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{1}Institute of Electronics, Chinese Academy of Sciences, China; {2}Institute of Electronics, Chinese Academy of Sciences / University of Chinese Academy of Sciences, China

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LOCATION: Pullman Aerocity Courtyard

SESSION CHAIR: Jurgen Kosel, King Abdullah University of Science and Technology

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^{1}Indian Institute of Science, India; ^{2}Robert Bosch Centre for Cyber Physical Systems, India; ^{3}St. John's Research Institute, India; ^{4}St. John's Medical Hospital, India

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 {1}Ghent University, Belgium; {2}IMEC, Belgium; {3}IMEC / Katholieke Universiteit Leuven, Belgium

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LOCATION: Comeeting 2

SESSION CHAIRS: Eduard Llobet, Universitat Rovira i Virgili; Ajay Agarwal, CEERI

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{1}IMT Atlantique, France; {2}Université Bretagne Sud, France*

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{1}Indian Institute of Technology Kharagpur, India; {2}Indian Institute of Technology Kharagpur / S. N. Bose National Centre for Basic Sciences, India*

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LOCATION: Comeeting 3
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	<i>Indian Institute of Technology Bombay, India</i>	
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	<i>{1}Indian Institute of Science, India; {2}Pennsylvania State University, United States</i>	
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	<i>{1}Dayananda Sagar University, India; {2}Indian Institute of Science, India; {3}Indian Space Research Organisation, India</i>	
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B2P-J: Physical Sensors III
LOCATION: Pullman Aerocity Courtyard
SESSION CHAIR: Libu Manjakkal, University of Glasgow

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	<i>Francesca Criscuolo{1}, Lucia Lobello{1}, Irene Taurino{1}, Danilo Demarchi{2}, Sandro Carrara{1}, Giovanni De Micheli{1}</i>	
	<i>{1}École Polytechnique Fédérale de Lausanne, Switzerland; {2}Politecnico di Torino, Italy</i>	

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	<i>Lee Zhi Yan, Huzein Fahmi Bin Hawari, Gunawan Witjaksono Djaswadi</i> <i>Universiti Teknologi Petronas, Malaysia</i>	
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13:45 - 15:15		
B2P-K: Acoustic & Ultrasonic Sensors II		
LOCATION: Pullman Aerocity Courtyard		
SESSION CHAIR: Krishnan Balasubramanian, IIT Madras		
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LOCATION: Pullman Aerocity Courtyard		
SESSION CHAIR: Ensieh Seyed Hosseini, University of Glasgow		
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<i>Paul Marsh{2}, Miguel Huerta{2}, Tai Le{2}, Xuesong Yang{1}, Jung-Chih Chiao{1}, Hung Cao{2}</i>	
<i>{1}University of Texas at Arlington, United States; {2}University of Washington Bothell, United States</i>	
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<i>{1}CSIR-CEERI, India; {2}Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, India; {2}Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany</i>	
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<i>Sumita Santra{1}, Arun Sinha{3}, Samit Kumar Ray{2}</i>	
<i>{1}Indian Institute of Technology Kharagpur, India; {2}Indian Institute of Technology Kharagpur / S. N. Bose National Centre for Basic Sciences, India; {3}Seoul National University, Korea</i>	
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<i>Tokyo Institute of Technology, Japan</i>	
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<i>Imperial College London, United Kingdom</i>	
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<i>National Research Tomsk State University, Russia</i>	
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<i>{1}Birla Institute of Technology and Science, Pilani, India; {2}Indian Institute of Technology Kharagpur, India; {3}Indian Institute of Technology Kharagpur / S. N. Bose National Centre for Basic Sciences, India</i>	

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^{1}University of Tehran, Iran; ^{2}University of Tehran / IPM / Technische Universität Wien, Iran; ^{3}Western Michigan University, United States

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Tokyo Institute of Technology, Japan

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Indian Institute of Technology Delhi, India

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B2P-M: Sensor Signal Processing V

LOCATION: Pullman Aerocity Courtyard

SESSION CHAIR: Ashwin Seshia, University of Cambridge

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^{1}National Chiao Tung University, Taiwan; ^{2}National Chiao Tung University / Danube University Krems, Taiwan

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University of Glasgow, United Kingdom

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^{1}National Institute of Technology Goa, India; ^{2}University of Pavia, Italy

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B2P-N: Sensors & Actuators Systems II
LOCATION: Pullman Aerocity Courtyard
SESSION CHAIR: Shad Roundy, The University of Utah

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University of Hong Kong, China

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Czech Technical University in Prague, Czech Rep.

T-11-72
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National Institute of Technology, Tiruchirappalli, India

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Md Qumrul Hasan, Gymama Slaughter
Bioelectronics Laboratory and University of Maryland Baltimore County, United States

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Vasudha Agrawal, Bhaskar Mitra
Indian Institute of Technology Delhi, India

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Kyushu University, Japan

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Indian Institute of Technology Delhi, India

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LOCATION: Comeeting 1
SESSION CHAIRS: Mohammad Younis, King Abdullah University of Science and Technology; Katsuo Kurabayashi, University of Michigan

16:15
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Tel Aviv University, Israel

16:45
HIGH QUALITY FACTOR MODE ORDERED DUAL FOUCAULT PENDULUM GYROSCOPE 1130
Mohammad Asadian{2}, Sina Askari{2}, Ian Flader{1}, Yunhan Chen{1}, Dustin Gerrard{1}, Dongsuk Shin{1}, Hyun-Keun Kwon{1}, Thomas Kenny{1}, Andrei Shkel{2}
{1}Stanford University, United States; {2}University of California, Irvine, United States

17:00
A NOVEL AMPLITUDE-PHASE INFORMATION EXTRACTION ARCHITECTURE FOR MEMS VIBRATORY GYROSCOPES USING A MODIFIED DOUBLE SIDE-BAND DEMODULATION CONFIGURATION 1134
Haibin Wu, Xudong Zheng, Yiyu Lin, Zhipeng Ma, Zhonghe Jin
Zhejiang University, China

17:15
MEMS SENSOR DATA ANOMALY DETECTION FOR THE UAV FLIGHT CONTROL SUBSYSTEM 1138
Liansheng Liu, Mei Liu, Qing Guo, Datong Liu, Yu Peng
Harbin Institute of Technology, China

16:15 - 17:45
B3L-B: Electrochemical Sensors
LOCATION: Comeeting 2
SESSION CHAIR: Gymama Slaughter, University of Maryland Baltimore County

16:15
C-MEMS DERIVED GLASSY CARBON ELECTRODES AS SENSITIVE ELECTROCHEMICAL BIOSENSORS 1142
Bidhan Pramanick{2}, Naresh Mandal{1}, Debasis Mondal{1}, Chirasree RoyChaudhuri{1}, Suman Chakraborty{2}
{1}Indian Institute of Engineering Science and Technology, Shibpur, India; {2}Indian Institute of Technology Kharagpur, India

16:30
NANOMATERIAL-FUNCTIONALIZED-METAMATERIAL-INSPIRED RESONATORS FOR ULTRA-SENSITIVE AND SELECTIVE H₂S SENSING N/A
Vaishali Rawat{1}, Shreeram Joglekar{1}, Babli Bhagat{2}, Sangeeta Kale{1}
{1}Defence Institute of Advanced Technology, India; {2}University of Duisburg Essen, Germany

16:45
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Subhashis Das{2}, Shubhankar Majumdar{3}, Saptarsi Ghosh{4}, Ankush Bag{2}, Satinder Sharma{2}, Dhruves Biswas{1}
{1}Indian Institute of Technology Kharagpur, India; {2}Indian Institute of Technology Mandi, India; {3}National Institute of Technology Meghalaya, India; {4}University of Cambridge, United Kingdom

17:00
SPECTROSCOPIC CHEMICAL SENSING BASED ON NARROWBAND MEMS RESONANT INFRARED DETECTORS 1153
Sila Deniz Caliskan{1}, Vladimir Villanueva-Lopez{2}, Vageeswar Rajaram{1}, Zhenyun Qian{1}, Sungho Kang{1}, Samuel Hernandez-Rivera{2}, Matteo Rinaldi{1}
{1}Northeastern University, United States; {2}University of Puerto Rico, United States

17:15
A NOVEL PAPER BASED POINT OF CARE BLOOD PH SENSOR 1157
Prasoon Awasthi, Soumen Das
Indian Institute of Technology Kharagpur, India

17:30

DEVELOPMENT OF FLEXIBLE MICROPLASMA DISCHARGE DEVICE FOR STERILIZATION APPLICATIONS.....

