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TABLE OF CONTENTS

MONDAY, NOVEMBER 3RD

8:40 – 9:00
OPENING REMARKS AND TECHNICAL ACHIEVEMENT AWARD
Auditorium 1

9:00 - 9:50
KEYNOTE – CARLO RATTI
Auditorium 1
Session Chair: Càndid Reig (University of Valencia, Spain)

THE SENSEABLE CITY
Carlo Ratti
MIT Senseable City Lab and Carlo Ratti Association, USA

10:00 - 11:30
A1L-A: SPECIAL SESSION: SMART CITIES SENSORS
Auditorium 1
Session Chair: Michele Penza (ENEA, Italy)

10:00

Michele Penza
ENEA, Italy

10:30

Peio López-Iturri, Erik Aguirre, Leire Azpilicueta, Carlos Fernández-Valdivielso, Ignacio Raúl Matías, Francisco Falcone
Universidad Pública de Navarra, Spain

10:45

Luca Capezzuto[2], Luigi Abbamonte[2], Saverio De Vito[1], Ettore Massera[1], Fabrizio Formisano[1], Grazia Fattoruso[1], Girolamo Di Francia[1]
[1]Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy; [2]Università degli Studi di Napoli Federico II, Italy

11:00

Yoshito Tobe[1], Itaru Usami[1], Yusuke Kobana[1], Junji Takahashi[1], Guillaume Lopez[1], Niwat Thepvilojanapong[2]
[1]Aoyama Gakuin University, Japan; [2]Mie University, Japan

10:00 - 11:30
A1L-B: OPTICAL FIBER SENSORS I
Auditorium 2
Session Chairs: Elfed Lewis (University of Limerick, Ireland), Jesus M. Corres (Public University of Navarra, Spain)

10:00 - 11:15
A1L-C: ADVANCED MATERIALS OR ARCHITECTURES FOR CHEMICAL SENSING
Auditorium 3A
Session Chairs: Eduard Llobet (Universitat Rovira i Virgili, Spain), Massood Atashbar (Western Michigan University, USA)

10:00 - 11:30
A1L-D: CIRCUITS AND DEVICES
Auditorium 3B
Session Chair: Andrea de Marcellis (Università degli Studi dell'Aquila, Italy)

10:00 - 11:30
A1L-E: ACOUSTIC TRANSDUCERS
Rooms 1 & 2
Session Chairs: Matteo Rinaldi (Northeastern University, USA), Libor Rufer (TIMA IMAG, France)

10:00 - 11:30
A1L-F: AGRICULTURE & WATER
Rooms 3 & 4
Session Chairs: Aggelos Bletsas (Technical University of Crete, Greece), Daniele Trinchero (Politecnico di Torino, Italy)

12:00 - 13:45
A2L-A: SPECIAL SESSION: DISTRIBUTED FIBER-OPTIC SENSORS USING BRILLOUIN SCATTERING
Auditorium 1
Session Chairs: Avi Zadok (Bar-Ilan University, Israel), Alayn Loayssa (Public University of Navarra, Spain)

12:00 - 13:30
A2L-B: ACTUATION & ENERGY HARVESTING
Auditorium 2
Session Chairs: Rajashree Baskaran (INTEL, USA), Eugene Hwang (Analog Devices, Inc., USA)

12:00 - 13:30
A2L-C: MEMS CHEMICAL SENSORS I
Auditorium 3A
Session Chair: Eduard Llobet (Universitat Rovira i Virgili, Spain)

12:00 - 13:30
A2L-D: DEVICES AND INTERFACES
Auditorium 3B
Session Chair: Diana Leitao (INESC Microsistemas e Nanotecnologias & IN and Instituto Superior Tecnico, Portugal)

12:00 - 13:30
A2L-E: FLUIDIC SENSORS
Rooms 1 & 2
Session Chairs: Istvan Barsony (University of Pannonia), Gary O'Brien (Robert Bosch LLC, United States)

12:00 - 13:15
A2L-F: ENABLING TECHNOLOGIES
Rooms 3 & 4
Session Chairs: Georgios Papadopoulos (University of Strasbourg, France), Dennis Laurijssen (Universiteit Antwerpen, Belgium)

MONDAY, NOVEMBER 3RD – POSTER SESSION

15:00 - 16:20
A3P-H: METAL OXIDES AND CARBON NANOMATERIALS FOR GAS SENSING
Poster Area - Foyer
Session Chair: Roman Beigelbeck (Danube University Krems, Autria)

15:00 - 16:20
A3P-J: MECHANICAL AND PHOTONIC BIOSENSORS
Poster Area - Foyer
Session Chairs: Anna G. Mignani (CNR-Institute of Applied Physics 'Nello Carrara', Italy)

15:00 - 16:20
A3P-K: OPTICAL SENSORS I
Poster Area - Foyer
Session Chairs: Jesus M. Corres (Public University of Navarra, Spain), Carlos Ruiz Zamarreño (Public University of Navarra, Spain)

15:00 - 16:20
A3P-L: MECHANICAL AND PHYSICAL SENSORS I
Poster Area - Foyer
Session Chair: Siavash Pourkamali (University of Texas at Dallas)

15:00 - 16:20
A3P-M: ACTUATION
Poster Area - Foyer
Session Chairs: Oliver Paul (University of Freiburg, Germany), Gijs Krijnen (University of Twente, Netherlands)

15:00 - 16:20
A3P-N: SENSOR NETWORKS I
Poster Area - Foyer
Session Chairs: Konstantin Mikhaylov (University of Oulu, Finland), Spyridon Daskalakis (Technical University of Crete, Greece)

15:00 - 16:20
A3P-P: MEDICAL APPLICATIONS I
Poster Area - Foyer
Session Chairs: Giuseppe Barillaro (Univerisity of Pisa, Italy), Olga Conde (University of Cantabria, Spain)

15:00 - 16:20
A3P-Q: SENSOR MATERIALS AND DEVICES I
Poster Area - Foyer
Session Chair: Antonio Lopez (Public University of Navarra, Spain)

15:00 - 16:20
A3P-R: PHENOMENA, MODELING AND EVALUATION
Poster Area - Foyer
Session Chairs: Srinivas Tadigadapa (The Pennsylvania State University, United States), Bernhard Jakoby (Johannes Kepler University Linz, Austria)

16:30 - 18:15
A4L-A: SPECIAL SESSION: TIME OF FLIGHT IMAGING, SENSORS & ALGORITHMS
Auditorium 1
Session Chairs: Erez Tadmor (Microsoft, Israel), Micha Feigin (Massachusetts Institute of Technology, United States)

16:30 - 18:00
A4L-B: SPECTROSCOPY
Auditorium 2
Session Chairs: Anna G. Mignani (CNR-Institute of Applied Physics 'Nello Carrara', Italy), Olga Conde (University of Cantabria, Spain)

16:30
FT-IR SPECTROSCOPY AND HYPERSPECTRAL IMAGING APPLIED TO POST-CONSUMER PLASTIC PACKAGING CHARACTERIZATION AND SORTING ***633***
Giuseppe Bonifazi[1], Francesco Di Maio[2], Fabio Potenza[1], Silvia Serranti[1]
[1]Sapienza - Università di Roma, Italy; [2]Technische Universiteit Delft, Netherlands

16:45
COLORIMETRIC ANALYSIS FOR ON-LINE ARC-WELDING DIAGNOSTICS BY MEANS OF PLASMA OPTICAL SPECTROSCOPY ***637***
Jesus Mirapeix Serrano, Ruben Ruiz Lombera, Jose Julian Valdiande, José Miguel López-Higuera
Universidad de Cantabria, Spain

17:00
CHARACTERISTICS OF WHISPERING GALLERY MODE IN MICROSPHERE COVERED ANTIGEN-ANTIBODY LAYER AT ATTENUATED-TOTAL-REFLECTION CONFIGURATION ***641***
Takeshi Tajiri[1], Shuzo Matsumoto[1], Toshihiko Imato[2], Toshihiro Okamoto[3], Masanobu Haraguchi[3]
[1]Industrial Technology Center of Nagasaki, Japan; [2]Kyushu University, Japan; [3]University of Tokushima, Japan

17:15
SILICON PHOTONICS IN THE MID-INFRARED: WAVEGUIDE ABSORPTION SENSORS ***645***
Ventsislav Lavchiev[2], Bernhard Jakoby[2], Grant Ritchie[4], James Kirkbride[4], Ursula Hedenig[1], Thomas Grille[1], Peter Irsigler[1], Bernhard Lendl[3]
[1]Infineon Technologies Austria AG, Austria; [2]Johannes Kepler Universität Linz, Austria; [3]Technische Universität Wien, Austria; [4]University of Oxford, United Kingdom

17:30
CHALLENGES IN THE REALIZATION OF A FULLY INTEGRATED OPTICAL LAB-ON-CHIP ***649***
Sergio Nicoletti[1], Pierre Barritault[1], Salim Boutami[1], Mickael Brun[1], Alain Glière[1], Pierre Labeye[1], Justin Rouxel[1], Jaroslaw Czarny[1], Helene Lhermet[1], Mathieu Carras[2], Gregory Maisons[2]
[1]Commissariat à l'Énergie Atomique et aux Énergies Alternatives, France; [2]III-V Lab, France

17:45
DEVELOPMENT OF A 3D LASER SCANNING SYSTEM FOR LASER-INDUCED BREAKDOWN SPECTROSCOPY ***653***
Satoshi Ikezawa, Yury L'vovich Zimin, Toshitsugu Ueda
Waseda University, Japan

16:30 - 18:00
A4L-C: MEMS CHEMICAL SENSORS II
Auditorium 3A
Session Chair: Eduard Llobet (Universitat Rovira i Virgili, Spain)

16:30
A PASSIVE WIRELESS INTEGRATED HUMIDITY SENSOR BASED ON DUAL-LAYER SPIRAL INDUCTORS ***657***
Cong Zhang, Li Guo, Lifeng Wang, Jian-Qiu Huang, Qing-An Huang
Southeast University, China

16:30 - 18:00
A4L-D: MEDICAL APPLICATIONS II
Auditorium 3B
Session Chairs: Alper Bozkurt (North Carolina State University, United States), Jurgen Kosel (King Abdullah University of Science and Technology, Saudi Arabia)

17:15
SILICON MICRONEEDLES FOR TRANSDERMAL APPLICATIONS BY ELECTROCHEMICAL MICROMACHINING TECHNOLOGY ***691***
Angela Longo, Lucanos Strambini, Letizia Ventrelli, Giuseppe Barillaro
Università di Pisa, Italy

17:30
OCT FOR ANOMALY DETECTION IN AORTIC ANEURYSM RESECTION ***694***
Eusebio Real, José Fernando Val-Bernal, Alejandro Pontón, Marta Calvo Díez, Marta Mayorga, José Manuel Revuelta, José Miguel López-Higuera, Olga María Conde
Universidad de Cantabria, Spain

