CONFERENCE AT A GLANCE

SUNDAY	07:00 - 09:00	Tutorial Registration			
	08:00 - 17:45	Tutorials			
	17:00 - 19:00	Conference Registration and Check-In			
	17:00 - 19:00	Welcome Reception			
MONDAY	07:00	Registration			
	08:00 - 08:15	Opening Remarks			
	08:15 - 09:00	**Keynote Presentation A1K-A:** Shoogo Ueno, *Kyushu University, JAPAN*			
		HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
	09:15 - 10:45	**A2L-A** Optical Biosensors	**A2L-B** Materials & Fabrication Process Characterization	**A2L-C** Wireless Sensors	**A2L-D** SPECIAL SESSION: Sensors & Instrumentation for the Environment & Climate Change Monitoring
	10:45 - 11:15	Break and Exhibit Inspection			
	11:15 - 12:45	**A3L-A** Nano-Structured Metal Oxide Gas Sensors	**A3L-B** Optical Fiber Sensors I	**A3L-C** Position & Force Sensors	**A3L-D** SPECIAL SESSION: Design Methodologies
	12:45 - 14:00	Lunch and Exhibit Inspection			
	14:00 - 16:00	**Poster Session A4P-1**			
	16:00 - 17:30	**A5L-A** Chemical/Gas Sensors	**A5L-B** Advanced Signal Processing Methods	**A5L-C** Sensors for Hostile & Hazardous Environments	**A5L-D** SPECIAL SESSION: Encapsulation & Packaging
TUESDAY	08:00 - 08:45	**Keynote Presentation B1K-A:** K.T.V. Grattan, *City University London, UK*			
		HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
	09:00 - 10:30	**B2L-A** Physical Biosensors	**B2L-B** Optical Fiber Sensors II	**B2L-C** Resonant Sensors & Fatigue	**B2L-D** SPECIAL SESSION: Antennas for Sensors & Sensor Networks
	10:30 - 11:00	Break and Exhibit Inspection			
	11:00 - 12:30	**B3L-A** (Bio)-Medical Sensors	**B3L-B** Mechanical Sensors	**B3L-C** Electromagnetic Sensing	**B3L-D** WSN: Performance, Optimization & Applications
	12:30 - 14:00	Lunch and Exhibit Inspection			
	14:00 - 16:00	**Poster Session B4P-2**			
	16:00 - 17:30	**B5L-A** Optical Biomedical Systems	**B5L-B** Sensor Arrays	**B5L-C** Robot Sensors & Sensor Arrays	**B5L-D** Imaging & Vision Sensor
	18:30 - 21:00	**Conference Banquet**			
WEDNESDAY	08:00 - 08:45	**Keynote Presentation C1K-A:** Asad M. Madni, *BEI Technologies, USA*			
		HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
	09:00 - 10:30	**C2L-A** Biomedical & Healthcare Applications	**C2L-B** Temperature & Power Sensing	**C2L-C** Environmental Monitoring	**C2L-D** Surface-Activated Sensors
	10:30 - 11:00	Break			
	11:00 - 12:30	**C3L-A** Electrochemical Biosensors	**C3L-B** Wireless Sensor Networks for Environmental Monitoring	**C3L-C** Dynamic Sensors & Systems	**C3L-D** SPECIAL SESSION: Magnetic Sensors
	12:30 - 13:30	Lunch			
	13:30 - 15:00	**C4L-A** Electrical Biosensors	**C4L-B** High Performance Optical Detectors	**C4L-C** Force & Fluid Sensing	**C4L-D** Hydrocarbon Sensing
	15:00 - 15:30	Break			
	15:30 - 16:45	**C5L-A** Patient Monitoring	**C5L-B** Special Imaging & Spectroscopic Applications	**C5L-C** Liquid-Based Sensors	**C5L-D** SPECIAL SESSION: Molecular Level Detection Mechanism for Bio & Chemical Sensing
	16:45	Conference Adjourns			

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Technical Program:

Welcome Message from the General Chair

I would like to take this great opportunity to welcome you all to the 8th IEEE International Sensors Conference 2009, IEEE Sensors 2009, held from October 25 - October 28, 2009 at the Christchurch Convention Centre, Christchurch, New Zealand. This is the flagship Conference of IEEE Sensors Council and is the Eighth Conference of the series; the previous seven were held at different parts of the world. The Conference has attracted a total number of 1093 abstracts from 52 different countries, which is not only a record for the Conference but is also a great success considering New Zealand is located at one end of the world and economic recession. I would like to congratulate all the authors and share this happiness with you all. After the review only 503 high quality papers (acceptance rate of 47%) will be presented in oral lecture and poster format over three days.

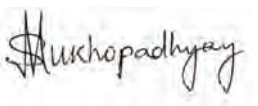
The applications of sensors range from medical diagnostic to industrial manufacturing and to defence, national security, prevention of natural disaster and terrorism. There is a need for interaction between researchers across technologically advanced and developing countries working on design, fabrication and development of different sensors. I sincerely hope IEEE Sensors 2009 provides a forum for that.

On behalf of the organizer I would like to extend our sincere thanks to many organizations and individuals. Firstly we would like to thank all the authors as they are the key people for any Conference to succeed. The Technical Programme Committee led by Prof. Paddy French has done a tremendous and wonderful job. I am very much indebted to everybody in the Technical Programme Committee for accepting the invitation and for lending their help, support, time and effort to make this Conference a great success. Our special thanks to our keynote speakers, Professor Shoogo Ueno, Kyushu University, Japan, Dr. Asad Madni, Past President, BEI Technologies Inc, currently with Crocker Capital, USA and Professor Ken Grattan, City University of London, UK for their valuable contribution. We also have six invited presentations in this Conference. Our sincere thanks to Professor Cesare Alippi, Politecnico di Milano, Italy, Dr. John Kitching, National Institute of Standards and Technology (NIST), USA, Dr. Themistoklis Prodromakis, Imperial College London, UK, Professor Kaushik Roy, Purdue University, USA, and Stefan Stegmeier, Siemens AG, Germany for their time and support. There will be some interesting tutorial presentation by eminent scientists on 24th October, 2009, over the full day in parallel sessions. I extend my heartiest thanks to Dr. Anton Fuchs and Dr. Gourab Sen Gupta, Special session co-chairs and Prof. Ignacio Matias and Prof. Ray Y. M. Huang, tutorial co-chairs for their time, effort and support.

I greatly acknowledge the support from IEEE and The IEEE Sensors Council for their sponsorship of this Conference, as well as the commercial suport from Technic Comsol Multiphysics, IntelliSense, MEMS Investor Journal, and Journal of Microelectronic and Microengineering.

I do sincerely belief that the Conference will provide a platform for discussion on the advancement of technical and scientific issues of different sensing technological problems and interaction among the participants will be stimulating, productive and encouraging.

I wish you all a pleasant stay during the Conference at Christchurch, New Zealand and enjoy your time while you are in New Zealand.



Subhas C. Mukhopadhyay
General Chair, 2009 IEEE Sensors Conference
Massey University
Palmerston North, New Zealand

GENERAL INFORMATION

Conference Location
All sessions will be held at the Christchurch Convention Centre. Please see page 11 for meeting room locations.

Christchurch Convention Centre
95 Kilmore Street
Christchurch, Canterbury 8013
New Zealand

Dialing Codes
New Zealand's International Country code: ***+64***
Christchurch's Local Area Code: ***3***

Registration & Information Desk
The Registration and Information Desk will be open during the following times;

Sunday, 25 October..... 17:00 - 19:00
Monday, 26 October..... 07:00 - 17:30
Tuesday, 27 October ..... 07:30 - 17:30
Wednesday, 28 October ..... 07:30 - 16:45

Name Badges
All attendees must wear their name badge at all times to gain admission to all Conference events.

Technical Digest
One copy of the electronic Technical Digest on a CD ROM is included in your bag. Additional copies may be purchased at the Conference Registration Desk. The purchase price of the Technical Digest will increase after the Conference, so be sure to order your additional copies in advance.