1161

*Arnesh Bose, Carol Beaver, Binu B. Narakathu, Silvia Rossbach, Bradley J. Bazuin, Massood Z. Atashbar
Western Michigan University, United States*

16:15 - 17:45

B3L-C: Bio/Chemical Sensors

LOCATION: Comeeting 3

SESSION CHAIRS: Sillas Hadjiloucas, University of Reading; Enakshi Bhattacharya, Indian Institute of Technology Madras

16:15

IN-VIVO STUDY ON RESONANT PHOTOACOUSTIC SPECTROSCOPY USING DUAL CW LIGHT WAVELENGTHS FOR NON-INVASIVE BLOOD GLUCOSE MONITORING.....

1165

*Yujiro Tanaka{1}, Takuro Tajima{1}, Michiko Seyama{1}, Kayo Waki{2}
{1}NTT Corporation, Japan; {2}University of Tokyo, Japan*

16:30

ESTIMATING BLOOD PRESSURE VIA ARTIFICIAL NEURAL NETWORKS BASED ON MEASURED PHOTOPLETHYSMOGRAPHY WAVEFORMS.....

1169

*Kotagiri N. G. Priyanka, Paul C.-P. Chao, Tse-Yi Tu, Yung-Hua Kao, Ming-Hua Yeh, Rajeev Pandey, Eka Fitrah P.
National Chiao Tung University, Taiwan*

16:45

CALIBRATION FREE AND FLUORESCENCE BASED FIBER OPTIC PH SENSOR FOR CLINICAL APPLICATIONS.....

N/A

*Bernard Gauthier-Manuel, Rutjaphan Kateklum, Bruno Wacogne
CNRS FEMTO-ST Institute, France*

17:00

FIBER OPTIC PLASMONIC SANDWICH IMMUNOSENSOR: INFLUENCE OF AUNP LABEL SIZE AND CONCENTRATION.....

1177

*Divagar M, V V Raghavendra Sai
Indian Institute of Technology Madras, India*

17:15

DETECTION OF TILTED FIBER BRAGG GRATING FIBER-OPTIC SENSORS WITH SHORT-TERM KLT: TOWARDS LOW-COST BIOSENSORS.....

N/A

*Aliya Bekmurzayeva, Madina Shaimerdenova, Yntymak Abukhanov, Marzhan Sypabekova, Daniele Tosi
Nazarbayev University, Kazakhstan*

17:30

PERFORMANCE COMPARISON OF A FIBER OPTIC HYDROPHONE IN SINGLE AND ARRAY CONFIGURATION.....

N/A

*Sham Kumar Sivasambhoo{2}, Praveen T V{2}, Sreehari C V{1}, Khansa C A{1}, Rajesh R{2}, K P B Moosad{2}
{1}Defence Research and Development Organisation, India; {2}Naval Physical and Oceanographic Laboratory, India*

16:15 - 17:45
B3L-D: Physical Sensors IV
LOCATION: Comeeting 4
SESSION CHAIRS: Piero Cosseddu, University of Cagliari; Zeynep Celik-Butler, The University of Texas at Arlington

16:15
SIMULTANEOUS SENSING OF VAPOR CONCENTRATION AND TEMPERATURE UTILIZING MULTIMODE OF A MEMS RESONATOR 1189

*Nizar Jaber, Saad Ilyas, Osama Shekhah, Mohamed Eddaoudi, Mohammad Younis
King Abdullah University of Science and Technology, Saudi Arabia*

16:30
COMPACT FIBER OPTIC SENSORS FOR DUAL TEMPERATURE AND REFRACTIVE INDEX PROFILING BASED ON PARTIALLY ETCHED CHIRPED FIBER BRAGG GRATING 1193

*Sanzhar Korganbayev, Aliya Bekmurzayeva, Madina Shaimerdenova, Takhmina Ayupova, Carlo Molardi, Kanat Dukenbayev, Marzhan Sypabekova, Daniele Tosi
Nazarbayev University, Kazakhstan*

16:45
A NEW TYPE OF HYDROPHILIC QCM DEW POINT SENSOR 1197

*Ning Li{1}, Xiaofeng Meng{1}, Jing Nie{2}, Qiyang Huang{2}, Liwei Lin{2}
{1}Beihang university, China; {2}University of California, Berkeley, United States*

17:00
ASYMMETRICAL SENSING CONFIGURATION FOR IMPROVED SENSITIVITY IN CALORIMETRIC HIGH FLOW MEASUREMENTS IN CONSTANT POWER MODE 1200

*Vasileios Kitsos, Matthew Schormans, Andreas Demosthenous, Xiao Liu
University College London, United Kingdom*

17:15
A MICROMACHINED, MEMBRANE BASED, THERMOELECTRIC FLOW SENSOR FOR 2-DIMENSIONAL MEASUREMENT WITH HIGH ANGULAR RESOLUTION 1204

*Nico Hartgenbusch{3}, Mykhailo Borysov{3}, Reiner Jedermann{1}, Walter Lang{2}
{1}Friedrich-Wilhelm-Bessel-Institut Forschungsgesellschaft mbH / University of Bremen, Germany; {2}Universität Bremen, Germany; {3}University of Bremen, Germany*

17:30
A COMPACT PRMNO₃ BASED OSCILLATOR AS AN ALTERNATIVE TO CMOS RING OSCILLATOR IN A SMART TEMPERATURE SENSOR 1208

*Sandip Lashkare{1}, Pankaj Kumbhare{1}, Vivek Saraswat{1}, Shouri Chatterjee{2}, Udayan Ganguly{1}
{1}Indian Institute of Technology Bombay, India; {2}Indian Institute of Technology Delhi, India*

16:15 - 17:45
B3L-E: Microfabricated Acoustic Sensors
LOCATION: Comeeting 9
SESSION CHAIR: Omer Oralkan, North Carolina State University

16:15
FLUID DENSITY SENSING USING PMUTS 1212

*Kaustav Roy{1}, Harshvardhan Gupta{1}, Vijayendra Shastri{1}, Ajay Dangi{2}, Rudra Pratap{1}
{1}Indian Institute of Science, India; {2}Pennsylvania State University, United States*

16:30

FIBER OPTIC MANDREL HYDROPHONE FOR DEEP SEA APPLICATIONS..... N/A

Lav Kumar{2}, Ashida Pradeep{1}, C V Sreehari{2}, C A Khansa{2}, T Santhanakrishnan{2}, R Rajesh{2}, K P B Moosad{2}

{1}Model Engineering College, India; {2}Naval Physical and Oceanographic Laboratory, India