17:45
FORCE-SENSING MICRONEEDLE FOR ASSISTED RETINAL VEIN CANNULATION ***698***
Berk Gonenc[2], Russell Taylor[2], Iulian Iordachita[2], Peter Gehlbach[1], James Handa[1]
[1]Johns Hopkins School of Medicine, United States; [2]Johns Hopkins University, United States

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16:30 - 18:00
A4L-E: MAGNETIC SENSORS
Rooms 1 & 2
Session Chairs: Matteo Rinaldi (Northeastern University, United States), Michael Kraft (Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung, Germany)

16:30
MOS-GATED BIPOLAR MAGNETOTRANSISTORS FOR 360° ANGULAR SENSING ***702***
Victor Zieren, Olaf Wunnicke, Klaus Reimann, Aad Duinmaijer, Rabindra Rijal
NXP Semiconductors, Netherlands

16:45
HIGH-Q LORENTZ FORCE MEMS MAGNETOMETER WITH INTERNAL SELF-AMPLIFICATION ***706***
Emad Mehdizadeh, Varun Kumar, Xiaobo Guo, Siavash Pourkamali
University of Texas at Dallas, United States

17:00
EQUIVALENT MAGNETIC NOISE OF THIN FILM BASED GIANT MAGNETO-IMPEDANCE MICROSENSORS ***710***
Eduardo Fernández[2], Alfredo García-Arribas[2], Jose Manuel Barandiaran[1], Andrey V. Svalov[2], Galina V. Kurlyandskaya[2], Christophe Dolabdjian[3]
[1]Basque Center for Materials Applications & Nanostructures, Spain; [2]Universidad del País Vasco, Spain; [3]Université de Caen Basse Normandie, France

17:15
SENSITIVITY IMPROVEMENT OF A RESONANT 3-AXIS MAGNETOMETER USING DUAL MASS VIBRATING SYSTEM ***714***
Chien-Wei Kung, Feng-Yu Lee, Chun-I Chang, Sheng-Shian Li, Weileun Fang
National Tsing Hua University, Taiwan

17:30
MAGNETO-TRANSPORT BEHAVIOR OF DOUBLE EXCHANGE MAGNETIC TUNNEL JUNCTION SENSORS ***718***
Ana V. Silva[2], Diana C. Leitao[2], Elvira Paz[3], Zhiwei Hou[1], Ricardo Ferreira[3], Susana Cardoso[2], Paulo P. Freitas[1]
[1]INESC Microsistemas e Nanotecnologias, Portugal; [2]INESC Microsistemas e Nanotecnologias & IN and Instituto Superior Tecnico, Portugal; [3]International Iberian Nanotechnology Laboratory, Portugal

17:45
FIBER OPTIC MAGNETOMETER WITH SUB-PICO TESLA SENSITIVITY FOR MAGNETO-ENCEPHALOGRAPHY *722*
Pradeep Pai[2], Lingyao Chen[1], Massood Tabib-Azar[2]
[1]Inven Sense, United States; [2]University of Utah, United States

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16:30 - 18:00
A4L-F: LOW POWER SOLUTIONS
Rooms 3 & 4
Session Chairs: Francisco Alvarez (Arquimea Ingeniería S.L.U., Spain), Francesco Giuseppe Della Corte (Università degli Studi Mediterranea di Reggio Calabria, Italy)

16:30
NEW APPROACHES IN LOW POWER AND MASS PAYLOAD FOR WIRELESS SENSOR NETWORKS (WSNS) FOR LUNAR SURFACE EXPLORATION *726*
Francisco Álvarez[1], David Millen[1], Cayetano Rivera[1], Carlos Benito[1], Jesus Lopez[1], Diego Fernández[1], Luis Moreno[2]
[1]Arquimea Ingeniería S.L.U, Spain; [2]Universidad Carlos III de Madrid, Spain

16:45
REMOTE IMAGE CAPTURING WITH LOW-COST AND LOW-POWER WIRELESS CAMERA NODES *730*
Sebastian Bader, Matthias Krämer, Najeem Lawal, Mattias O'Nils, Bengt Oelmann
Mid Sweden University, Sweden

17:00
A CARD SIZE ENERGY HARVESTING ELECTRIC POWER SENSOR FOR IMPLEMENTING EXISTING ELECTRIC APPLIANCES INTO HEMS *734*
Yuki Tsunoda[3], Chikara Tsuchiya[2], Yuji Segawa[2], Hajime Sawaya[1], Minoru Hasegawa[1], Koichiro Ishibashi[3]
[1]REVSONIC Corporation, Japan; [2]TM Link Co.,Ltd., Japan; [3]University of Electro-Communications, Japan

17:15
PERFORMANCE ASSESSMENT OF AN ENHANCED RFID SENSOR TAG FOR LONG-RUN SENSING APPLICATIONS *738*
Massimo Merenda, Ivan Farris, Corrado Felini, Leonardo Militano, Silverio Carlo Spinella, Francesco Giuseppe Della Corte, Antonio Iera
Università degli Studi Mediterranea di Reggio Calabria, Italy

17:30
THIN FILM BASED FLEXIBLE CURRENT CLAMP SENSOR FOR GREEN WIRELESS SENSOR NETWORKS *742*
Takahiro Yamashita, Yi Zhang, Hironao Okada, Toshihiro Itoh, Ryutaro Maeda
National Institute of Advanced Industrial Science and Technology, Japan

17:45
WDM SENSOR NETWORK APPROACH: BRIDGING THE GAP TOWARDS POF-BASED PHOTONIC SENSING *746*
Alberto Tapetado[2], David Sánchez Montero[2], Carmen García Vázquez[2], David J. Webb[1]
[1]Aston University, United Kingdom; [2]Universidad Carlos III de Madrid, Spain

TUESDAY, NOVEMBER 4TH

9:00 - 9:50
KEYNOTE – HERRE VAN DER ZANT
Auditorium 1
Session Chair: Lina Sarro (TUDelft, The Netherlands)

GRAPHENE SENSORS IN THE EUROPEAN GRAPHENE FLAGSHIP
Herre van der Zant
Kavli Institute of Nanoscience, Delft University of Technology, The Netherlands

9:40 - 9:50
Early Career Award
Auditorium 1

10:00 - 11:45
B1L-A: SPECIAL SESSION: LASER SELF-MIXING SENSORS
Auditorium 1
Session Chairs: Thierry Bosch (Tsinghua Laboratory of Analysis and Architecture of Systems- CNRS, France), Santiago Royo (Universitat Politècnica de Catalunya, Spain)

10:00
INVITED TALK: PLENOPTIC MICROSCOPE BASED ON LASER OPTICAL FEEDBACK IMAGING (LOFI) *750*
Wilfried Glastre, Olivier Hugon, Olivier Jacquin, Hugues Guillet de Chatellus, Eric Lacot
Université Joseph Fourier, France

10:30
CARRIERS DENSITY IMAGING BY SELF-MIXING INTERFEROMETRY IN A THZ QUANTUM CASCADE LASER *754*
Lorenzo Luigi Columbo[2], Francesco Paolo Mezzapesa[2], Maurizio Dabbicco[2], Massimo Brambilla[2], Gaetano Scamarcio[2] , Miriam Serena Vitiello[1]
[1]Istituto Nanoscienze and Scuola Normale Superiore, Italy; [2]Università degli Studi di Bari Aldo Moro, Italy

10:45
MEASUREMENT OF RELATIVE VELOCITY OF INDEPENDENT TARGETS BY A QUANTUM CASCADE LASER SUBJECT TO OPTICAL FEEDBACK *758*
Francesco Paolo Mezzapesa, Lorenzo Luigi Columbo, Massimo Brambilla, Maurizio Dabbicco, Vincenzo Spagnolo, Gaetano Scamarcio
Università degli Studi di Bari Aldo Moro, Italy

11:00
ANALYTIC PHASE RETRIEVAL OF DYNAMIC OPTICAL FEEDBACK SIGNALS FOR LASER VIBROMETRY *762*
Antonio Luna Arriaga, Francis Bony, Thierry Bosch
LAAS / CNRS / Université de Toulouse, France

10:00 - 11:15
B1L-B: SENSORS & SENSING SYSTEMS I
Auditorium 2
Session Chairs: Libor Rufer (TIMA IMAG, France), Oliver Paul (University of Freiburg, Germany)

10:00 - 11:30
B1L-C: METAL OXIDE GAS SENSORS
Auditorium 3A
Session Chair: Eduard Llobet (Universitat Rovira i Virgili, Spain)

10:00 - 11:30
B1L-D: NOVEL SENSORS - PHENOMENA AND EVALUATION
Auditorium 3B
Session Chair: Bernhard Jakoby (Johannes Kepler University Linz, Austria)

10:00 - 11:30
B1L-E: MEDICAL FORCE SENSORS
Rooms 1 & 2
Session Chairs: Seong Ho Kong (Kyungpook National University, South Korea), Mitsuhiro Shikida (Hiroshima City University, Japan; Nagoya University, Japan)

10:00 - 11:30
B1L-F: NANOBIOSENSORS
Rooms 3 & 4
Session Chair: Avi Zadok (Bar-Ilan University, Israel)

10:00
HIGH SENSITIVE DETECTION IN TUMOR EXTRACTS WITH SINW-FET IN-AIR BIOSENSORS ***866***
Francesca Puppo[1], Marie-Agnès Doucey[3], Jean-François Delaloye[4], Thomas Moh[2], Gregory Pandraud[2], Pasqualina M. Sarro[2], Giovanni De Micheli[1], Sandro Carrara[1]
[1]École Polytechnique Fédérale de Lausanne, Switzerland; [2]Technische Universiteit Delft, Netherlands; [3]Université de Lausanne, Switzerland; [4]University Hospital of Lausanne, Switzerland

10:15
FLUIDICALLY AND ELECTRICALLY INTEGRATED SOLID STATE NANOPORE ARRAYS FOR BIOCHEMICAL SENSING ***870***
Mate Varga[2], Zsofia Bérczes[2], Levente Illés[2], Gyorgy Sáfrány[2], István Bársony[2], Péter Fürjes[2], Robert Gyurcsányi[1], Gyula Jágerszki[1]
[1]Budapest University of Technology and Economics, Hungary; [2]Hungarian Academy of Sciences, Hungary

10:30
TIO2 AND SHRINK INDUCED TUNABLE GRAPHENE COMPOSITES BASED ON NANO SELF ASSEMBLY FOR BIOSENSORS ***873***
Peng Li[2], Gaoshan Jing[1], Tianhong Cui[4], Bo Zhang[3]
[1]Tsinghua University, China; [2]Tsinghua University & University of Minnesota, China; [3]University of Minnesota, United States; [4]University of Minnesota & Tsinghua University, United States