CD ROM..... $125 IEEE Member
CD ROM.....$150 IEEE Non-Member

Chimes
The chimes will ring five minutes before the end of each scheduled break. The sessions will begin on time, so please return to the sessions when you hear the chimes.

Message and Job Market Board
The Message and Job Market Board will be located near the Conference Registration Desk.

Internet Access
Wireless Internet is available in the Poster/Exhibit Hall. There is no fee to connect to this service, but there is a limited number of people that may be connected at one time. We ask that you limit your usage to five minutes at a time to be considerate of others.

Currency Exchange
Only New Zealand dollars are acceptable at regular stores and restaurants. The exchange rate fluctuates daily.

Traveler's Checks and Credit Cards
Credit cards, including MasterCard®, Discover®, Diners Club®, Visa® and American Express®, and traveler's checks are accepted at most hotels, restaurants, department stores, and souvenir shops.

Tipping Standards
Tipping is completely optional in New Zealand, and staff does not depend on tips for income - the total at the bottom of a restaurant bill is all you need to pay (note that sometimes there's an additional service charge). It is acceptable to reward good service and the tip you leave depends entirely on your satisfaction - between 5% and 10% of the bill is the norm.

Smoking
All meeting rooms and seated functions are smoke free.

Electricity
New Zealand electricity runs at 230/240 volts (50 hertz). Many accommodation options also have 110-volt AC sockets for use with electric razors. Power sockets only accept flat three-pin, v-shaped (with earth connection) or two-pin plugs.

Shipping Service
If you need to ship or mail any packages, please check with your hotel concierge.

SOCIAL PROGRAM

Sunday Welcome Reception
An informal Wine and Cheese Welcome Reception will be held in conjunction with registration from 17:00 - 19:00. The reception will be held in Christchurch Convention Centre.

Conference Banquet
No Conference is complete without a banquet. Join us for a wonderful evening. The Student Paper and Best Poster Awards will be announced at the banquet. The banquet will be held in Hall A & B on Tuesday, 27 October, 18:30 - 21:00.

Your paid registration fee includes one banquet ticket. Guest tickets can be purchased for $60.00 each at the Conference Registration Desk.

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EXHIBITORS

Exhibits are located in Hall B, Ground Level. Please refer to the floor plan on page 12.

Exhibit Hours

Monday, 26 October ..... 10:45 - 17:30
Tuesday, 27 October ..... 10:30 - 16:30

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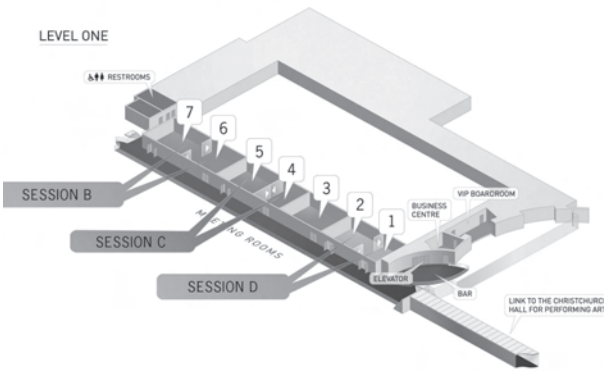