16:45

EVALUATION OF HIGH FREQUENCY PIEZOELECTRIC MICROMACHINED ULTRASOUND TRANSDUCERS FOR PHOTOACOUSTIC IMAGING..... 1220

Ajay Dangi{2}, Sumit Agrawal{2}, Sudhanshu Tiwari{1}, Shubham Jadhav{1}, Christopher Cheng{2}, Susan Trolier-McKinstry{2}, Rudra Pratap{1}, Sri-Rajasekhar Kothapalli{2}

{1}Indian Institute of Science, India; {2}Pennsylvania State University, United States

17:00

COCHLEAR-LIKE PVDF US SENSOR..... N/A

Antonino S. Fiorillo, Salvatore Andrea Pullano, Maria Giovanna Bianco, Michele Menniti, Costantino Davide Critello
University Magna Graecia of Catanzaro, Italy

17:15

DESIGN, FABRICATION AND CHARACTERIZATION OF A BIOLOGICALLY INSPIRED MEMS DIRECTIONAL MICROPHONE..... N/A

Veda Sandeep Nagaraja, Rudresha K J, S L Pinjare

Nitte Meenakshi Institute of Technology, India

17:30

EMBEDDED THIN FILM SENSORS BASED MULTI-MODE GUIDED WAVE FILTER..... 1232

Vivek T. Rathod{2}, Gangadharan Raju{1}, Lalita Udpa{2}, Satish Udpa{2}, Yiming Deng{2}

{1}Indian Institute of Technology Hyderabad, India; {2}Michigan State University, United States

16:15 - 17:45

B3L-F: FOCUS SESSION: Inertial Sensor Systems

LOCATION: Comeeting 11

SESSION CHAIR: Peter Händel, KTH Royal Institute of Technology

16:15

INVITED TALK: INERTIAL AND MAGNETIC-FIELD SENSOR ARRAYS – CAPABILITIES AND CHALLENGES..... 1236

Isaac Skog

Linköping University, Sweden

16:45

IMU-BASED BUT MAGNETOMETER-FREE JOINT ANGLE ESTIMATION OF CONSTRAINED LINKS..... 1240

Jung Keun Lee, Tae Hyeong Jeon

Hankyong National University, Korea

17:00

CAPTURING JOINT ANGLES OF THE OFF-SITE HUMAN BODY..... 1244

Raman Garimella{2}, Thomas Peeters{2}, Koen Beyers{3}, Steven Truijen{2}, Toon Huysmans{1}, Stijn Verwulgen{2}

{1}Delft University of Technology, Netherlands; {2}University of Antwerp, Belgium; {3}Voxdale, Belgium

17:15

ANTI-MAGNETIC DISTURBANCE PEDESTRIANS NAVIGATION SYSTEM BASED ON MEMS INERTIAL SENSORS..... 1248

Dacheng Xu, Yiming Ding, Shengyuan Ma, Jiajun Wang, Heming Zhao

Soochow University, China

17:30

ANALYSIS OF TILT-ABLE INERTIAL MASS WITH ASYMMETRIC SPRINGS FOR INTER-DIGITATED ELECTRODES 1252

Mithlesh Kumar^{2}, Siddhartha Sen^{2}, Banibrata Mukherjee^{3}, Kbm Swamy^{1}
^{1}Indian Institute of Science, India; ^{2}Indian Institute of Technology Kharagpur, India; ^{3}National Institute of Technology Rourkela, India

16:15 - 17:45

B3L-G: Sensor Signal Processing III

LOCATION: Comeeting 13

SESSION CHAIR: Khaled Salama, King Abdullah University of Science and Technology

16:15

FEATURE EXTRACTION WITH HOUGH SEEDED REGION GROWING AS DATA COMPRESSION FOR DISTRIBUTED COMPUTING 1256

Phil Meier, Kris Rohrmann, Marvin Sandner, Marcus Prochaska
Ostfalia University of Applied Sciences, Germany

16:30

STUDY ON AN IMPROVED LENET-5 GAS IDENTIFICATION STRUCTURE FOR ELECTRONIC NOSES 1260

Guangfen Wei^{1}, Gang Li^{1}, Shuo Guan^{2}, Jie Zhao^{1}, Xue Sun^{1}
^{1}Shandong Technology and Business University, China; ^{2}Tongji University, China

16:45

ANALYZING THE IMPACT OF PHASE ERRORS IN QUADRATURE CANCELLATION TECHNIQUES FOR MEMS CAPACITIVE GYROSCOPES 1264

Ahmed Omar^{2}, Ahmed Elshennawy^{2}, Mohamed AbdelAzim^{2}, Ayman H. Ismail^{1}
^{1}Ain Shams University, Egypt; ^{2}Si-Ware Systems, Egypt

17:00

AUTOMATIC ROAD CONDITION ASSESSMENT BY USING POINT LASER SENSOR 1268

Wenda Li, Michael Burrow, Zijun Li
University of Birmingham, United Kingdom

17:15

WEARABLE SYSTEM FOR SPINAL CORD INJURY REHABILITATION WITH MUSCLE FATIGUE FEEDBACK 1272

Sofia Milanese^{2}, Diego Marino^{2}, Francesca Stradolini^{1}, Paolo Motto Ros^{5}, Federico Pleitavino^{3}, Danilo Demarchi^{4}, Sandro Carrara^{1}
^{1}École Polytechnique Fédérale de Lausanne, Switzerland; ^{2}École Polytechnique Fédérale de Lausanne and Politecnico di Torino, Italy; ^{3}Ico Concept, Italy; ^{4}Politecnico di Torino, Italy; ^{5}Politecnico di Torino and Istituto Italiano di Tecnologia, I

17:30

INTELLIGENT FILTER FOR ACCURATE SUBSURFACE HEADING ESTIMATION USING MULTIPLE INTEGRATED MEMS SENSORS 1276

Huan Liu, Roman Shor, Simon Park
University of Calgary, Canada

10:30 - 12:00

C1L-A: Gas Sensors & Stochastic Effects

LOCATION: Comeeting 1

SESSION CHAIRS: Katsuo Kurabayashi, University of Michigan; Mohammad Younis, King Abdullah University of Science and Technology

10:30

APPROACH FOR UNCERTAINTY REDUCTION IN SENSORS OF REMOTE HEALTH 1280

*Atrayee Gupta, Ankita Nag, Nandini Mukherjee
Jadavpur University, India*

10:45

1/F NOISE CHARACTERIZATION OF PIEZORESISTIVE NANO-GAUGES FOR MEMS SENSORS 1284

*Antoine Nowodzinski^{1}, Dihia Sidi Ahmed^{1}, Christoforos Theodorou^{2}, Alexandra Koumela^{1}, H  l  ne Duchemin^{1}, Cyril Dressler^{1}, Audrey Berthelot^{1}, H  l  ne Lhermet^{1}
{1}CEA Leti, France; {2}IMEP-LaHC - Grenoble INP, France*

11:00

STOCHASTIC MODELING OF STERIC HINDRANCE EFFECTS IN BIOSENSORS 1288

*Himanshu Garg, Pradeep Nair
Indian Institute of Technology Bombay, India*

11:15

**A NEW APPROACH OF MODELING THE ELECTRONIC TONGUE SENSORS
FOR CLASSIFICATION 1292**

*Sanjeev Kumar, Manish Kumar, Arunangshu Ghosh
National Institute of Technology, Patna, India*

11:30

METAL-OXIDE-HYDROGEL FIELD-EFFECT SENSOR 1296

*Subhashish Dolai, Hsuan-Yu Leu, Jules Magda, Massood Tabib-Azar
University of Utah, United States*

11:45

**ANOMALOUS SCALING OF RESPONSE TIME OF CHEMICAL SENSORS WITH CONCENTRATION
OF UNSTABLE GASES 1300**

*Vivek Saraswat, Pradeep Nair
Indian Institute of Technology Bombay, India*

10:30 - 12:00
C1L-B: Microfluidics & Biosensors I
LOCATION: Comeeting 2
SESSION CHAIR: Ashis Sen, Indian Institute of Technology Madras