10:45
A PARYLENE-C BASED 16 CHANNELS FLEXIBLE BIO-ELECTRODE FOR ECOG RECORDING ***877***
Lei-Chun Chou, Shang-Wei Tsai, Wun-Lun Chang, Jin-Chern Chiou, Tzai-Wen Chiu
National Chiao Tung University, Taiwan

11:00
MICROFLUIDIC ELISA FOR SENSING OF PROSTATE CANCER BIOMARKERS USING INTEGRATED A-SI:H P-I-N PHOTODIODES ***881***
Narayanan Madaboosi[1], Catarina R. Pedrosa[1], Miguel F. Reis[2], Ruben R.G. Soares[2], Virginia Chu[1], João Pedro Conde[3]
[1]INESC Microsistemas e Nanotecnologias, Portugal; [2]Instituto Superior Tecnico, Universidade de Lisboa, Portugal; [3]Universidade de Lisboa, Portugal

11:15
INTEGRATED POINT-OF-CARE SINW BIOSENSORS ***885***
Mohd Azraie Mohd Azmi, Zari Tehrani, Daniel Thomas, Gareth Blayney, Owen Guy
Swansea University, United Kingdom

12:00 - 13:45
B2L-A: SPECIAL SESSION: PHOTONIC & PHONONIC CRYSTAL SENSORS
Auditorium 1
Session Chair: Ralf Lucklum (Otto von Guericke Universitaet, Germany), Giuseppe Barillaro (Univerisity of Pisa, Italy)

12:00
INVITED TALK: PHOTONIC CRYSTAL BIOSENSORS ..... ***paper not available***
Brian Cunningham
University of Illinois at Urbana-Champaign, United States

12:00 - 13:30
B2L-B: INTERFACING & RESONANT SENSORS
Auditorium 2
Session Chairs: Michael Maharbiz (UC Berkeley, United States), Patrick Pons (CNRS LAAS, Toulouse, France)

12:00 - 13:30
B2L-C: OPTICAL CHEMICAL SENSOR SYSTEMS
Auditorium 3A
Session Chairs: Eduard Llobet (Universitat Rovira i Virgili, Spain)

12:00 - 13:30
B2L-D: SENSOR MODELING AND OPTIMIZATION
Auditorium 3B
Session Chairs: Srinivas Tadigadapa (The Pennsylvania State University, United States), Sebastian Wöckel (Institute for Automation and Communication, Magdeburg, Germany)

12:00

Jarno Groenesteijn[1], Bert van de Ridder[1], Joost Lötters[2], Remco Wiegerink[1]
[1]Universiteit Twente, Netherlands; [2]Universiteit Twente & Bronkhorst High-Tech BV, Netherlands

12:15

Erwin K. Reichel[2], Martin Heinisch[2], Bernhard Jakoby[2], Thomas Voglhuber-Brunnmaier[1]
[1]Donau-Universität Krems / Johannes Kepler Universität Linz, Austria; [2]Johannes Kepler Universität Linz, Austria

12:30

Jungyoon Kim[2], Chao-Hsien Chu[1]
[1]Pennsylvania State University, United States; [2]Singapore Management University, Singapore

12:45

Mario DeMiguel-Ramos, Jimena Olivares, Marta Clement, Teona Mirea, Jesús Sangrador, Enrique Iborra, Mariano Barba
Universidad Politécnica de Madrid, Spain

13:00

Ryunosuke Gando, Naofumi Nakamura, Yumi Hayashi, Daiki Ono, Kei Masunishi, Yasushi Tomizawa, Hiroaki Yamazaki, Tamio Ikehashi, Yoshiaki Sugizaki, Hedeki Shibata
Toshiba Corporation, Japan

13:15

Massood Tabib-Azar, Nazmul Hassan, Hoorad Pourzand, Pradeep Pai
University of Utah, United States

12:00 - 13:30
B2L-E: MEMS RESONANT TRANSDUCERS
Rooms 1 & 2
Session Chairs: Ajit Sharma (Texas Instruments, United States), Michiel Pertijs (Technische Universiteit Delft, Netherlands)

12:00

Chunrong Peng[1], Pengfei Yang[2], Xiaolong Wen[1], Dongming Fang[1], Shanhong Xia[1]
[1]Chinese Academy of Sciences, China; [2]Peking University, China

12:00 - 13:15
B2L-F: ELECTROCHEMICAL BIOSENSORS AND APPLICATIONS
Rooms 3 & 4
Session Chair: Stefan Rupitsch (Erlangen University, Germany)

12:00 - 13:30
B2L-G: LATE NEWS: OTHER SENSING APPLICATIONS
Rooms 6 & 7
Session Chair: Francisco Falcone (Universidad Pública de Navarra, Spain)

TUESDAY, NOVEMBER 4TH – POSTER SESSION

15:00 - 16:20
B3P-H: OPTICAL AND TRACE LEVEL DETECTION
Poster Area - Foyer
Session Chair: Bernhard Jakoby (Johannes Kepler University Linz, Austria)

15:00 - 16:20
B3P-J: ELECTROCHEMICAL BIOSENSORS
Poster Area - Foyer
Session Chairs: Cecilia Jimenez (IMB-CNM (CSIC), Spain), Francesco Giuseppe Della Corte (Università degli Studi Mediterranea di Reggio Calabria, Italy)

15:00 - 16:20
B3P-K: OPTICAL SENSORS II
Poster Area - Foyer
Session Chairs: Anna G. Mignani (CNR-Institute of Applied Physics 'Nello Carrara', Italy), Francisco J. Arregui (Public University of Navarra, Spain)

15:00 - 16:20
B3P-L: MECHANICAL AND PHYSICAL SENSORS II
Poster Area - Foyer
Session Chair: Seong Ho Kong (Kyungpook National University, South Korea)

15:00 - 16:20
B3P-M: ELECTRONICS & INTERFACING
Poster Area - Foyer
Session Chairs: Oliver Paul (University of Freiburg, Germany), Gijs Krijnen (University of Twente, Netherlands)

15:00 - 16:20
B3P-N: SENSOR NETWORKS II
Poster Area - Foyer
Session Chairs: Takahiro Yamashita National Institute of Advanced Industrial Science and Technology, Japan), Spyridon Daskalakis (Technical University of Crete, Greece)

15:00 - 16:20
B3P-P: AUTOMATION AND SENSING PLATFORMS
Poster Area - Foyer
Session Chairs: Salvatore Baglio (Dipartimento di Ingegneria Elettrica Elettronica e Informatica University of Catania, Italy), Ettore Massera (Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy)

15:00 - 16:20
B3P-Q: SENSOR MATERIALS AND DEVICES II
Poster Area - Foyer
Session Chairs: Srinivas Tadigadapa (Pennsylvania State University, United States), Michele Penza (ENEA, Italy)

15:00 - 16:20
B3P-R: OPEN POSTER SESSION **N/A**
Poster Area - Foyer
Session Chair: Javier Calpe (Analog Devices, Spain)

MONITORING OF TRANSVERSE DISPLACEMENT OF REINFORCED CONCRETE BEAMS UNDER FLEXURAL LOADING BY MEANS OF EMBEDDED ARRAYS OF CONVENTIONAL MULTIMODE SILICA OPTICAL FIBERS
Sergei Khotiaintsev, María Del Carmen López Bautista, Juan Emmanuel González Tinoco, Amalia Nallely Cartro Martínez, Selene Pérez García, Héctor Javier Guzmán Olguín, Enrique Ramón Gómez Rosas
Universidad Nacional Autónoma de México, Mexico

A NOVEL BIOSENSOR FOR CONTINUOUS IN-LINE MEASUREMENT OF PLASMIN ACTIVITY IN MILK
Helen Dacres, Murat Gel, Jian Wang, Alisha Anderson, Stephen Trowell
CSIRO, Australia

UTILIZATION OF MACH-ZEHNDER INTERFEROMETER IN A SOLID-FLUID PHONONIC CRYSTAL AS A LIQUID CONCENTRATION SENSOR
Aysevil Salman[2], Olgun Adem Kaya[2], Ahmet Cicek[3], Bulent Ulug[1]
[1]Akdeniz University, Turkey; [2]Inonu University, Turkey; [3]Mehmet Akif Ersoy University, Turkey

XPS CHARACTERIZATION OF MAGNETO-PLASMONIC NANOMATERIALS FOR SENSING APPLICATIONS
Mariagrazia Manera[3], Roberto Rella[3], Adriano Colombelli[3], Pierpaolo Lupo[2], Franca Albertini[2], Simona Rella[1], Cosimino Malitesta[1]
[1]DiSTeBA-Unisalento, Italy; [2]IMEM-CNR, Italy; [3]IMM-CNR, Italy

RAPID MEDICAL DIAGNOSIS PLATFORM WITH SENSITIVITY ENHANCED COATING AND MOLECULAR ROTORS AS CONDITIONAL FLUORESCENT LABELS
Xiaoqun Zhou[1], Weihua Hu[3], Changming Li[3], Min Yen Lee[2], Yin Nah Teo[2]
[1]Institute for Infocomm Research, Singapore; [2]Molecular Engineering Laboratory, Singapore; [3]Nanyang Technological University, Singapore

PERMITTIVITY SENSORS FOR MULTIPHASE PETROLEUM FLOW APPLICATIONS
Jan Kocbach, Kjetil Haukalid, Kjetil Folgerø
Christian Michelsen Research, Norway

INTEGRATION OF MULTIPLE SENSORS FOR VEGETATION MONITORING IN ALPINE AREAS
Andrea Vilardi, Abraham Mejia-Aguilar, Claudia Notarnicola, Enrico Tomelleri, Roberto Monsorno, Marc Zebisch
EURAC-Institute for Applied Remote Sensing, Italy

DISCRIMINATION OF PERFUMES BY ELECTRONIC NOSE USING DESORPTION RATE CONSTANTS
Juan Vorobioff, Carlos Rinaldi, Norberto Boggio, Daniel Rodriguez
CNEA, Argentina

CMOS IMAGE SENSOR WITH 4.9DB SNR IMPROVEMENT AT LOW LIGHT CONDITION
Dongsoo Kim, Jian Jang, Hwayoung Kang, Youngkwon Yoon
Samsung Electronics, South Korea

OPTIMUM CONDITION FOR IDENTIFICATION OF ALCOHOLIC GASES BY SEMICONDUCTOR GAS SENSOR
Akira Fujimoto
National Institute of Technology, Wakayama College, Japan

