X .2
John Saffell, Alphasense Ltd Great Notley, Essex CM77 7AA UK Roderic Jones,
Dept of Chemistry, University of Cambridge CB2 1EW UK
Dr John Saffell, Alphasense Ltd Great Notley, Essex CM77 7AA UK Professor Rode-
ric Jones, Dept of Chemistry, University of Cambridge CB2 1EW UK
- 14:30 Method for field calibration of gas sensors** X X .3
Caroline Schultealbert, Tobias Baur, Andreas Schütze, Tilman Sauerwald
Lab for Measurement Technology, Saarland University, Saarbrücken, Germany, Lab for
Measurement Technology, Saarland University, Saarbrücken, Germany, Lab for Measu-
rement Technology, Saarland University, Saarbrücken, Germany, Lab for Measurement
Technology, Saarland University, Saarbrücken, Germany
- 14:45 Optimization of the Field Effect Transistor transducer platform for the develop-
ment of air quality sensors** X X .4
Mike Andersson, Manuel Bastuck, Joni Huotari, Donatella Puglisi, Andreas Schütze,
Jyrki Lappalainen, Anita Lloyd Spetz
Div. of Applied Sensor Science, Linköping University, SE-581 83 Linköping, Sweden,
Lab for Measurement Technology, Department of Mechatronics, Saarland University,
Campus A5.1, DE-661 23 Saarbruecken, Germany, Microelectronics and Materials Phys-
ics Laboratories, Department of Electrical Engineering, University of Oulu, Linnanmaa,
P.O.Box 4500, FIN-900 14 Oulu, Finland, Div. of Applied Sensor Science, Linköping
University, SE-581 83 Linköping, Sweden, Lab for Measurement Technology, Depart-
ment of Mechatronics, Saarland University, Campus A5.1, DE-661 23 Saarbruecken,
Germany, Microelectronics and Materials Physics Laboratories, Department of Electrical
Engineering, University of Oulu, Linnanmaa, P.O.Box 4500, FIN-900 14 Oulu, Finland,
Div. of Applied Sensor Science, Linköping University, SE-581 83 Linköping, Sweden,
- 15:00 Gas Sensors on Printed Flexible Substrates for Wearable Applications** X X .5
Danick Briand et al.
Ecole Polytechnique Fédérale de Lausanne (EPFL) Neuchâtel, Switzerland
- 15:30 Coffee break**

Functional Materials for New Sensor Concepts : Katarzyna Zakrzewska

- 16:00 Suspended SWNT in FETs as Functional Material for Ultra Low Power NO2 Sen-
sors** X X I.1
Christofer Hierold, Kiran Chikkadi, Cosmin Roman, Miro Haluska
ETH Zurich, Micro and Nanosystems, Department of Mechanical and Process Enginee-
ring, CH-8092 Zurich
- 16:30 Self-Supported Three-Dimensionally Interconnected Polypyrrole Nanotubes and
Nanowires for Highly-Sensitive Gas Detection** X X I.2
Vlad-Andrei Antohe (a), Etienne Ferain (b), Driss Lahem (c), and Luc Pirau (a),
(a) Institute of Condensed Matter and Nanosciences (ICMN), Université catholique de
Louvain (UCL), Place Croix du Sud 1, 1348 Louvain-la-Neuve, Belgium, (b) it4ip s.a.,
Avenue Jean-Etienne Lenoir 1, 1348 Louvain-la-Neuve, Belgium, (c) Materia Nova,
Materials R&D Center, Avenue Nicolas Copernic 1, 7000 Mons, Belgium
- 16:45 Supramolecular Approach for the Detection Benzene in Air at ppb Level** X X I.3
R. Pinalli (a), E. Dalcanale (a), S. Zampolli (b)
(a) Department of Chemistry, University of Parma, 43124 Parma, Italy (b) CNR - IMM
Bologna, 40129 Bologna, Italy
- 17:00 Fully solution-processed OFET platform for gas sensing applications** X X I.4
E. Danesh (a), S. Faraji (b), D. J. Tate (c), K. C. Persaud (a), L. A. Majewski (b), S. G.
Yeates (c), M. L. Turner (c)
(a) School of Chemical Engineering & Analytical Science, The University of Manches-
ter, Manchester, M13 9PL, UK, (b) School of Electrical & Electronic Engineering, The
University of Manchester, Manchester, M13 9PL, UK, (c) School of Chemistry, The
University of Manchester, Manchester, M13 9PL, UK
- 17:15 GaAs as a sensitive material in acoustic gas sensor** X X I.5
G. Bailly, J. Rossignol, Th. Leblois
ICB, CNRS UMR 5209, UBFC, 9 avenue Alain Savary 21078 Dijon, France, ICB, CNRS
UMR 5209, UBFC, 9 avenue Alain Savary 21078 Dijon, France, FEMTO-ST Institute,
CNRS UMR 6174, UBFC, 15B avenue des Montboucons 25030 Besançon, France

- 17:30 Modification of the chemical and electronic properties of n-type GaN(0001) sur-
faces by potassium and water adsorption** X X I.6
V. Irkha, A. Eisenhardt, S. Reiß, S. Krischok, M. Himmerlich
Institut für Physik und Institut für Mikro- und Nanotechnologien MacroNano, Technische
Universität Ilmenau, Germany
- 17:45 Molecular understanding of catalyst as sensor: an in situ impedance-DRIFT spec-
troscopy study of NH3-SCR reaction on zeolites** X X I.7
Peirong Chen, Simon Schönebaum, Dieter Rauch, Ralf Moos, Ulrich Simon
RWTH Aachen University, RWTH Aachen University, University of Bayreuth, University
of Bayreuth, RWTH Aachen University
- 18:00 Self-Healable, Fully-Functional and Multiparametric Flexible Sensing Platform** X X I.8
Tan-Phat Huynh and Hossam Haick
The Department of Chemical Engineering and Russell Berrie Nanotechnology Institute,
Technion – Israel Institute of Technology, Haifa 3200003, Israel