10:30
INVITED TALK: MICROFLUIDIC CANTILEVER BIOSENSORS 1304
Thomas Thundat{2}, Faheem Khan{3}, Swathi Chaudhari{3}, Kamalesh Chaudhari{3}, Seokbeom Kim{1}, Jungcul Lee{1}
{1}Sogang University, Korea; {2}University at Buffalo, United States; {3}University of Alberta, Canada

11:00
SINGLE-MOLECULE CHARACTERIZATION OF A NANOPORE-COUPLED CAS9 PROTEIN ON AN ELECTRODE ARRAY N/A
Mirko Palla, David B. Thompson, George M. Church
Harvard Medical School, United States

11:15
GRAPHENE NANOPATELETS-BASED APTAMER BIOCHIP FOR THE DETECTION OF LIPOCALIN-2 1310
Nur Diyanah Matassan{2}, Mohammad Rizwan{2}, Noor Faizah Mohd-Naim{2}, Chaker Tlili{1}, Minhaz Uddin Ahmed{2}
{1}Chongqing Institute of Green and Intelligent Technology, China; {2}Universiti Brunei Darussalam, Brunei Darussalam

11:30
BIO-ORGANIC GLYCINE BASED FLEXIBLE PIEZOELECTRIC STRESS SENSOR FOR WOUND MONITOR..... 1314
Ensieh S. Hosseini, Libu Manjakkal, Ravinder Dahiya
University of Glasgow, United Kingdom

11:45
HIGHLY SENSITIVE PROTEIN DETECTION USING CONDUCTIVE POLYMER NANOWIRES FABRICATED BY NANOSCALE SOFT LITHOGRAPHY 1318
Qikun Wang, Ning Tang, Menglun Zhang, Qiannan Xue, Xuexin Duan
Tianjin University, China

10:30 - 12:00
C1L-C: Sensors & Actuators Systems I
LOCATION: Comeeting 3
SESSION CHAIR: Bhaskar Mitra, IIT Delhi

10:30
INVITED TALK: INERTIAL ENERGY HARVESTING FOR WEARABLES 1321
Shad Roundy, Robert Rantz, Tiancheng Xue, Miah Abdul Halim
University of Utah, United States

11:00
ENHANCED TRIBOELECTRIC NANOGENERATOR PERFORMANCE VIA AN OPTIMISED LOW PERMITTIVITY, LOW THICKNESS SUBSTRATE 1325
Guanbo Min, Libu Manjakkal, Daniel Mulvihill, Ravinder Dahiya
University of Glasgow, United Kingdom

11:15
SHAPE-MEMORY ALLOY ACTUATED LOW FREQUENCY ASTABLE ELECTROMECHANICAL MULTIVIBRATOR N/A
Nilanjan Chattaraj
Birla Institute of Technology and Science, Pilani, India

11:30
CURVE-SHAPED ANCHOR FOR DURABILITY AND EFFICIENCY IMPROVEMENT OF PIEZOELECTRIC MEMS ENERGY HARVESTERS 1333
Seyedfakhreddin Nabavi, Lihong Zhang
Memorial University of Newfoundland, Canada

10:30 - 12:00
C1L-E: FOCUS SESSION: Wearable & Implantable Biomedical Sensors & Systems
LOCATION: Comeeting 9
SESSION CHAIRS: Qammer Abbasi, University of Glasgow; Piero Cosseddu, University of Cagliari

10:30
INVITED TALK: IMPLANTABLE WIRELESS INTEGRATED MICROSYSTEMS NOT AVAILABLE AT TIME OF PRODUCTION
Khalil Najafi
University of Michigan, United States

11:00
ULTRASOUND BASED RESPIRATORY MONITORING EVALUATION UNDER HUMAN BODY MOTIONS 1337
Amirhossein Shahshahani, Sharmistha Bhadra, Zeljko Zilic
McGill University, Canada

11:15
WEARABLE BLOOD PRESSURE MONITORING BASED ON BIO-IMPEDANCE AND PHOTOPLETHYSMOGRAPHY SENSORS ON THE ARM 1341
Chunkai Qiu, Taiyang Wu, Fatemeh Heydari, Jean-Michel Redouté, Mehmet Rasit Yuce
Monash University, Australia

11:30
GRAPHENE OXIDE-CHITOSAN BASED ULTRA-FLEXIBLE ELECTROCHEMICAL SENSOR FOR DETECTION OF SEROTONIN 1344
Anastasios Vilouras, Ambarish Paul, Md. Abdul Kafi, Ravinder Dahiya
University of Glasgow, United Kingdom

11:45
SIMULATION OF PHOTOVOLTAIC CELLS FOR IMPLANTABLE SENSORY APPLICATIONS 1348
Jinwei Zhao, Rami Ghannam, Qammer Abbasi, Muhammad Imran, Hadi Heidari
University of Glasgow, United Kingdom

10:30 - 12:00
C1L-F: FOCUS SESSION: Sensor Systems for Neurological Assessment & Clinical Studies
LOCATION: Comeeting 11
SESSION CHAIRS: Jung-Chih Chiao, University of Texas at Arlington; Hung Cao, University of California Irvine

10:30
INVITED TALK: MULTI-FUNCTIONAL NEURAL PROBES FOR PHARMACOLOGICAL AND OPTOGENETIC MANIPULATION AND DETECTION OF NEUROTRANSMITTER RELEASE 1352
Nigel Maidment, Pei-Yu Chiou, Harold Monbouquette, Kate Wassum, Anne Collins, Lili Feng, I-Wen Huang, Lauren MacIntyre, Melissa Malvaez, Zhan Shou, Bo Wang, Ximiao Wen, Allison Yorita
University of California, Los Angeles, United States

11:00
DEVELOPMENT OF FLEXIBLE GLUTAMATE BIOSENSOR USING ACTIVATED CARBON – PT MICROPARTICLE COMPOSITE INK 1354
Tran Nguyen, Stephanie Lam, Hyunsu Park, Riyi Shi, Hyowon Lee
Purdue University, United States

11:15
CHITOSAN-GRAPHENE OXIDE BASED ULTRA-THIN CONFORMABLE SENSING PATCH FOR CELL-HEALTH MONITORING 1358
Md Abdul Kafi{1}, Ambarish Paul{2}, Anastasios Vilouras{2}, Ravinder Dahiya{2}
{1}Bangladesh Agricultural University, Bangladesh; {2}University of Glasgow, United Kingdom

11:30
FIBER BRAGG GRATING SENSOR-BASED OPTICAL GUIDANCE SYSTEM FOR EPIDURAL CATHETER..... 1362
Aidana Beisenova, Aizhan Issatayeva, Carlo Molardi, Daniele Tosi
Nazarbayev University, Kazakhstan

11:45
DIFFERENTIATING COLOR RESPONSES IN RETINA THROUGH MULTIELECTRODE ARRAY RECORDINGS 1366
Satarupa Biswas, Rinku Roy, Debdeep Sikdar, Soumen Das, Manjunatha Mahadevappa
Indian Institute of Technology Kharagpur, India

10:30 - 12:00
C1L-G: FOCUS SESSION: Security & Data Integrity in Sensor Networks
LOCATION: Comeeting 13
SESSION CHAIRS: Atul Negi, University of Hyderabad; Tapas Chakravarty, Tata Consultancy Services, India

10:30
INVITED TALK: WHEN CYBER GOT REAL: CHALLENGES IN SECURING CYBER-PHYSICAL SYSTEMS 1370
Stefano Zanero
Politecnico di Milano, Italy