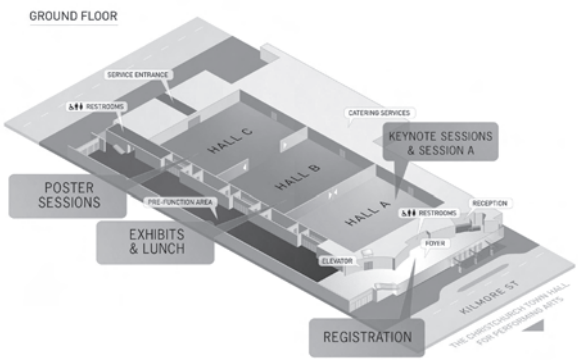

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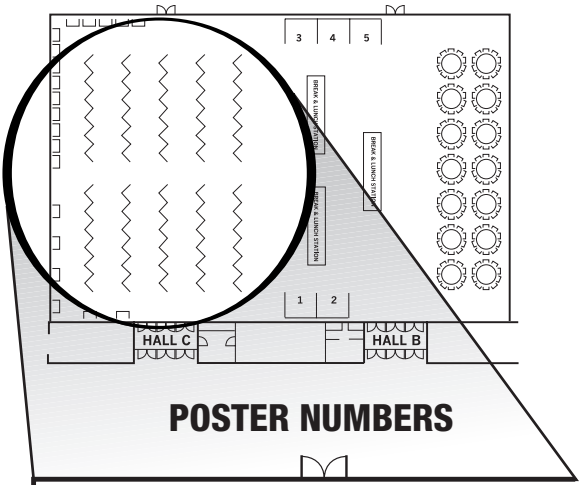

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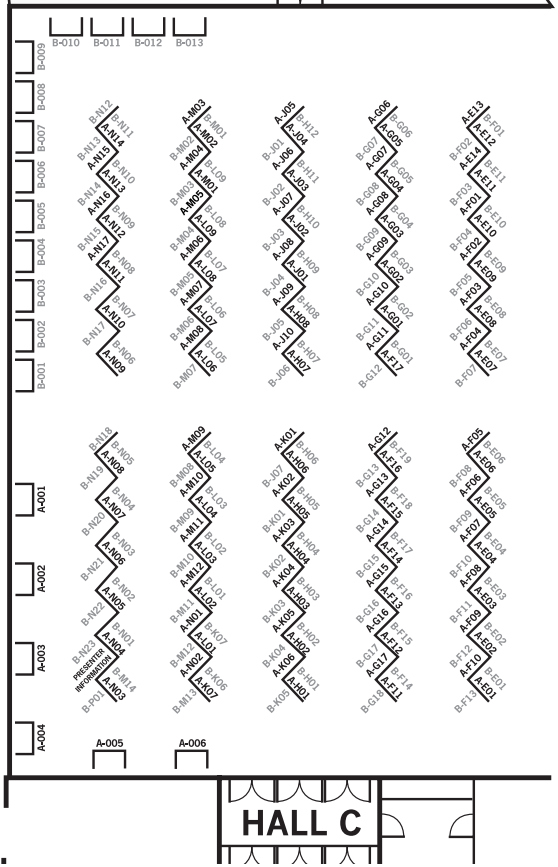


TECHNICAL PROGRAM INFORMATION

The technical program consists of three Keynote Sessions, four parallel Lecture/Special Sessions of contributed papers, and two Poster Sessions that include Late News and Open Posters.

Guide to Understanding Session Numbering

Each session in the technical program is assigned a unique number, which clearly indicates when and where the session is presented. The number of each session is shown before the session title. A typical number is shown below:

Typical Session Number: **B2L-A**

The first character (i.e., **B**) indicates the day of the Conference:

A = Monday **B** = Tuesday **C** = Wednesday

The second character (i.e., **2**) indicates the time of the day the session is held:

1 = morning **2** = mid-morning **3** = late-morning
4 = afternoon **5** = late-afternoon

The third character (i.e., **L**) indicates what type of paper the session is:

K = Keynote Session **L** = Lecture Session **P** = Poster Session

The fourth character (i.e., **A**) indicates which room the session is held in:

A = Hall A **B** = Room 6-7
C = Room 4-5 **D** = Room 1-2

Rooms 1-7 are located on Level One and Halls A, B, and C are located on the Ground Floor of the Christchurch Convention Centre. See page 11 for floor plan.

Poster Session

Two poster sessions will be held in Hall C, from 14:00 - 16:00 on Monday and Tuesday. Posters will be on display and authors will be available for questions during their appointed time. All poster papers are listed in this program on the day that they are on display. Please note that posters will be available for viewing starting at 07:00 on Monday until 17:30 on Tuesday.