IMPLANTABLE SENSOR FOR LIVESTOCK TRACEABILITY AND INFECTIOUS DISEASE PREVENTION
Young-Han Kim, Hyun-Seok Ahn, Yongseok Lim, Yongju Park, Seung-Ok Lim
Korea Electronics Technology Institute (KETI), South Korea

DETECTION OF PASSING AUTOMOBILE SOUND FOR SOUND MAPS
Itaru Usami[1], Niwat Thepvilojanapong[2], Naofumi Kitsunezaki[1], Yoshito Tobe[1]
[1]Aoyama Gakuin University, Japan; [2]Mie University, Japan

OXYGEN SENSOR USING MULTI-MODE GRADED-INDEX OPTICAL SILICA FIBER BASED ON RU COMPLEX EMBEDDED IN LAYER-BY-LAYER THIN FILM
Sayuri Ban, Ai Hosoki, Michiko Nishiyama, Atsushi Seki, Kazuhiro Watanabe
Soka University, Japan

SIGNAL DETECTION METHOD WITH CARRIER TRACKING LOOP FOR MOVEMENT TARGETS ON INDOOR POSITIONING SYSTEM WITH SPREAD SPECTRUM ULTRASONIC WAVES
Shohei Terao[2], Akimasa Suzuki[1], Taketoshi Iyota[2]
[1]Iwate Prefectural University, Japan; [2]Soka University, Japan

MATERIAL AND ELECTRICAL PROPERTIES OF CR2O3 DOPE Y0.2AL0.1MN0.27FE0.16NI0.27OX FOR CERAMIC THERMISTOR
Woonyoung Lee, Jinseong Park
Chosun University, South Korea

HETERO-CORE STRUCTURED FABRY-PEROT FIBER OPTIC HYDROGEN SENSOR WITH PALLADIUM FILM
Michiko Nishiyama[2], Ai Hosoki[2], Hirotaka Igawa[1], Kazuhiro Watanabe[2], Atushi Seki[2]
[1]Japan Aerospace Exploration Agency, Japan; [2]Soka University, Japan

MULTISPECTRAL INFRARED SENSOR FOR MARTIAN ATMOSPHERIC PARAMETERS RETRIEVAL
Alberto Fernández, Francisco Cortés, Fernando López
Universidad Carlos III de Madrid, Spain

SENSORIAL STEEL: IN-SITU MEASUREMENT OF STRAINS AND TEMPERATURES DURING GRINDING BY WORKPIECE INTEGRATED THIN FILM SENSORS
Gerrit Dumstorff[2], Benjamin Kolkwitz[1], Mridusmita Sarma[2], Carsten Heinzel[1], Walter Lang[2]
[1]Foundation Institute of Materials Science (IWT) Bremen, Germany; [2]Institute of Microsensors, -actuators, and -systems (IMSAS), Germany

HYDROTHERMAL SYNTHESIS OF ZNO NANORODS FOR SCHOTTKY DIODE HYDROGEN GAS SENSOR
Yuan Liu, Jerry Yu, P.T. Lai
The University of Hong Kong, Hong Kong

RADIATION MONITORING USING A SMART PHONE FOLLOWING THE FUKUSHIMA DISASTER
Naoto Bando[2], Atsushi Yamamoto[1], Peter Debarber[1]
[1]Horiba Instruments, Inc., United States; [2]Horiba, Ltd., Japan

OPTICAL SENSOR TECHNOLOGY FOR SIMULTANEOUS MEASUREMENT OF PARTICLE SPEED AND CONCENTRATION OF MICRO SIZED PARTICLES
Casper Clausen, Anders Bentien
Aarhus University, Denmark

REDOX CHEMO-CHROMIC SENSORS FOR DETECTING BLOOD GLUCOSE LEVELS IN DIABETICS
Rakesh Nair, Akhil Moorthi
Technical University of Chemnitz, Germany

DEVELOPMENT OF WEARABLE MOBILE DEVICE USING BIO-SENSORS
Yongkwi Lee, Hyunjin Yoon, Sangwook Park, Mikyung Han, Jong-Hyun Jang
ETRI, South Korea

OPTICAL FIBER REFRACTOMETRIC SENSOR WITH ELLIPSOIDAL DETECTION ELEMENT IN REFLECTION MODE
Sergei Khotiaintsev, Amalia Nallely Castro Martínez, María Del Carmen López Bautista, Selene Pérez García, Juan Emmanuel González Tinoco
Universidad Nacional Autonoma de México, Mexico

16:30 – 18:00
B4L-A: SPECIAL SESSION: ELECTRONIC NOSES
Auditorium 1
Session Chair: Maria Carmen Horrillo Güemes (CSIC, Spain)

16:30

Javier G. Monroy, Javier Gonzalez-Jimenez, Carlos Sanchez-Garrido
Universidad de Málaga, Spain

17:00

Muhammad Hassan, Amine Bermak
Hong Kong University of Science and Technology, Hong Kong

17:15

Rosamaria Capuano[2], Eugenio Martinelli[2], Silvia Ghezzi[2], Roberto Paolesse[2], Corrado Di Natale[2], Arnaldo D'Amico[2], Marco Santonico[2], Giorgio Pennazza[1]
[1]Università Campus Bio-Medico di Roma, Italy; [2]Università degli Studi di Roma Tor Vergata, Italy

17:30

Giorgio Sberveglieri[1], Giulia Zambotti[1], Matteo Falasconi[1], Emanuela Gobbi[1], Veronica Sberveglieri[2]
[1]Università degli Studi di Brescia, Italy; [2]Università degli Studi di Modena e Reggio Emilia & Consiglio Nazionale delle Ricerche / Istituto Naz, Italy

17:45

Naima Lebal[1], Vincent Raimbault[1], Hamida Hallil[1], Bernard Plano[1], Jean Luc Lachaud[1], Corinne Dejous[1], Dominique Rebière[1], Aleksandra Krstulja[2], Raphael Delepée[2], Luigi Agrofoglio[2]
[1]Université Bordeaux 1, France; [2]University of Orleans, France

16:30 - 18:00
B4L-B: PHOTONIC CRYSTALS AND NANOSTRUCTURES
Auditorium 2
Session Chairs: Marco Petrovich (University of Southampton, England), Ralf Lucklum (Otto von Guericke Universitaet, Germany)

16:30

Christoph Vannahme, Martin Dufva, Anders Kristensen
Technical University of Denmark, Denmark

16:45
FABRICATION OF AU-DECORATED 3D ZNO NANOSTRUCTURES AS RECYCLABLE SERS SUBSTRATES ***1387***
Sung-Gyu Park[2], Jung-Dae Kwon[2], Chae-Won Mun[2], Byungjin Cho[2], Chang Su Kim[2], Myungkwan Song[2], Dong-Ho Kim[2], Tae Yoon Jeon[1], Hwan Chul Jeon[1]
[1]Korea Advanced Institute of Science and Technology, South Korea; [2]Korea Institute of Materials Science, South Korea

17:00
EFFECT OF ROUNDING ON THE SENSITIVITY OF OPTICAL ANTENNAS BASED SENSORS ***1391***
Bhaven Mehta, Mona Zaghloul
George Washington University, United States

17:15
CAPILLARY OPTOFLUIDICS BY HIGH-ASPECT-RATIO PHOTONIC CRYSTALS ***1395***
Salvatore Surdo[2], Lucanos Strambini[2], Giuseppe Barillaro[2], Francesca Carpignano[1], Sabina Merlo[1]
[1]Università degli Studi di Pavia, Italy; [2]Università di Pisa, Italy

17:30
ACCURATE WAVELENGTH PREDICTION OF PHOTONIC CRYSTAL RESONANT REFLECTION AND APPLICATIONS IN REFRACTIVE INDEX MEASUREMENT ***1399***
Pétur Gordon Hermannsson, Christoph Vannahme, Cameron L.C. Smith, Anders Kristensen
Technical University of Denmark, Denmark

17:45
STEERING WHEEL PHOTONIC CRYSTAL FIBER FOR HUMAN IGG DETECTION ***1403***
Jad Rabah, Alpha Mansaray, Rosalind Wynne, Metin Duran
Villanova University, United States

16:30 - 18:00
B4L-C: TRACE DETECTION IN SECURITY AND MEDICAL APPLICATIONS
Auditorium 3A
Session Chair: Eduard Llobet (Universitat Rovira i Virgili, Spain)

16:30
EXPLOSIVES DETECTION BY ARRAY OF SI μ-CANTILEVERS COATED WITH TITANOSILICATE TYPE NANOPOROUS MATERIALS ***1407***
Maria Pilar Pina, Fernando Almazán, Adela Eguizábal, Ismael Pellejero, Miguel Urbiztondo, Javier Sesé, Jesús Santamaría, Daniel García-Romeo, Belen Calvo, Nicolás Medrano
Universidad de Zaragoza, Spain

16:45
MOX/SAW E-NOSE FOR THE IDENTIFICATION OF NERVE AGENT SIMULANT IN THE PRESENCE OF DIESEL ..... **N/A**
Harpreet Singh, V. Bhasker Raj, Jitender Kumar, Upendra Mittal, Meena Mishra, Archibald Theodore Nimal, Manoj Umesh Sharma, Vinay Gupta
University of Delhi, India

17:00
CONJUGATED POLYMER-BASED EXPLOSIVES SENSOR: PROGRESSES IN THE DESIGN OF A HANDHELD DEVICE ***1415***
Tiago Neves, Lino Marques, Liliana Martelo, Hugh Burrows
University of Coimbra, Portugal

17:15
PORTABLE LOCK-IN AMPLIFIER FOR MICROCANTILEVER BASED SENSOR ARRAY. APPLICATION TO EXPLOSIVES DETECTION USING CO-BEA TYPE ZEOLITES AS SENSING MATERIALS *1419*
Daniel García-Romeo, Belén Calvo, Nicolás Medrano, María Pilar Pina, Fernando Almazán, Ismael Pellejero, Miguel Urbiztondo, Javier Sesé, Jesús Santamaría
Universidad de Zaragoza, Spain

17:30
STABLE AND REUSABLE ELECTROCHEMICAL SENSOR FOR CONTINUOUS MONITORING OF PHOSPHATE IN WATER *1423*
Leo Huan-Hsuan Hsu, Ravi Selvaganapathy
McMaster University, Canada

17:45
MONITORING OF DISEASE-RELATED VOLATILE ORGANIC COMPOUNDS IN SIMULATED ROOM AIR *1427*
Toshio Itoh[2], Takafumi Akamatsu[2], Noriya Izu[2], Woosuck Shin[2], Hyung-Gi Byun[1]
[1]Kangwon National University, South Korea; [2]National Institute of Advanced Industrial Science and Technology, Japan

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16:30 - 18:00
B4L-D: SAFETY AND SECURITY APPLICATIONS I
Auditorium 3B
Session Chairs: Omer Oralkan (North Carolina State University, USA), Giuseppe Barillaro (University of Pisa, Italy)