Environmental Sensor Technologies : Christofer Hierold

- 09:00 Optical sensing of bio-medical targets using complex 3D nano-architectures** X X II.1
S.H. Christiansen, G.Sarau, S.W. Schmitt, L. Kling, C. Tessarek, M. Latzel, Ch. Daniel, K. Amann
Helmholtz-Zentrum Berlin, Institute of Nano-architectures for Energy Conversion, MaX-Planck-Institute for the Science of Light, Erlangen
- 09:30 Multiple Fe₂O₃-interlayered NiO with vertically ordered nanostructure for highly sensitive and selective VOCs gas sensor** X X II.2
Jun Min Suh¹, Young-seok Shim^{1,2}, Ho Won Jang^{1,*}
1. Department of Materials Science and Engineering, Seoul National University, Seoul 151-744, Republic of Korea, 2. Department of Materials Science and Engineering, Yonsei University, Seoul 120-749, Republic of Korea
- 09:45 The European Sensor Systems Cluster - ESSC: A Tool for Implementing EC Clustering Policies on Sensor Technologies** X X II.3
Michele Penza - on behalf of ESSC Cluster
ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development Lab Functional Materials and Technologies for Sustainable Applications - PO BoX 51 Br4, I-72100 Brindisi, ITALY
- 10:00 Coffee break**

Functional Materials for Energy and Monitoring Systems : Marcel Bouvet

- 10:30 Naked-eye readable zero power optical hydrogen sensor using biomimetic nano-actuator** X X III.1
Heetak Han¹, Sangyul Baik², Jungmok Seo³, Changhyun Pang⁴, Taeyoon Lee¹
1. School of Electrical and Electronic Engineering, Yonsei University, 50 Yonsei-ro, Seodaemun-Gu, Seoul, 03722, South Korea. 2. School of Chemical Engineering, Sungkyunkwan University, Suwon, 440-746, South Korea. 3. Department of Medicine, Biomaterials Innovation Research Center, Brigham and Women's Hospital, Harvard Medical School, Cambridge, MA 02139, USA, Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA, 02139, USA. 4. School of Chemical Engineering, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, Suwon, 440-746, South Korea.
- 10:45 Electrolyte effects in manganese oxides in context of water electrolysis : in situ Raman and corrosion studies** X X III.2
Chinmoy Ranjan, Zoran Pavlovic, Qiang Gao, Raoul Blume, Robert Schloegl
MaX Planck Institute of Chemical Energy Conversion, Muelheim an der Ruhr, Germany, Fritz Haber Institute of the MaX Planck Society, Berlin, Germany,
- 11:00 Integration of photosensitive valves for automated in-situ microfluidic control** X X III.3
Aymen Ben Azouz, Simon Coleman and Dermot Diamond
Insight Centre for Data Analytics, Dublin City University, Ireland
- 11:15 Hysteresis-Free Nanoplasmonic Pd-Au Alloy Hydrogen Sensors** X X III.4
Ferry A. A. Nugroho*, Beniamino Iandolo**, Carl Wadell*, Emil Lidström*, Jakob B. Wagner**, Christoph Langhammer*
*Department of Physics, Chalmers University of Technology SE-412 96, Göteborg, Sweden, **Center for Electron Nanoscopy, Technical University of Denmark, 2800 Kongens Lyngby, Denmark.
- 11:30 Modified porous conductive materials as catalyst supports** X X III.5
F.A. Garcés (a), M. Torrrens (a), B. Rodríguez-García (a), J.R. Galán-Mascarós (a)(b)
(a) Institute of Chemical Research of Catalonia (ICIQ), Avenida Països Catalans 16, E-43007 Tarragona, Spain. (b) Catalan Institution for Research and Advanced Studies (ICREA), Passeig Lluís Companys 23, E-08010 Barcelona, Spain
- 11:45 CO₂ Detection and Plasmonic Nanospectroscopy of CO₂ Adsorption Energetics in Porous Sorbents for CCS** X X III.6
Ferry A. A. Nugroho*, Chao Xu**, Sara Nilsson*, Michael Persson***, Niklas Hedin**, Christoph Langhammer*
*Department of Physics, Chalmers University of Technology SE-412 96, Göteborg, Sweden., **Department of Materials and Environmental Chemistry, Berzelii Center EX SELENT on Porous Materials, Arrhenius Laboratory, Stockholm University, SE-106 91, Stockholm, Sweden., ***AkzoNobel PPC AB, SW-445 80 Bohus, Sweden.
- 12:00 Membranes for Hydrogen Purification and Enrichment of Impurities for Purity Analysis of Fuel Cell Hydrogen** X X III.7
Ruth Hill-Pearce and Arul Murugan
National Physical Laboratory Hampton Road, Teddington TW11 0LW, U.K.

- 12:30 Closing remarks** X X III.8
Michele Penza¹, Anita Lloyd Spetz², Meyya Meyyappan³, Albert Romano-Rodriguez⁴
1 ENEA, Italy 2 Linköping University, Sweden 3 NASA, USA 4 Universitat de Barcelona, Spain
- 12:45 Lunch**