Guide to Understanding Poster Numbering

Each poster in the technical program is assigned a unique number, which clearly indicates when and where the poster is presented. The number of each poster is shown on the left-hand side, before the title. A typical number is shown below:

Typical Poster Number: **A4P-E06**

The first character (i.e., **A**) indicates the day of the Conference that the poster will be on display:

A = Monday **B** = Tuesday

The second character (i.e., **4**) indicates the time of the day the session is held:

4 = afternoon

The third character (i.e., **P**) indicates that the paper is a poster.

The fourth character (i.e. **E**) indicates the category of the poster for that day.

Monday Session A4P

E = Phenomena, Modeling & Evaluation I
F = Chemical & Gas Sensors I
G = Biosensors I
H = Optical Sensors I
J = Mechanical Sensors I
K = Physical Sensors I
L = Sensor & Actuator Systems I
M = Sensor Networks I
N = Applications I
O = Late News

Tuesday Session B4P

E = Phenomena, Modeling & Evaluation II
F = Chemical & Gas Sensors II
G = Biosensors II
H = Optical Sensors II
J = Mechanical Sensors II
K = Physical Sensors II
L = Sensor & Actuator Systems II
M = Sensor Networks II
N = Applications II
O = Open Posters

The fifth character (i.e. **06**) indicates the number of the paper in the session in sequence starting at 1.

TECHNICAL PROGRAM

Sunday, 25 October

07:00	TUTORIAL REGISTRATION
08:00 - 17:45	TUTORIALS

TUTORIALS

08:00 - 10:00

ROOM 5	ROOM 6	ROOM 7	ROOM 4
1a **MICRO-OPTIC AND FIBER-OPTIC SENSORS FOR FOOD QUALITY AND SAFETY MONITORING** Presenter: Anna Grazia Mignani *CNR IFAC - Sesto Fiorentino, (FI) - ITALY*	**2a** **TERAHERTZ SENSING TECHNOLOGY** Presenter: Michael Shur *Rensselaer Polytechnic Institute, USA*	**3a** **NOISE HARVESTING FOR POWERING AUTONOMOUS MICRO/NANO SENSORS** Presenter: Luca Gammaitoni *Università di Perugia, ITALY*	

10:00 - 10:15 BREAK

10:15 - 12:15

1b **SOLID STATE CHEMICAL AND GAS SENSING** Presenter: Alton Horsfall *Newcastle University, UK*	**2b** **INDUSTRIAL TOMOGRAPHY SENSING AND IMAGING** Presenter: Krikor B Ozanyan *University of Manchester, UK*	**3b** **SILICON PIEZORESISTIVE STRESS SENSORS AND THEIR APPLICATIONS** Presenter: Richard C. Jaeger *Auburn University, USA*	**4b** **MINIATURISED SPACE PAYLOADS AS INTERESTING TERRESTRIAL SENSORS** Presenter: Paulo de Souza *Tasmanian ICT Centre, AUSTRALIA*

12:15 - 13:30 LUNCH

13:30 - 15:30

1c **INTEGRATED GAS SENSORS: SOLID-STATE ELECTRONIC DEVICES MAKE SENSE** Presenter: Giuseppe Barillaro *Universitá di Pisa, ITALY*	**2c** **SENSORS AS COMMUNICATION CHANNELS: INFORMATION THEORETICAL MODELING, OPTIMIZATION, DESIGN** Presenter: Inge Gavat *University Politehnica, Bucharest, ROMANIA*	**3c** **NANOPHOTONIC SENSORS** Presenter: Richard Blaikie *University of Canterbury, NEW ZEALAND*	

15:30 - 15:45 BREAK

15:45 - 17:45

1d **SENSORS FOR BIOPOLYMER DETECTION BY ELECTROCHEMICAL AND OPTICAL METHODS** Presenter: Vladimír Vetterl *Academy of Sciences of the Czech Republic, CZECH REP.*	**2d** **INTEGRATED RADAR SENSORS FOR NON-CONTACT VITAL SIGNS AND VIBRATIONS DETECTION** Presenter: Jenshan Lin *University of Florida, USA*	**3d** **ULTRASONICS - INTRODUCTION AND AN OVERVIEW OF RECENT TRENDS** Presenter: Paul Harris *Industrial Research Limited, NEW ZEALAND*	