16:30
GAS-DRONE: PORTABLE GAS SENSING SYSTEM ON UAVS FOR GAS LEAKAGE LOCALIZATION *1431*
Maurizio Rossi[2], Davide Brunelli[2], Andrea Adami[1], Leandro Lorenzelli[1], Fabio Menna[1], Fabio Remondino[1]
[1]Fondazione Bruno Kessler, Italy; [2]Università degli Studi di Trento, Italy

16:45
ARTIFICIAL OLFACTION TOOL AND TECHNIQUES FOR SAFETY CONTROLS IN AEROSPACE ASSEMBLY AND MAINTENANCE *1435*
Saverio De Vito, Maria Salvato, Ettore Massera, Antonio Buonanno, Mara Miglietta, Grazia Fattoruso, Girolamo Di Francia
Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy

17:00
A CMOS DIGITIZED SALINITY TRANSDUCER WITH CALIBRATION CIRCUITS FOR MONITORING SALINITY OF OCEAN ENVIRONMENT AND AQUACULTURE *1439*
Cheng-Ta Chiang, Che-Wei Chang
National Chiayi University, Taiwan

17:15
APPLICATION OF MEMS TO MONITORING SYSTEM FOR NATURAL DISASTER REDUCTION *1443*
Nao Minakata[2], Satoshi Nishiyama[3], Takao Yano[2], Meiji Ryu[1]
[1]Earthtech Toyo Co.,Ltd, Japan; [2]Kyoto University, Japan; [3]Okayama University, Japan

17:30
MARINE MONITORING USING OPTICAL FIBER-BASED SENSING SYSTEM ..... **N/A**
Giuseppe Griffo, Aimé Lay-Ekuakille, Patrizia Vergallo, Luigi Piper, Fabrizio Spano, Alessandro Massaro, Giuseppe Gigli
Università del Salento, Italy

17:45
SMART METER LED PROBE FOR REAL-TIME APPLIANCE LOAD MONITORING *1451*
Paolo Barsocchi[1], Erina Ferro[1], Filippo Palumbo[2], Francesco Potortì[1]
[1]Consiglio Nazionale delle Ricerche, Italy; [2]Università degli Studi di Pisa / Consiglio Nazionale delle Ricerche, Italy

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16:30 - 18:00
B4L-E: MONOLITHIC AND CMOS SENSORS
Rooms 1 & 2
Session Chairs: Siavash Pourkamali (University of Texas at Dallas, USA), Ajit Sharma (Texas Instruments, USA)

16:30
A BRIDGE-TYPE RESISTIVE TEMPERATURE SENSOR IN CMOS TECHNOLOGY WITH LOW STRESS SENSITIVITY *1455*
Samuel Huber[2], Arnaud Laville[2], Christian Schott[2], Oliver Paul[1]
[1]Albert-Ludwigs-Universität Freiburg, Germany; [2]Melexis Technologies SA, Switzerland

16:45
A CMOS INTERDIGITAL CAPACITIVE HUMIDITY SENSOR ENHANCED BY A MULTI-LAYERED STRUCTURE *1459*
Jian-Qiu Huang, Wen-Hao Chen, Dong-Ping Zhu, Lei Han
Southeast University, China

17:00
AN INLINE INSERTION MICROWAVE MEMS POWER SENSOR BASED ON GAAS MMIC TECHNOLOGY WITH ULTRA REFLECTION LOSSES *1463*
Zhiqiang Zhang, Xiaoping Liao
Southeast University, China

17:15
A 0.18-µM CMOS CURRENT-MODE HALL MAGNETIC SENSOR WITH VERY LOW BIAS CURRENT AND HIGH SENSITIVE FRONT-END *1467*
Hadi Heidari, Edoardo Bonizzoni, Umberto Gatti, Franco Maloberti
Università degli Studi di Pavia, Italy

17:30
CMOS IMPLEMENTATION OF A 3-AXIS THERMAL CONVECTIVE ACCELEROMETER *1471*
Frederick Mailly, Huy Binh Nguyen, Laurent Latorre, Pascal Nouet
Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier, France

17:45
A TUNGSTEN BASED SOI CMOS MEMS WALL SHEAR STRESS SENSOR *1475*
Ibraheem Haneef[1], Muhammad Umer[1], Mohtashim Mansoor[1], Suhail Akhtar[1], Muhammad Aftab Rafiq[3], Syed Zeeshan Ali[2], Florin Udrea[4]
[1]Air University, Pakistan; [2]Cambridge CMOS Sensors Ltd, United Kingdom; [3]Pakistan Institute of Engineering and Applied Sciences, Pakistan; [4]University of Cambridge, United Kingdom

16:30 - 17:45
B4L-F: PHOTONIC AND ACOUSTIC BIOSENSORS
Rooms 3 & 4
Session Chair: Stefan Rupitsch (Erlangen University, Germany)

16:30
ENHANCED FLUORESCENCE THROUGH THE INCORPORATION OF NANOCONES/GAPS INTO A PLASMONIC GRATINGS SENSOR PLATFORM *1479*
Aaron Wood, Sheila Grant, Sagnik Basuray, Avinash Pathak, Sangho Bok, Cherian Mathai, Keshab Gangopadhyay, Shubhra Gangopadhyay
University of Missouri, USA

16:45
BIOMARKER QUANTIFICATION AT CLINICALLY RELEVANT CONCENTRATIONS USING METAL ENHANCED FLUORESCENCE COMBINED WITH SURFACE ACOUSTIC WAVES *1483*
Samuel Morrill, Venkat Bhethanabotla, Mandek Richardson
University of South Florida, USA

17:00
SEPARATION AND SENSING OF WHOLE CELLS USING METAMATERIAL MESH SENSOR WITH PERIODIC MICROSTRUCTURES *1487*
Makoto Hasegawa[3], Kosuke Mori[3], Yasuyo Inagaki[3], Koki Yamamoto[3], Nobuaki Shirai[4], Yuichi Ogawa[1], Seiji Kamba[2], Takashi Kondo[2]
[1]Kyoto University, Japan; [2]Murata Manufacturing Company, Japan; [3]Nagahama Institute of Bio-Science and Technology, Japan; [4]Northeastern Industrial Research Center of Shiga Prefecture, Japan

17:15
RESPONSE ANALYSIS OF ODOR SENSOR BASED UPON INSECT OLFACTORY RECEPTORS USING IMAGE PROCESSING METHOD *1491*
Takamichi Nakamoto[1], Miki Kakizaki[1], Yoshinori Suzuki[1], Hidefumi Mitsuno[2], Ryohei Kanzaki[2]
[1]Tokyo Institute of Technology, Japan; [2]University of Tokyo, Japan

17:30
THIN-FILM AMORPHOUS SILICON PHOTODIODES WITH INTEGRATED FLUORESCENT FILTERS FOR MONITORING LIVE-CELL GPROTEIN COUPLED RECEPTORS (GPCR) *1495*
Sofia Martins[2], João Mateus[1], Virginia Chu[1], Miguel Prazeres[2], João Pedro Conde[3]
[1]INESC Microsistemas e Nanotecnologias, Portugal; [2]Instituto Superior Técnico, Portugal; [3]Universidade de Lisboa, Portugal

WEDNESDAY, NOVEMBER 5TH

9:00 - 9:50
KEYNOTE – JUN OHTA
Auditorium 1
Session Chair: Ignacio R. Matías (Public University of Navarra, Spain)

9:00
COMMUNICATION WITH CELLS BY ELECTRICITY AND LIGHT – IMPLANTABLE MICROELECTRONICS DEVICES
Jun Ohta
Nara Institue of Science and Technology, Japan

10:00 - 11:30
C1L-A: SPECIAL SESSION: BATTERY-LESS RF-ENABLED SENSORS FOR WIRELESS SENSOR NETWORKS
Auditorium 1
Session Chair: Roc Berenguer (CEIT and Tecnun, University of Navarra,Spain)

10:00
INVITED TALK: BATTERY-FREE WIRELESS SENSORS FOR INDUSTRIAL APPLICATIONS BASED ON UHF RFID TECHNOLOGY ***1499***
Ibon Zalbide[1], Eduardo D'Entremont[1], Ainara Jiménez[1], Héctor Solar[2], Andoni Beriain[2], Roc Berenguer[2]
[1]Farsens SL, Spain; [2]Universidad Pública de Navarra, Spain

10:30
SENSING OF THERMAL THRESHOLDS USING UWB RFID PASSIVE TAGS..... ***1503***
Angel Ramos, Antonio Lazaro, Ramon Villarino, David Girbau
Universitat Rovira i Virgili, Spain

10:45
AN RFID-ENABLED INKJET-PRINTED SOIL MOISTURE SENSOR ON PAPER FOR "SMART" AGRICULTURAL APPLICATIONS ***1507***
Sangkil Kim[3], Taoran Le[3], Manos Tentzeris[3], Amal Harrabi[2], Ana Collado[1], Apostolos Georgiadis[1]
[1]Centre Tecnologic de Telecomunicacions de Catalunya, Spain; [2]Faculty of Mathematical, Physical and Natural Sciences of Tunis, Tunisia; [3]Georgia Institute of Technology, USA

11:00
PASSIVE SENSORS FOR FOOD QUALITY MONITORING AND COUNTERFEITING..... ***1511***
Ricardo Goncalves[2], Jimmy Hester[1], Nuno Carvalho[2], Pedro Pinho[2], Manos Tentzeris[1]
[1]Georgia Institute of Technology, USA; [2]Instituto de Telecomunicacoes, Portugal

11:15
MULTI-BAND SIMULTANEOUS INDUCTIVE WIRELESS POWER AND DATA TRANSMISSION ***1515***
Tobias Dräger, Iker Mayordomo, Jochen Schuster
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung, Germany

10:00 - 11:30
C1L-B: OPTICAL FIBER SENSORS II
Auditorium 2
Session Chairs: Marco Petrovich (University of Southampton, England), Carlos Ruiz Zamarreño (Public University of Navarra, Spain)

10:00
FIBER OPTIC TEMPERATURE SENSOR BASED ON IMAGE PROCESSING OF INTERMODAL INTERFERENCE PATTERN ***1519***
Frederic Musin, Patrice Mégret, Marc Wuilpart
Université de Mons, Belgium

10:15
TORSION SENSOR WITH AN YB-DOPED PHOTONIC CRYSTAL FIBER BASED ON A MACH-ZEHNDER INTERFEROMETER ***1523***
Juan Sierra-Hernandez[2], Julián Estudillo-Ayala[2], Daniel Jauregui-Vazquez[2], Roberto Rojas-Laguna[2], Roberto Robledo-Fava[1], Arturo Castillo-Guzman[1], Romeo Selvas-Aguilar[1], Everardo Vargas-Rodriguez[2], Eloisa Gallegos-Arellano[2]
[1]Universidad Autónoma de Nuevo León, Mexico; [2]Universidad de Guanajuato, Mexico