11:00
TRUST COMPUTATION MODEL USING HYSTERESIS CURVE FOR WIRELESS SENSOR NETWORKS 1374
Vijender Busi Reddy{1}, Atul Negi{2}, Venjataraman Sarma{1}
{1}Advanced Data Processing Research Institute, India; {2}University of Hyderabad, India

11:15

OPTIMAL DEPLOYMENT OF SENSORS IN 3D - TERRAIN WITH Q-COVERAGE CONSTRAINTS 1378

S Balaji{2}, Tomer Priyanka{2}, M Anitha{1}

{1}Anna University, India; {2}Shri Govindram Seksaria Institute of Technology and Science, India

11:30

GDA: GRAVITATIONAL DATA AGGREGATION MECHANISM FOR PERIODIC

WIRELESS SENSOR NETWORKS..... 1382

Rahul Verma{1}, Sourabh Bharti{2}, Kiran Pattanaik{1}

{1}Atal Bihari Vajpayee Indian Institute of Information Technology and Management, Gwalior, India; {2}Indira Gandhi Delhi Technical University for Women, India

13:00 - 14:30

C2P-H: Sensors & Detectors

LOCATION: Pullman Aerocity Courtyard

SESSION CHAIRS: Enakshi Bhattacharya ,Indian Institute of Technology Madras; Sillas Hadjiloucas, University of Reading

W-13-1

SPAD SENSORS WITH 256x2 LINEAR ARRAY FOR TIME DELAY

INTEGRATION DEMONSTRATION N/A

Xiangshun Kong, Xiaofeng Bu, Cheng Mao, Limin Zhang, Haowen Ma, Feng Yan

Nanjing University, China

W-13-3

UNDERSTANDING UV SENSOR PERFORMANCE IN ZNO TFTS THROUGH THE APPLICATION OF MULTIVARIATE ANALYSIS..... 1390

Dinesh Kumar{1}, Tiago Gomes{2}, Neri Alves{2}, Jeff Kettle{1}

{1}Bangor University, United Kingdom; {2}São Paulo State University, Brazil

W-13-5

DESIGN OF GLUCOSE SENSOR USING TRI-CORE MODIFIED PHOTONIC CRYSTAL FIBER 1393

N Ayyanar, G. Thavasi Raja

National Institute of Technology, Tiruchirappalli, India

W-13-7

DEMONSTRATION OF HIGH RESOLUTION ABSOLUTE OPTICAL ENCODER BY PIECEWISE

LINEAR APPROXIMATION 1397

Ponmalar M{1}, Gireesh Sharma N{1}, Unnikrishna S. R.{2}, Bindu John{2}, Usha K{2}, S Paul Pandian{2}, D. Sam Dayala Dev{2}

{1}Indian Space Research Organisation, India; {2}Vikram Sarabhai Space Centre, Indian Space Research Organization, India

W-13-9

OPTICAL FIBER IMMUNOSENSOR BASED ON LONG PERIOD GRATINGS BUILT BY PERIODIC

LASER ABLATION 1400

Joaquin Ascorbe, Jesus Maria Corres, Francisco Javier Arregui, Ignacio Matias

Public University of Navarre, Spain

W-13-11

SUPER-RESOLUTION LIMIT FOR RAMAN SPECTROSCOPY AND OPTICAL COHERENCE TOMOGRAPHY 1404

Nabin Uprety, Ashim Dhakal

Phutung Research Institute, Nepal

W-13-13	SENSING OF AEROSOL PARTICLES USING SU-8 POLYMER BASED MICRORING RESONATORS	1408
	<i>Sandeep Battula, Krishna Chandramouli Aleti, Rama Rao Bonula, Suresh Jaka Aditya Institute of Technology and Management, India</i>	
W-13-15	GLUCOSE SENSING IN HUMAN GINGIVAL TISSUE USING SUPERCONTINUUM SOURCE BASED DIFFERENTIAL ABSORPTION OPTICAL COHERENCE TOMOGRAPHY	1412
	<i>Pauline John, Nilesh J Vasa, Sujatha N, Suresh R Rao Indian Institute of Technology Madras, India</i>	
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	<i>Andras Kovacs{1}, Shervin Keshavarzi{1}, Alvaro Ortiz Perez{3}, Stefan Palzer{2}, Ulrich Mescheder{1} {1}Furtwangen University, Germany; {2}Universidad Autónoma de Madrid, Spain; {3}University Freiburg, Germany</i>	
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	<i>Sakshi Agrawal, Brian Dean Oakland University, United States</i>	
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	<i>Unghyun Kim, Makoto Ikeda University of Tokyo, Korea; University of Tokyo, Japan</i>	
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	<i>Indu Kumari, Subhashis Das, Ankush Bag Indian Institute of Technology Mandi, India</i>	
W-13-25	MEASUREMENT OF IN-PACKAGE PRESSURE USING BONDWIRES.....	1432
	<i>Yuxi Zhang, Albert Leung, Behraad Bahreyni Simon Fraser University, Canada</i>	

13:00 - 14:30
C2P-J: Emerging Sensor Applications
LOCATION: Pullman Aerocity Courtyard
SESSION CHAIR: Ashwin Seshia ,University of Cambridge

W-14-2	NANOSCALE TUNNEL FETS FOR INTERNET-OF-THINGS APPLICATIONS	1436
	<i>Dipankar Ghosh Meerut Institute of Engineering and Technology, India</i>	
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	<i>Jan Schnee{1}, Jürgen Stegmaier{1}, Pu Li{2} {1}Robert Bosch GmbH, Germany; {2}Technische Universität Ilmenau, Germany</i>	

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<i>Andrés Trujillo-León, Cristina Sánchez-Sánchez, Julián Castellanos-Ramos, Fernando Vidal-Verdú</i>	
<i>Universidad de Málaga, Spain</i>	
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<i>Deepak Awasthi, Syed Azeemuddin, Suresh Purini, Annesha Mazumder</i>	
<i>International Institute of Information Technology, Hyderabad, India</i>	
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VERTICAL POSITION ESTIMATION OF A CONSTRAINED LINK USING IMU SIGNALS AND KINEMATIC CONSTRAINT	1452
<i>Jung Keun Lee, Woo Chang Jung</i>	
<i>Hankyong National University, Korea</i>	
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<i>Guocheng Liu{1}, Rui Ma{2}, Qi Hao{2}</i>	
<i>{1}Harbin Institute of Technology, China; {2}Southern University of Science and Technology, China</i>	
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<i>Dhirubhai Ambani Institute of Information and Communication Technology, India</i>	
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<i>Navin Singhal{1}, M Santosh{1}, Rahul Prajesh{2}, S.C. Bose{1}, Ajay Agarwal{2}</i>	
<i>{1}CSIR-CEERI, India; {2}CSIR-CEERI / AcSIR, India</i>	
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<i>Pietro Ibba{1}, Aniello Falco{1}, Almudena Rivadeneyra{2}, Paolo Lugli{1}</i>	
<i>{1}Free University of Bozen-Bolzano, Italy; {2}Technical university of Munich, Germany</i>	
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PREDICTIVE MODELLING OF IN-VEHICLE CO2 CONCENTRATION USING SENSOR DATA ANALYTICS	1472
<i>Divya Lohani, Anurag Barthwal, Debopam Acharya</i>	
<i>Shiv Nadar University, India</i>	
W-14-22	
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<i>Shankar Kesarwani, Ashutosh Mahajan, Swaroop Ganguly</i>	
<i>Indian Institute of Technology Bombay, India</i>	
W-14-24	
A SMART MULTI-SENSOR FOR THE DIAGNOSIS OF DISTRIBUTION TRANSFORMERS	1480
<i>Joana Faria, David Lima, Francisco Cardoso</i>	
<i>University of Coimbra, Portugal</i>	