10:30
SIMPLE AND ADJUSTABLE FABRICATION PROCESS FOR GRADED-INDEX POLYMER OPTICAL FIBERS WITH TAILORED PROPERTIES FOR SENSING ***1527***
Christian-Alexander Bunge[1], Markus Beckers[2], Thomas Gries[2]
[1]Hochschule für Telekommunikation Leipzig, Germany; [2]Rheinisch-Westfälische Technische Hochschule Aachen, Germany

10:45
NEW TOPOLOGIES FOR FIBER LASER NON-CONTACT VIBROMETERS ***1531***
David A. Jackson[2], Julio E. Posada-Roman[1], Jose A. Garcia-Souto[1]
[1]Universidad Carlos III de Madrid, Spain; [2]University of Kent, United Kingdom

11:00
FIBER BRAGG GRATINGS FOR DISTRIBUTED CRYOGENIC TEMPERATURE MEASUREMENT IN A TUBE IN TUBE HELICALLY COILED HEAT EXCHANGER ***1535***
Viswanath Kumar Bharathwaj[2], Akshit Markan[1], Milind Atrey[1], Holger Neumann[2], Rajinikumar Ramalingam[2]
[1]Indian Institute of Technology Bombay, India; [2]Karlsruher Institut für Technologie, Germany

11:15
AUTOMATIC STRAIN DETECTION IN A BRILLOUIN OPTICAL TIME DOMAIN SENSOR USING PRINCIPAL COMPONENT ANALYSIS AND ARTIFICIAL NEURAL NETWORKS ***1539***
Ruben Ruiz Lombera, Jesus Mirapeix Serrano, José Miguel López-Higuera
Universidad de Cantabria, Spain

10:00 - 11:30
C1L-C: DEVICES AND SIGNALS
Auditorium 3A
Session Chair: José L. Sanchez de Rojas (Universidad Castilla-La Mancha, Spain)

10:00
DIELECTRIC AND INDUCTIVE SENSING USING FRINGING ELECTROMAGNETIC FIELDS FROM TEMPERATURE-STABILIZED LC OSCILLATORS ***1543***
Nathaniel Gaskin, Richard Brown
University of Utah, USA

10:00 - 11:30
C1L-D: SENSING PLATFORMS
Auditorium 3B
Session Chairs: Vittorio Ferrari (University of Brescia, Italy), Troy Nagle (North Carolina State University, USA)

10:45
CMOS-INTEGRATED PHOTODETECTORS FOR NEUROMORPHIC AND SMART IMAGING APPLICATIONS: A LOW-COST DESIGN AND MEASUREMENT METHOD *1579*
Nikola Katic, Alexandre Schmid, Yusuf Leblebici
École Polytechnique Fédérale de Lausanne, Switzerland

11:00
A WIRELESS SENSOR NODE POWERED BY NONLINEAR ENERGY HARVESTER *1583*
Bruno Andò[2], Salvatore Baglio[2], Vincenzo Marletta[2], Adi Ratan Bulsara[1]
[1]U.S. Navy Space and Naval Warfare Systems, USA; [2]Università degli Studi di Catania, Italy

11:15
LOW FREQUENCY RADIO SIGNAL POLARISATION SENSOR WITH APPLICATIONS IN ATTITUDE ESTIMATION *1587*
Sean Maguire, Paul Robertson
University of Cambridge, United Kingdom

10:00 - 11:30
C1L-E: POSITIONING AND INERTIAL SENSORS
Rooms 1 & 2
Session Chair: Eugene Hwang (Analog Devices, Inc., USA)

10:00
A 1MG-TO-20G INTEGRATED MEMS INERTIAL SENSOR *1591*
Daisuke Yamane[2], Toshifumi Konishi[1], Takaaki Matsushima[1], Hiroshi Toshiyoshi[3], Kazuya Masu[2], Katsuyuki Machida[1]
[1]NTT Advanced Technology Corporation, Japan; [2]Tokyo Institute of Technology, Japan; [3]University of Tokyo, Japan

10:15
DEVELOPMENT OF A MEMS ROTATION SENSOR FOR OILFIELD APPLICATIONS *1595*
Maxime Projetti[3], Olivier Vancauwenberghe[3], Hans Paulson[3], Nicolas Goujon[3], Frederic Marty[2], Denis Aubry[1]
[1]Ecole Centrale Paris, France; [2]ESIEE, France; [3]Schlumberger Limited, Norway

10:30
A SELF-LEVELLING NANO-G SILICON SEISMOMETER *1599*
William Pike[1], Aifric Delahunty[1], Anisha Mukherjee[1], Guangbin Dou[1], Huafeng Liu[1], Simon Calcutt[3], Ian Standley[2]
[1]Imperial College London, United Kingdom; [2]Kinemetrics Inc., USA; [3]University of Oxford, United Kingdom

10:45
TWO-DEGREE OF FREEDOM CAPACITIVE MEMS VELOCITY SENSOR WITH TWO COUPLED ELECTRICALLY ISOLATED MASS-SPRING-DAMPER SYSTEMS *1603*
Ali Alshehri[3], Bader Almutairi[3], Paolo Gardonio[1], Michael Kraft[2]
[1]Università degli Studi di Udine, Italy; [2]Universität Duisburg-Essen, Germany; [3]University of Southampton, United Kingdom

11:00
A NOVEL AND COMPATIBLE SENSING COIL FOR A CAPSULE IN WIRELESS CAPSULE ENDOSCOPY FOR REAL TIME LOCALIZATION *1607*
Mohd Noor Islam, Andrew Fleming
University of Newcastle, Australia

11:15
DESIGN, FABRICATION AND CHARACTERIZATION OF A MICRO-MACHINED GRAVITY GRADIOMETER SUSPENSION *1611*
Huafeng Liu, William Pike, Guangbin Dou
Imperial College London, United Kingdom

10:00 - 11:15
C1L-F: MECHANICAL BIOSENSORS
Rooms 3 & 4
Session Chairs: Omer Oralkan (North Carolina State University, USA), Carlos Calaza (IMB-CNM (CSIC), Spain)

10:00
A NOVEL SELF-SUPPORTED PRINTED FLEXIBLE STRAIN SENSOR FOR MONITORING BODY MOVEMENT AND TEMPERATURE *1615*
Ali Eshkeiti, Michael Joyce, Binu Baby Narakathu, Sepehr Emamian, Sai Guruva Reddy Avathu, Margaret Joyce, Massood Zandi Atashbar
Western Michigan University, USA

10:15
A MICROPLATFORM FOR MEASUREMENT OF CELL MECHANICAL PROPERTIES *1619*
Hao Tang, Zheyao Wang, Shouhong Jin, Qiong Wu
Tsinghua University, China

10:30
MEASUREMENT OF SUB-BANDAGE PRESSURE DURING VENOUS COMPRESSION THERAPY USING FLEXIBLE FORCE SENSORS *1623*
Michael Burke, Bruce Murphy, Dermot Geraghty
Trinity College Dublin, Ireland

10:45
INVESTIGATION ON NANOSTRUCTURED BIOSENSOR FOR BIOTIN DETECTION *1627*
Davide Polese[1], Annalisa Convertino[1], Luca Maiolo[1], Andrea Ferrone[1], Luca Pazzini[1], Marco Marrani[1], Francesco Maita[1], Alessandro Pecora[1], Guglielmo Fortunato[1], Giorgia Fiaschi[2]
[1]Consiglio Nazionale delle Ricerche, Italy; [2]Università degli Studi Roma Tre, Italy

11:00
WRIST ANGLE MEASUREMENTS USING SOFT SENSORS *1631*
Daniel Vogt, Robert Wood
Harvard University, USA

12:00 - 13:45
C2L-A: SPECIAL SESSION: ANALYTICAL & SEMI-NUMERICAL SENSOR MODELING
Auditorium 1
Session Chairs: Roman Beigelbeck (Danube University Krems, Austria), Bernhard Jakoby (Johannes Kepler University Linz, Austria)

12:00
INVITED TALK: FLUID-STRUCTURE INTERACTIONS OF MECHANICAL SENSORS AT NANOMETER SCALES *1635*
John Sader
University of Melbourne, Australia

12:30
REAL-TIME COMPOSITION DETERMINATION OF GAS MIXTURES *1640*
Joost Lötters[3], Egbert van der Wouden[1], Jarno Groenesteijn[2], Wouter Sparreboom[1], Theo Lammerink[2], Remco Wiegerink[2]
[1]Bronkhorst High-Tech BV, Netherlands; [2]Universiteit Twente, Netherlands; [3]Universiteit Twente & Bronkhorst High-Tech BV, Netherlands

12:45
DETERMINATION OF THERMAL PROPERTIES OF GASES UNDER FLOW CONDITIONS *1644*
Diego Reyes-Romero, Ali Cubukcu, Gerald Urban
Albert-Ludwigs-Universität Freiburg, Germany

13:00
DEVELOPMENT OF ANALYTICAL MODELS OF T- AND USHAPED CANTILEVER-BASED MEMS DEVICES FOR SENSING AND ENERGY HARVESTING APPLICATIONS *1648*
Stephen Heinrich[1], Mohand Tayeb Boudjiet[2], Damien Thuau[2], Philippe Poulin[2], Cedric Ayéla[2], Isabelle Dufour[2]
[1]Marquette University, USA; [2]Université Bordeaux 1, France

13:15
MODELING PERTURBATIONS INDUCED IN PLATE RESONATOR CHARACTERISTICS DUE TO FLEXURAL BENDING *1652*
Gokhan Hatipoglu, Srinivas Tadigadapa
Pennsylvania State University, USA

13:30
EFFICIENT NUMERICAL SIMULATION OF TRANSDUCER OUTPUTS FOR ACOUSTIC MICROSCOPES *1656*
Stefan Rupitsch, Michael Nierla
Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

12:00 - 13:30
C2L-B: PHOTODETECTORS I
Auditorium 2
Session Chairs: Nicola Massari (Fondazione Bruno Kessler, Italy), Rihito Kuroda (Tohoku University, Japan)

12:00
BACKSIDE ILLUMINATED CMOS IMAGE SENSORS FOR EXTREME ULTRAVIOLET APPLICATIONS *1660*
Padmakumar R. Rao[2], Christian Laubis[1], Stoyan Nihtianov[2]
[1]Physikalisch-Technische Bundesanstalt, Germany; [2]Technische Universiteit Delft, Netherlands

12:15
HIGH QUANTUM EFFICIENCY 200-1000 NM SPECTRAL RESPONSE PHOTODIODES WITH ON-CHIP MULTIPLE HIGH TRANSMITTANCE OPTICAL LAYERS *1664*
Yasumasa Koda, Rihito Kuroda, Shigetoshi Sugawa
Tohoku University, Japan

12:30
OPTIMIZATION OF PERIMETER GATED SPADS IN A STANDARD CMOS PROCESS *1668*
Mohammad Habib, Farhan Quaiyum, Syed Islam, Nicole McFarlane
University of Tennessee, Knoxville, USA

12:45
STACKED ORGANIC PHOTOCONDUCTIVE FILMS AND THIN-FILM TRANSISTOR CIRCUITS SEPARATED BY THIN SILICON NITRIDE FOR A COLOR IMAGE SENSOR *1672*
Hokuto Seo[2], Toshikatsu Sakai[2], Hiroshi Ohtake[2], Mamoru Furuta[1]
[1]Kochi University of Technology, Japan; [2]Nippon Hoso Kyokai, Japan

13:00
QUALITY MONITORING OF DIESEL EXHAUST FLUID IN VEHICLES USING DIFFRACTIVE INTERFERENCE SENSORS *1676*
Nityanand Kumawat, Parama Pal, Manoj Varma
Indian Institute of Science, India

13:15
INTERFEROMETIC PARTICLE IMAGING SYSTEM FOR INDUSTRIAL AND NAVAL APPLICATIONS *1679*
Eric Ebert, Willfried Kröger, Kay Domke, Nils Damaschke
Universität Rostock, Germany

12:00 - 13:30
C2L-C: MATERIALS AND PROCESSES
Auditorium 3A
Session Chair: Michele Penza (ENEA, Italy)

12:00
PHOSPHATE SENSORS BASED ON NANOFIBROUS CO ELECTRODES ..... *N/A*
Xiaochen Wang, Xiangmeng Ma, Woo Hyoung Lee, Hyoung Jin Cho
University of Central Florida, USA

12:15
INTERLACING METHOD FOR MICRO-PATTERNING SILVER VIA INKJET PRINTING *1687*
Guijun Li, Robert Roberts, Norman C. Tien
University of Hong Kong, Hong Kong

12:30
INTEGRATION OF PDMS MICROFILTERS AND MICROMIXERS BONDED ONTO APTES-FUNCTIONALIZED POLYMERIC FILMS FOR SIZE SORTING AND MIXING OF MICROPARTICLES *1691*
Michael Lee[3], Abdoullatif Baraket[3], Nadia Zine[2], Nicole Jaffrezic-Renault[2], Abdelhamid Errachid[2], Maria Jose Lopez-Martinez[1], Jaume Esteve[1], Jose Antonio Plaza[1], Naveed Ahmed[3], Abdelhamid Elaissari[3]
[1]Instituto de Microelectronica de Barcelona, Spain; [2]Université Claude-Bernard Lyon 1, France; [3]Université de Lyon, France

12:45
FABRICATION OF HIERARCHICALLY STRUCTURED SUPERHYDROPHOBIC PDMS SURFACES BY CUO CASTING *1695*
Christopher Migliaccio, Nathan Lazarus
U.S. Army Research Laboratory, USA

13:00
PARAMETER STUDY OF MICROWAVE ASSISTED EXFOLIATION OF GRAPHITE AND ITS APPLICATION TO LARGE DEFORMATION STRAIN SENSORS *1699*
Jonghun Kim, Seungkeun Oh, Sang-Hee Yoon
Inha University, South Korea

12:00 - 13:30
C2L-D: AUTOMATION APPLICATIONS
Auditorium 3B
Session Chairs: Jurgen Kosel (King Abdullah University of Science and Technology, Saudi Arabia), Salvatore Baglio (Università degli Studi di Catania, Italy)

12:00 - 13:30
C2L-E: TACTILE/FORCE SENSORS
Rooms 1 & 2
Session Chairs: Rajanna Konandur (Indian Institute of Science, India), Zheyao Wang (Tsinghua University, China)

12:00
LOW-TEMPERATURE FLEXIBLE PIEZOELECTRIC ALN CAPACITOR INTEGRATED ON ULTRA-FLEXIBLE POLY-SI TFT FOR ADVANCED TACTILE SENSING ***1730***
Francesco Maita, Luca Maiolo, Alessandro Pecora, Antonio Minotti, Guglielmo Fortunato, Emanuele Smecca, Alessandra Alberti
Consiglio Nazionale delle Ricerche, Italy

12:15
TACTILE SENSORS WITH INTEGRATED PIEZOELECTRIC POLYMER AND LOW VOLTAGE ORGANIC THIN-FILM TRANSISTORS ***1734***
Piero Cosseddu[1], Fabrizio Viola[1], Stefano Lai[1], Luigi Raffo[1], Lucia Seminara[2], Luigi Pinna[2], Maurizio Valle[2], Ravinder Singh Dahiya[3], Annalisa Bonfiglio[1]
[1]Università degli Studi di Cagliari, Italy; [2]Università degli Studi di Genova, Italy; [3]University of Glasgow , United Kingdom

12:30
A CAPACITIVE PRESSURE SENSOR WITH MINIMUM FOOT PRINT FOR CMOS INTEGRATION ***1737***
Thoralf Kautzsch, Steffen Bieselt
Infineon Technologies Dresden GmbH, Germany

12:45
DEVELOPMENT OF A LASER MICRO-MACHINED INTERDIGITATED CAPACITIVE STRAIN SENSOR FOR STRUCTURAL HEALTH MONITORING APPLICATIONS ***1741***
Hung Cao[1], Chokri Jebali[1], Ammar K. Kouki[1], Shreyas Thakar[2], Cuong Nguyen[2], Smitha Rao[2], J.-C. Chiao[2]
[1]École de Technologie Supérieure, Canada; [2]University of Texas at Arlington, USA

13:00
FORCE-COMPENSATING MEMS SENSOR FOR AFM CANTILEVER STIFFNESS CALIBRATION ***1745***
M. Bulut Coskun[1], Steven Moore[2], S.O. Reza Moheimani[2], Adrian Neild[1], Tuncay Alan[1]
[1]Monash University, Australia; [2]University of Newcastle, Australia

13:15
MULTIMODAL MEASUREMENT OF PROXIMITY AND TOUCH FORCE BY LIGHT- AND STRAIN-SENSITIVE MULTIFUNCTIONAL MEMS SENSOR ***1749***
Masayuki Sohgawa[1], Akito Nozawa[1], Hokuto Yokoyama[3], Takeshi Kanashima[3], Masanori Okuyama[3], Takashi Abe[1], Haruo Noma[4], Teruaki Azuma[2]
[1]Niigata University, Japan; [2]Nitta Corporation, Japan; [3]Osaka University, Japan; [4]Ritsumeikan University, Japan

12:00 - 13:30
C2L-F: BIOSENSORS FOR CELL ANALYSIS I
Rooms 3 & 4
Session Chair: Ana Moya (Consejo Superior de Investigaciones Científicas, Spain)

12:00
EXTRACTION OF ACTIVE ENZYMES FROM "HARD-TO-BREAK-CELLS": EVALUATION BY A RCA-BASED ASSAY ***1753***
Alessio Ottaviani[1], Cinzia Tesauro[1], Søren Fjelstrup[1], Rikke Frøhlich Hougaard[1], Paola Fiorani[2], Alessandro Desideri[2], Birgitta Knudsen[1], Yi-Ping Ho[1]
[1]Aarhus University, Denmark; [2]Università degli Studi di Roma Tor Vergata, Italy

12:15
SENSING OF BIOMOLECULAR MOTION OF LIPOSOME AND TARGET PROTEIN, AND THEIR INTERACTION BY DIELECTRIC DISPERSION ANALYSIS FOR 100-1000 MHZ RANGE ***1757***
Tomoki Yoshikawa, Keisuke Takada, Ziyang Zhang, Kaoru Yamashita, Minoru Noda
Kyoto Institute of Technology, Japan

12:30
A REAL TIME IMMUNOASSAY IN ALUMINA MEMBRANES ***1760***
Jesús álvarez[5], Laura Sola[1], Marina Cretich[1], Marcus Swann[2], Kristinn Gylfasson[3], Tormod Volden[4], Marcella Chiari[1], Daniel Hill[5]
[1]Consiglio Nazionale delle Ricerche, Italy; [2]Farfield, United Kingdom; [3]Royal Institute of Technology, Sweden; [4]Swiss Center for Electronics and Microtechnology, Switzerland; [5]Universitat de València, Spain

12:45
PROBING THE DYNAMICS OF THE PROTON-MOTIVE FORCE IN E. COLI ***1764***
Tom Zajdel[2], Michaela Teravest[2], Behzad Rad[1], Caroline Ajo-Franklin[1], Michel Maharbiz[2]
[1]Lawrence Berkeley National Laboratory, USA; [2]University of California, Berkeley, USA

13:00
MICRONEEDLE SENSOR FOR VOLTAMMETRIC DRUG DETECTION IN PHYSIOLOGICAL FLUIDS ***1768***
Patricia Vazquez[1], Conor O'Mahony[1], Joseph O'Brien[1], James Scully[1], Alan Blake[1], Cian O'Mathuna[1], Paul Galvin[1], Gregoire Herzog[2]
[1]Tyndall National Institute, Ireland; [2]Universite de Lorraine, France

13:15
ANALYSES OF SINGLE-CELL MECHANOELECTRICAL PROPERTIES VIA MICROFLUIDICS ***1772***
Vaishnavi Srinivasaraghavan, Deepti Aggarwal, Hesam Babahosseini, Diana Nakidde, Jeannine Strobl, Masoud Agah
Virginia Polytechnic Institute and State University, USA

12:00 - 13:30
C2L-G: LATE NEWS: OTHER PHYSICAL, CHEMICAL AND OPTICAL SENSORS
Rooms 6 & 7
Session Chair: Francisco J. Arregui (Universidad Publica de Navarra, Spain)

12:00
BRILLOUIN DISTRIBUTED SENSING ASSISTED BY BRILLOUIN AMPLIFICATION OF PUMP PULSES ***1776***
Javier Urricelqui, Mikel Sagues, Alayn Loayssa
Universidad Pública de Navarra, Spain

WEDNESDAY, NOVEMBER 5TH – POSTER SESSION

15:00 - 16:20
C3P-H: CHEMICAL AND GAS SENSOR SYSTEMS
Poster Area - Foyer
Session Chair: Eduard Llobet (Universitat Rovira i Virgili,Spain)

15:00 - 16:20
C3P-J: BIOSENSORS FOR CELL ANALYSIS II
Poster Area - Foyer
Session Chair: Roc Berenguer (CEIT and Tecnun, University of Navarra, Spain)