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<i>Tai Le{2}, Alexandre Moravec{2}, Miguel Huerta{2}, Michael P. H Lau{1}, Hung Cao{2}</i> <i>{1}Sensoriis, Inc., United States; {2}University of Washington Bothell, United States</i>	
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<i>Marzana Mantasha Mahmud, Nasie Constantino, Chunkyun Seok, Feysel Yamaner, Ralph Dean, ömer Oralkan</i> <i>North Carolina State University, United States</i>	
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FIBER BRAGG GRATING SENSORS TO MEASURE THERMAL DISTRIBUTION IN A 10 MW SUPRAPOWER OFFSHORE WIND TURBINE.....	N/A
<i>Rajinikumar Ramalingam, Jiuce Sun, Holger Neumann</i> <i>Karlsruhe Institute of Technology, Germany</i>	
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<i>Muhammad Fahad Farooqui, Ahmed Kishk</i> <i>Concordia University, Canada</i>	
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<i>Sedat Dogru, Lino Marques</i> <i>University of Coimbra, Portugal</i>	
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<i>Than Le{3}, Duy Bui{1}, Huy Pham{2}</i> <i>{1}Pham Van Dong University, Vietnam; {2}Ton Duc Thang University, Vietnam; {3}University of Bordeaux and Ton Duc Thang University, France</i>	
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<i>Ravindra Ranasinghe, Gamini Dissanayake, Dikai Liu</i> <i>University of Technology Sydney, Australia</i>	
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A NOVEL MICROWAVE MEASUREMENT TECHNIQUE FOR NON-CONTACT VITAL SIGN MONITORING	1515
<i>Arijit Sinharay{2}, Rajat Das{2}, Sayan Seth{1}</i> <i>{1}Indian Institute of Engineering Science and Technology, Shibpur, India; {2}Tata Consultancy Services, India</i>	

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Altynay Kaidarova, Muhammad Akram Karimi, Selma Amara, Atif Shamim, Nathan R. Gerali, Carlos M. Duarte, Jurgen Kosel

King Abdullah University of science and Technology, Saudi Arabia

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SENSOR BASED HAND GESTURE RECOGNITION SYSTEM FOR ENGLISH ALPHABETS USED IN SIGN LANGUAGE OF DEAF-MUTE PEOPLE 1523

Abhishek B. Jani{1}, Nishith A. Kotak{2}, Anil K. Roy{1}

{1}Dhirubhai Ambani Institute of Information and Communication Technology, India; {2}Marwadi University, India

13:00 - 14:30

C2P-J: Microfluidics & Biosensors III

LOCATION: Pullman Aerocity Courtyard

SESSION CHAIR: Ashis Sen, Indian Institute of Technology Madras

W-15-27

A NOVEL UREA SENSOR USING CUO/ZNO FABRICATED DIODE 1527

Abdul Barik{1}, Samiran Upadhyaya{1}, Ijaz Ullah Muzaddadi{2}, Neelotpal Sen Sarma{1}

{1}Institute of Advanced Study in Science and Technology, India; {2}University of Science and Technology, Meghalaya, India

W-15-29

A DISPOSABLE, CYCLO-OLEFIN COPOLYMER, RNA MICROFLUIDIC SENSOR FOR BACTERIA DETECTION 1531

Jorge Prada{2}, Walter Lang{2}, Christina Cordes{1}, Carsten Harms{1}

{1}Hochschule Bremerhaven, Germany; {2}Universität Bremen, Germany

W-15-31

A MACHINED VIRTUAL IMPACTOR FOR PM2 DETECTION 1535

Yanna Li, Hongxiang Zhang, Hemi Qu, Menglun Zhang, Wei Pang, Xuexin Duan

Tianjin University, China

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HIGH PERFORMANCE BIOSENSOR BASED ON RGO/ZNO THIN FILM TRANSISTOR 1539

Bhaswati Chakraborty, Swakriya Chakrabarty, Sugato Ghosh, Chirasree RoyChaudhuri

Indian Institute of Engineering Science and Technology, Shibpur, India

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Chia-Hsu Hsieh{2}, Yi-Hsuan Liu{2}, Tung-Lin Li{2}, Yu-Cheng Lin{1}, I-Yu Huang{2}

{1}National Cheng Kung University, Taiwan; {2}National Sun Yat-sen University, Taiwan

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<i>{1}National Institute of Metrology, China; {2}Tianjin University, China</i>	
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<i>Jamia Millia Islamia, India</i>	
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<i>Debasish Mondal, Nilesh Kumar Tiwari, M Jaleel Akhtar</i>	
<i>Indian Institute of Technology Kanpur, India</i>	
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AN ELECTRICAL IMPEDANCE BIOSENSOR ARRAY FOR TRACKING MOVING CELLS	1557
<i>Norichika Ogata{1}, Akihisa Shina{1}, Takayuki Komiyama{3}, Yoji Iizuka{3}, Ken Matsuse{3}, Fuminobu Imaizumi{2}, Tomoyuki Suwa{2}, Akinobu Teramoto{2}</i>	
<i>{1}Nihon BioData Corporation, Japan; {2}Tohoku University, Japan; {3}Tokyo Electron Limited, Japan</i>	
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<i>Shanghai Institute of Microsystem and Information Technology, China</i>	
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<i>Wei-Chien Weng{1}, Shen-Yang Lin{1}, Chia-Hsien Yeh{1}, I-Yu Huang{2}, Yu-Cheng Lin{1}</i>	
<i>{1}National Cheng Kung University, Taiwan; {2}National Sun Yat-sen University, Taiwan</i>	
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<i>Qin Zhu{1}, Yu Cai{1}, Lu Fang{2}, Xiao Liang{1}, Xuesong Ye{1}, Bo Liang{1}</i>	
<i>{1}Zhejiang University, China; {2}Zhejiang University / Hangzhou Dianzi University, China</i>	
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<i>International Institute of Information Technology, Hyderabad, India</i>	

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<i>Rakshith B.{2}, Chandrika T.N.{1}, Manoj M. Varma{1}, Gurusiddappa R. Prashanth{2}</i>	
<i>{1}Indian Institute of Science, India; {2}National Institute of Technology Goa, India</i>	
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<i>Auburn University, United States</i>	
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<i>Universität Bremen, Germany</i>	
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<i>Sardar Vallabhbhai National Institute of Technology, Surat, India</i>	
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<i>Wenyuan Shi, Jung-Chih Chiao</i>	
<i>University of Texas at Arlington, United States</i>	
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<i>Scientific-Manufacturing Complex Technological Center, Russia</i>	
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<i>Tanusree Sarkar, Nandini Mukherjee, Jayoti Das</i>	
<i>Jadavpur University, India</i>	

13:00 - 14:30
C2P-L: Late News
LOCATION: Pullman Aerocity Courtyard
SESSION CHAIR: Dedy Wicaksono, Swiss German University

W-16-48	
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<i>Nasim Abbas, Fengqi Yu</i>	
<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China</i>	

W-16-50	
DIFFERENTIAL ANGLE SCANNING SURFACE PLASMON RESONANCE DETECTION	1604
<i>Jongdeog Kim, Yo Han Choi</i>	
<i>Electronics and Telecommunications Research Institute, Korea</i>	
W-16-52	
A SMART SENSING ARCHITECTURE FOR MISALIGNMENT MEASUREMENTS	1608
<i>Ghada Bouattour{4}, Carlo Trigona{3}, Rim Barioul{4}, Houda Ben Jemaa Derbel{4}, Roberto La Rosa{1}, Salvatore Baglio{3}, Olfa Kanoun{2}</i>	
<i>{1}STMicroelectronics, Italy; {2}Technische Universität Chemnitz, Germany; {3}University of Catania, Italy; {4}University of Sfax, Tunisia</i>	
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CNN-BASED INSAR COHERENCE CLASSIFICATION	1612
<i>Subhayan Mukherjee{2}, Aaron Zimmer{1}, Xinyao Sun{2}, Parwant Ghuman{1}, Irene Cheng{2}</i>	
<i>{1}3vGeomatix, Canada; {2}University of Alberta, Canada</i>	
W-16-56	
ON CHARACTERIZATION OF VIBRATION MEASUREMENT USING MICROWAVE DOPPLER RADAR	1616
<i>Raj Rakshit, Dibyendu Roy, Tapas Chakravarty</i>	
<i>Tata Consultancy Services, India</i>	
W-16-58	
DETERMINATION OF BEARING CLEARANCE BY THE APPLICATION OF NEURAL NETWORKS	1620
<i>Nicolas Meier{1}, Yashvardhan Biyani{2}, Anthimos Georgiadis{1}</i>	
<i>{1}Leuphana University of Lüneburg, Germany; {2}Manipal Institute of Technology, India</i>	
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DEVELOPMENT OF NON-CONTACT DEVICE BASED ON OPTICAL FIBRE TECHNOLOGY FOR DETECTING RESPIRATION OF SMALL ANIMAL IN IMAGING INSTRUMENTS	1624
<i>Sakunrat Prompalit, Gilbert Fruhwirth, Kawal Rhode, Yohan Noh</i>	
<i>King's College London, United Kingdom</i>	
W-16-62	
A DEEP LEARNING STRATEGY FOR STRIDE DETECTION	1628
<i>Muhammed Koroglu{1}, Alper Yilmaz{1}, Can Saul{2}</i>	
<i>{1}Ohio State University, United States; {2}Robert College of Istanbul, Turkey</i>	
W-16-64	
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<i>Karine Lacombe{1}, Carine Amoros{1}, Idriss Belkacem{1}, J-P. Dezalay{2}, Baptiste Houret{1}, Roger Pons{1}, P. Ramon{2}, V. Waegebaert{1}</i>	
<i>{1}CNRS IRAP, France; {2}OMP-UPS IRAP, France</i>	

16:00 - 17:30
C3L-A: Resonant Sensors
LOCATION: Comeeting 1
SESSION CHAIRS: Mohammad Younis, King Abdullah University of Science and Technology; Katsuo Kurabayashi, University of Michigan

16:00
IMMUNITY TO TEMPERATURE FLUCTUATIONS IN WEAKLY COUPLED MEMS RESONATORS..... **1636**
Milind Pandit, Chun Zhao, Guillermo Sobreviela, Ashwin A. Seshia
University of Cambridge, United Kingdom

16:15
SMART GAS SENSING AND ACTUATION USING MULTIMODE OF A MOFS COATED MICROBEAM 1640

*Nizar Jaber, Saad Ilyas, Osama Shekhah, Mohamed Eddaoudi, Mohammad Younis
King Abdullah University of Science and Technology, Saudi Arabia*

16:30
STRESS SENSITIVITY OF MICROMACHINED AT-CUT QUARTZ RESONATORS CHARACTERIZED USING MAGNETOSTRICTIVE METGLAS FILMS 1644

*Nishit Goel{2}, Srinivas Tadigadapa{1}
{1}Northeastern University, United States; {2}Penn State University, United States*

16:45
ULTRASOUND TRANSDUCER QUALITY FACTOR CONTROL USING COUPLED EXTERNAL ELECTRICAL RESONATOR 1648

*Ching-Mei Chen, Bhaskar Choubey
University of Oxford, United Kingdom*

17:00
LOW-NOISE DRIVE OF A MICROMACHINED RESONANT ACCELEROMETER WITH SEPARATED SENSING AND ACTUATION 1652

*Zhengxiang Fang, Yonggang Yin, Yunfeng Liu, Fengtian Han
Tsinghua University, China*

17:15
A TEMPERATURE-INSENSITIVE MICROMACHINED RESONANT ACCELEROMETER WITH THERMAL STRESS ISOLATION N/A

*Yonggang Yin, Zhengxiang Fang, Jingxin Dong, Yunfeng Liu, Fengtian Han
Tsinghua University, China*

16:00 - 17:30

C3L-B: Microfluidics & Biosensors II

LOCATION: Comeeting 2

SESSION CHAIRS: Ashis Sen, Indian Institute of Technology Madras; Ignacio Mattias, Universidad Pública de Navarra

16:00
A HYBRID THREE-WAY VALVE FOR GAS CHROMATOGRAPHY SYSTEMS 1660

*Hsueh-Tsung Lu, Yutao Qin, Yogesh Gianchandani
University of Michigan, United States*

16:15
MODELING DIELECTROPHORESIS BASED FLOW SEPARATOR 1664

*Sydni Adams{1}, Nefertari Parks{1}, Cameron Lewis{1}, Kourtney Wallace{1}, Salini Ramesh{2}, Fadi Alnaimat{2}, Bobby Mathew{2}
{1}Howard University, United States; {2}United Arab Emirates University, U.A.E.*

16:30
LATERAL POROUS SILICON INTERFEROMETRIC TRANSDUCER FOR SENSING APPLICATIONS 1668

*Yingning He{2}, Douglas Silva de Vasconcellos{1}, Véronique Bardinal{1}, David Bourrier{1}, Eric Imbernon{1}, Ludovic Salvagnac{1}, Adrian Laborde{1}, Xavier Dollat{1}, Thierry Leichlé{1}
{1}LAAS-CNRS, Université de Toulouse, CNRS, France; {2}LAAS-CNRS, Université de Toulouse, CNRS / Fudan University, France*

16:45

MICROCANTILEVER BASED DUAL MODE OPTICAL BIOSENSOR FOR AGRICULTURAL PATHOGEN DETECTION 1671

Rajul Patkar^{2}, Mamta Ashwin^{2}, Madhuri Vinchurkar^{2}, Andrea Adami^{1}, Flavio Giacomozzi^{1}, Leandro Lorenzelli^{1}, Maryam Shojaei Baghini^{2}, V. Ramgopal Rao^{3}

^{1}Fondazione Bruno Kessler, Italy; ^{2}Indian Institute of Technology Bombay, India; ^{3}Indian Institute of Technology Delhi, India

17:00

NATURE-INSPIRED BIO-MICROFLUIDIC DEVICE BY SOFT LITHOGRAPHY TECHNIQUE..... 1674

Jyotsana Priyadarshani, Suman Chakraborty, Soumen Das

Indian Institute of Technology Kharagpur, India

17:15

IDENTIFICATION OF EYE BLINK ARTIFACTS USING WIRELESS EEG HEADSET FOR BRAIN COMPUTER INTERFACE SYSTEM..... 1678

S. Sridhar, U. Ramachandraiah, E. Sathish, Gopalan Muthukumaran, P. Rajendra Prasad

Hindustan Institute of Technology and Science, India

16:00 - 17:30

C3L-C: Sensor Packaging

LOCATION: Comeeting 3

SESSION CHAIRS: Dedy Wicaksono, Swiss German University; Daniele Tosi, Nazarbayev University

16:00

INVITED TALK: ANUPATHTM: NOVEL SENSING CHEMISTRY TO LAB ON PALM SENSOR SYSTEM FOR DIABETES AND ITS COMPLICATIONS..... 1681