15:00 - 16:20
C3P-K: OPTICAL SENSORS III
Poster Area - Foyer
Session Chairs: Jesus M. Corres (Public University of Navarra, Spain), Carlos Ruiz Zamarreño (Public University of Navarra, Spain)

15:00 - 16:20
C3P-L: MECHANICAL AND PHYSICAL SENSORS III
Poster Area - Foyer
Session Chair: Siavash Pourkamali (University of Texas at Dallas, USA)

15:00 - 16:20
C3P-M: SENSORS & SENSOR SYSTEMS II
Poster Area - Foyer
Session Chairs: Oliver Paul (University of Freiburg, Germany), Gijs Krijnen (University of Twente, Netherlands)

15:00 - 16:20
C3P-N: SENSOR NETWORKS III
Poster Area - Foyer
Session Chairs: Spyridon Daskalakis (Technical University of Crete, Greece), Stylianos Assimonis (Technical University of Crete, Greece)

15:00 - 16:20
C3P-P: SAFETY AND SECURITY APPLICATIONS II
Poster Area - Foyer
Session Chairs: Troy Nagle (North Carolina State University, USA), Vittorio Ferrari (University of Brascia, Italy)

15:00 - 16:20
C3P-Q: SENSOR MATERIALS AND DEVICES III
Poster Area - Foyer
Session Chair: Javier Calpe (Analog Devices, Spain)

16:30 – 18:00
C4L-A: SPECIAL SESSION: ELECTRONIC TONGUES
Auditorium 1
Session Chairs: Gijs Krijnen (University of Twente, Netherlands), Santiago Marco (Universitat de Barcelona, Spain)

16:30
ELECTRONIC TONGUE AS A RAPID TOOL FOR THE ASSESSMENT OF COFFEE FLAVOUR AND CHEMICAL COMPOSITION ***2126***
Ana Maria Simoes Costa, Maria Madalena Costa Sobral, Ivonne Delgadillo, Alisa Rudnitskaya
Aveiro University, Portugal

17:00
HYBRID ELECTRONIC TONGUES BASED ON MICROSENSORS APPLIED TO WINE QUALITY CONTROL ***2130***
Manuel Gutiérrez-Capitán[2], Jordi Vila-Planas[2], Andreu Llobera[2], Cecilia Jiménez-Jorquera[2], Fina Capdevila[1], Carme Domingo[1], Anna Puig-Pujol1
[1]Institut de Recerca i Tecnologia Agroalimentàries-Institut Català de la Vinya i el Vi, Spain; [2]Instituto de Microelectrónica de Barcelona, Spain

17:15
OPTICAL MONITORING OF WINE ALCOHOLIC FERMENTATION USING A NON-SPECIFIC NDIR MICROARRAY ***2134***
Carlos Calaza, Luis Fonseca
Instituto de Microelectrónica de Barcelona, Spain

17:30
ANALYSIS OF GRAPES AND WINES USING A VOLTAMMETRIC BIOELECTRONIC TONGUE CORRELATION WITH THE PHENOLIC AND SUGAR CONTENT ***2139***
Maria Luz Rodriguez-Méndez[4], Cristina Medina-Plaza[4], Celia García-Hernández[4], Jose Antonio de Saja[4], Jose Antonio Fernández-Escudero[2], Enrique Barajas-Tola[3], German Medrano[1]
[1]Bodega Cooperativa de Cigales, Spain; [2]Estación Enológica de Castilla y León, Spain; [3]Instituto Tecnológico Agrario de Castilla y León, Spain; [4]Universidad de Valladolid, Spain

17:45
APPLICATION OF ELECTRONIC TONGUES IN THE QUALITATIVE AND QUANTITATIVE ANALYSIS OF BEERS ***2143***
Xavier Cetó, Manel del Valle
Universitat Autonoma de Barcelona, Spain

16:30 - 18:00
C4L-B: PHOTODETECTORS II
Auditorium 2
Session Chairs: Rihito Kuroda (Tohoku University, Japan), Nicola Massari (Fondazione Bruno Kessler, Italy)

16:30
SPEED OPTIMIZED LARGE AREA AVALANCHE PHOTODETECTOR IN STANDARD CMOS TECHNOLOGY FOR VISIBLE LIGHT COMMUNICATION ***2147***
Sagar Ray[1], Mona M. Hella[1], Md. Mottaleb Hossain[2], Payman Zarkesh-Ha[2], Majeed M. Hayat[2]
[1]Rensselaer Polytechnic Institute, USA; [2]University of New Mexico, USA

16:30 - 18:00
C4L-C: MATERIALS AND DEVICES
Auditorium 3A
Session Chair: Michele Penza (ENEA, Italy)

17:15
DEVELOPMENT OF A LOW TEMPERATURE PZT/POLYMER PASTE FOR SCREEN PRINTED FLEXIBLE ELECTRONICS APPLICATIONS *2183*
Ahmed Almusallam, Kai Yang, Dibin Zhu, Russel Torah, John Tudor, Steve Beeby
University of Southampton, United Kingdom

17:30
GOLD-TIN EUTECTIC BONDING FOR HERMETIC PACKAGING OF MEMS DEVICES WITH VERTICAL FEEDTHROUGHS *2187*
Mustafa Mert Torunbalci, Eyup Can Demir, Inci Donmez, Said Emre Alper, Tayfun Akin
Middle East Technical University, Turkey

17:45
DETECTION OF BIOLOGICAL TARGETS BY USING POROUS POLYMER AND METAMATERIAL MESH SENSORS *2191*
Tetsuhito Suzuki[1], Yuichi Ogawa[1], Naoshi Kondo[1], Takashi Kondo[2], Seiji Kamba[2]
[1]Kyoto University, Japan; [2]Murata Manufacturing Company, Japan

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16:30 - 18:00
C4L-D: BIO-APPLICATIONS
Auditorium 3B
Session Chairs: Alper Bozkurt (North Carolina State University, USA), Olga Conde (University of Cantabria, Spain)

16:30
ACOUSTIC SENSORS FOR BIOBOTIC SEARCH AND RESCUE *2195*
Eric Whitmire, Tahmid Latif, Alper Bozkurt
North Carolina State University, USA

16:45
ASSESSING WIRELESS INERTIA MEASUREMENT UNITS FOR MONITORING ATHLETICS SPRINT PERFORMANCE *2199*
Lydia Philpott, Sam Weaver, David Gordon, Paul Conway, Andrew West
Loughborough University, United Kingdom

17:00
WEARABLE WIRELESS BIOPHOTONIC AND BIOPOTENTIAL SENSORS FOR CANINE HEALTH MONITORING *2203*
Rita Brugarolas, James Dieffenderfer, Katherine Walker, Ashley Wagner, Barbara Sherman, David Roberts, Alper Bozkurt
North Carolina State University, USA

17:15
INCREMENTAL SIMILARITY METRIC TO EVALUATE COMPLEXITY OF HUMAN GAIT: A DISTRIBUTED WIRELESS SENSOR NETWORK APPROACH *2207*
Mihaela I. Chidean[2], Eduardo Morgado[2], Eduardo Del Arco[2], Giancarlo Pastor[1], Antonio Moreno-Carretero[2], Julio Ramiro-Bargueño[2], Antonio J. Caamaño[2]
[1]Aalto University, Finland; [2]Universidad Rey Juan Carlos, Spain

17:30
A FRAMEWORK FOR COMPREHENSIVE ANALYSIS OF A SWING IN SPORTS USING LOW-COST INERTIAL SENSORS *2211*
Amin Ahmadi, Francois Destelle, David Monaghan, Noel E. O'Connor, Chris Richter, Kieran Moran
Dublin City University, Ireland

17:45
DYNAMIC ACCURACY ASSESSMENT OF DATA--FUSION TECHNIQUES FOR WEARABLE, INERTIAL AND MAGNETIC BASED HUMAN MOTION CAPTURE ***2215***
Luca Ricci, Domenico Formica
Campus Biomedico Roma, Italy

16:30 - 17:45
C4L-E: TEMPERATURE AND HUMIDITY SENSORS
Rooms 1 & 2
Session Chair: Deepak Uttamchandani (University of Strathclyde, UK)

16:30
MICROMECHANICAL RELATIVE HUMIDITY SENSOR BASED ON EPITAXIAL SILICON CANTILEVERS ***2219***
Jian-Qiu Huang, Dong-Ping Zhu, Wen-Hao Chen, Meng Nie
Southeast University, China
16:45

SCREEN PRINTED CHIPLESS WIRELESS TEMPERATURE SENSOR TAG BASED ON BARIUM STRONTIUM TITANATE THICK FILM CAPACITOR ***2223***
Martin Schüßler[2], Christian Kohler[1], Alex Wiens[2], Bernd Kubina[2], Christian Mandel[2], Andreas Friedrich[1], Joachim Binder[1], Rolf Jakoby[2]
[1]Karlsruher Institut für Technologie, Germany; [2]Technische Universität Darmstadt, Germany

17:00
PRINTED WEARABLE TEMPERATURE SENSOR FOR HEALTH MONITORING ***2227***
Wataru Honda, Shingo Harada, Takayuki Arie, Seiji Akita, Kuniharu Takei
Osaka Prefecture University, Japan

17:15
SENSITIVE HUMIDITY MICRO-SWITCH BASED ON POLYMERS ***2230***
Christian Bellmann[3], Reza Sarwar[2], Arndt Steinke[1], Thomas Frank[1], Helmut F. Schlaak[2], Gerald Gerlach[3]
[1]CIS Forschungsinstitut für Mikrosensorik und Photovoltaik GmbH, Germany; [2]Technische Universität Darmstadt, Germany; [3]Technische Universität Dresden, Germany

17:30
INKJET PRINTED DIFFERENTIAL MODE TOUCH AND HUMIDITY SENSORS ON INJECTION MOLDED POLYMER PACKAGES ***2234***
Vladimir Matic[1], Laura Liedtke[1], Thomas Guenther[1], André Buelau[1], Annemarie Ilchmann[1], Jürgen Keck[1], Bernhard Polzinger[1], Wolfgang Eberhardt[1], Heinz Kueck[2]
[1]Mikroaufbautechnik am HSG-IMAT, Germany; [2]Universität Stuttgart, Germany

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16:30 - 18:00
C4L-F: WEARABLES
Rooms 3 & 4
Session Chair: Unmesh Ghoshdastider (University of Duisburg-Essen, Germany)

16:30
ESTIMATION OF SPINAL SHAPE PROFILES IN MOTION USING ACCELEROMETERS ***2238***
Shiho Washizawa, Yasuyuki Nakata, Daisuke Uchida, Kazuho Maeda, Akihiro Inomata, Yoshinori Yaginuma
Fujitsu Laboratories Ltd., Japan