Vinay Kumar^{1}, Navakanta Bhat^{2}

^{1}Indian Institute of Science, India; ^{2}Indian Institute of Science and PathShodh Healthcare Pvt. Ltd., India

16:30

WIRELESS PIEZORESISTIVE PRESSURE SENSORS USED FOR QUALITY CONTROL IN GLASS FIBER COMPOSITE LAMINATES 1685

Minerva Gabriela Vargas Gleason^{2}, Reiner Jedermann^{3}, Adli Dimassi^{1}, Walter Lang^{4}

^{1}Faser Institute Bremen, e.v. FIBRE, Germany; ^{2}Friedrich-Wilhelm-Bessel-Institut Forschungsgesellschaft, Germany; ^{3}Friedrich-Wilhelm-Bessel-Institut Forschungsgesellschaft mbH / University of Bremen, Germany; ^{4}Universität Bremen, Germany

16:45

SOFT ROBOTIC FINGER WITH INTEGRATED STRETCHABLE STRAIN SENSOR 1689

Wenting Dang, Ensieh S. Hosseini, Ravinder Dahiya

University of Glasgow, United Kingdom

17:00

WATER-CUT ESTIMATION UNCERTAINTY FROM MICROWAVE SENSORS 1693

Suma M N, Aparna C Sheila-Vadde, Vikram Melapudi, Manoj Kumar KM

GE India Industrial Pvt Ltd, India

17:15
3D PRINTED PHALANX PACKAGED WITH EMBEDDED PRESSURE SENSOR.....1697
Markellos Ntagios, William Taube Navaraj, Ravinder Dahiya
University of Glasgow, United Kingdom

16:00 - 17:30
C3L-E: Wearables and Robotics
LOCATION: Comeeting 9
SESSION CHAIR: Zeynep Celik-Butler ,The University of Texas at Arlington

16:00
**TOWARDS BIMANUAL ROBOT-ASSISTED RETINAL SURGERY:
TOOL-TO-SCLERA FORCE EVALUATION1701**
Changyan He{3}, Marina Roizenblatt{2}, Niravkumar Patel{3}, Ali Ebrahimi{3}, Yang Yang{1}, Peter Gehlbach{2}, Iulian Iordachita{3}
{1}Beihang University, China; {2}Johns Hopkins Hospital, United States; {3}Johns Hopkins University, United States

16:15
NANO-COMPOSITE ENZYMATIC XANTHINE BIOSENSOR FOR WOUND DIAGNOSTICS1705
Sohini Roychoudhury, Apoorva Shah, Ishaan Shah, Yogeswaran Umasankar, Shekhar Bhansali
Florida International University, United States

16:30
**SENSOR SELECTION FOR CLASSIFICATION OF PHYSICAL ACTIVITY IN
LONG-TERM WEARABLE DEVICES1709**
Jens Kirchner, Samira Faghih-Naini, Pinar Bisgin, Georg Fischer
Friedrich-Alexander-University Erlangen-Nurnberg, Germany

16:45
**WEARABLE GRAPHENE NANOTEXTILE EMBEDDED SMART ARMBAND
FOR CARDIAC MONITORING1713**
Gizem Acar, Ozberk Ozturk, Murat Kaya Yapici
Sabanci University, Turkey

17:00
**INDOOR OCCUPANCY AWARENESS AND LOCALIZATION USING
PASSIVE ELECTRIC FIELD SENSING1717**
Xinyao Tang, Jifu Liang, Yingying Wang, Soumyajit Mandal
Case Western Reserve University, United States

16:00 - 17:30
C3L-F: Sensor Structures and Fabrication
LOCATION: Comeeting 11
SESSION CHAIRS: Srinivas Tadigadapa, Northeastern University; Antonino Fiorillo, Magna Græcia University

16:00
SENSIBLE LABEL-FREE BIO-SENSING: TOWARDS IN SITU BIOPSY1721
Hirak Patra
University of Cambridge, United Kingdom

16:15
MULTI-MATERIAL 3D PRINTED BENDABLE SMART SENSING STRUCTURES 1725
Habib Nassar, Markellos Ntagios, William Taube Navaraj, Ravinder Dahiya
University of Glasgow, United Kingdom

16:30
A NON-RESONANT TYPE ELECTROMAGNETIC ENERGY HARVESTER FOR SCAVENGING VIBRATION ENERGY 1729
Xiao han Dong, Xiao dong Huang
Southeast University, China

16:45
ANALYSING EFFECT OF DIFFERENT PARAMETERS ON PERFORMANCE OF DODECYL BENZENE SULPHONIC ACID DOPED POLYANILINE BASED AMMONIA GAS SENSOR 1732
Anju Yadav{1}, Rahul Prajesh{2}, Ajay Agarwal{2}, Parveen Saini{3}
{1}CSIR-CEERI, India; {2}CSIR-CEERI / AcSIR, India; {3}CSIR-National Physical Laboratory, India

17:00
DESIGN AND FABRICATION OF 3D FUSED QUARTZ SHELL RESONATORS FOR BROAD RANGE OF FREQUENCIES AND INCREASED DECAY TIME 1736
Mohammad Asadian, Yusheng Wang, Andrei Shkel
University of California, Irvine, United States

17:15
A FAULT-TOLERANT BIST DESIGN OF MEMS INFRARED THERMOPILE SENSOR 1740
Kaiyue Zhou, Jia Li, Jianmao Li, Weibing Wang, Dapeng Chen
Institute of Microelectronics of the Chinses Academy of Sciences, China

16:00 - 17:30
C3L-G: Acoustics, Photonics and Resonators
LOCATION: Coemeeting 13
SESSION CHAIR: Salvatore Baglio, University of Catania

16:00
ACOUSTIC WIRELESS POWER AND DATA TELEMETRY FOR STRUCTURAL HEALTH MONITORING 1744
Xinyao Tang, Mohammed Sameer, Soumyajit Mandal
Case Western Reserve University, United States

16:15
CHARACTERIZATION OF A TERBIUM ACTIVATED GADOLINIUM OXYSULFIDE PLASTIC OPTICAL FIBRE SENSOR IN PHOTONS AND PROTONS 1748
Crystal Penner{3}, Cornelia Hoehr{2}, Sinead O'Keefe{4}, Peter Woulfe{4}, Cheryl Duzenli{1}
{1}BC Cancer, Canada; {2}TRIUMF, Canada; {3}University of British Columbia, Canada; {4}University of Limerick, Ireland

16:30
THE APPLICATION OF LOGNORMAL MIXTURE SHADOWING MODEL FOR BODY-TO-BODY CHANNELS NOT AVAILABLE AT TIME OF PRODUCTION
Michael Cheffena, Marshed Mohamed
Norwegian University of Science and Technology, Norway

16:45

**DUAL FACET SPIRAL FED CIRCULARLY POLARIZED TRIANGULAR DIELECTRIC RESONATOR ANTENNA:
FOR MICROWAVE IMAGE SENSING NOT AVAILABLE AT TIME OF PRODUCTION**

Sounik Kiran Dash^{1}, Taimoor Khan^{2}

{1}Christ University, India; {2}National Institute of Technology Silchar, India

17:00

**A NOVEL SENSOR BASED APPROACH TO PREDICTIVE MAINTENANCE OF MACHINES BY
LEVERAGING HETEROGENEOUS COMPUTING..... 1749**

Tinku Malayil Jose, Roshan Zameer

Black Pepper Technologies, India

17:15

ALGORITHMIC ADC FOR CAPACITIVE AND PIEZOELECTRIC MEMS SENSOR.....1753

Bindiya Rajpal, M Santosh, Richa Paliwal, S.C Bose

CSIR-CEERI, India

AUTHOR INDEX