17:00 - 19:00 CONFERENCE REGISTRATION AND CHECK-IN

17:00 - 19:00 WELCOME RECEPTION

Monday, 26 October

08:00 **OPENING REMARKS**

08:15 **KEYNOTE PRESENTATION A1K-A:**
Chair: O.-K. Tan, *Nanyang Technological University, SINGAPORE*

RECENT ADVANCES IN BIOMAGNETICS AND BIOIMAGING FOR BRAIN RESEARCH AND SENSING TECHNOLOGIES
S. Ueno
Kyushu University, JAPAN

SESSION A2L-A Optical Biosensors O. Conde, *University of Cantabria, SPAIN* E. Lewis, *University of Limerick, IRELAND*	**SESSION A2L-B** Materials & Fabrication Process Characterization S. Bart, *Analog Devices, Inc., USA* L. Sarro, *Technical University of Delft, THE NETHERLANDS*	**SESSION A2L-C** Wireless Sensors & Systems M. Cole, *University of Warwick, UK*	**SPECIAL SESSION** **A2L-D** Sensors & Instrumentation for the Environment & Climate Change Monitoring S.C. Mukhopadhyay, *Massey University, NEW ZEALAND*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**

09:15

A2L-A1
STRETCHABLE ARRAY OF ISFET DEVICES FOR APPLICATIONS IN BIOMEDICAL IMAGERS
T. Zoumpoulidis[1], T. Prodromakis[2], H. van Zeijl[1], K. Michelakis[2], M. Bartek[1], C. Toumazou[2], and R. Dekker[3]
[1]*Delft University of Technology, THE NETHERLANDS,* [2]*Imperial College, UK, and* [3]*Philips Research, THE NETHERLANDS*

A2L-B1
ELECTRICAL CHARACTERIZATION OF A CARBON NANOELECTRODE INSTRUMENTED NANOPORE SENSOR
P.S. Spinney[1], D.G. Howitt[2], R.L. Smith[1], and S.D. Collins[1]
[1]*University of Maine, USA and* [2]*University of California, Davis, USA*

A2L-C1
WIRELESS SENSING BY MEANS OF PASSIVE MULTISTANDARD RFID TAGS
D. Brenk[1], J. Essel[1], J. Heidrich[1], R. Weigel[1], G. Hofer[2], and G. Holweg[2]
[1]*University of Erlangen-Nuremberg, GERMANY and* [2]*Infineon Technologies AG, AUSTRIA*

INVITED
A2L-D1
ENERGY-AWARE WIRELESS-WIRED COMMUNICATIONS IN SENSOR NETWORKS FOR INDUSTRIAL APPLICATIONS
C. Alippi and L. Sportiello
Politecnico di Milano, ITALY

09:30

A2L-A2
OPTICAL SENSING OF NEURAL ACTIVITY IN BRAIN TISSUES
J. Lee and S.J. Kim
Seoul National University, KOREA

A2L-B2
EVALUATION OF THE PIEZORESISTIVE EFFECT IN SINGLE CRYSTALLINE SILICON NANOWIRES
T.T. Bui, D.V. Dao, T. Toriyama, and S. Sugiyama
Ritsumeikan University, JAPAN

A2L-C2
SELF-ENERGIZED ACOUSTIC WIRELESS SENSOR FOR PRESSURE-TEMPERATURE MEASUREMENT IN INJECTION MOLDING CAVITY
Z. Fan[1],R. Gao[2], and D.O. Kazmer[1]
[1]*University of Massachusetts, USA and* [2]*University of Connecticut, USA*

09:45

A2L-A3
MONOLITHIC SILICON OPTICAL MICRODEVICES FOR BIOMOLECULAR SENSING
K. Misiakos, E. Mayrogiannopoulou, P.E. Petrou, and S.E. Kakabakos
NCSR Demokritos, GREECE

A2L-B3
MEASURING THE THERMAL DIFFUSIVITY OF CMOS CHIPS
S.M. Kashmiri and K.A.A. Makinwa
Delft University of Technology, THE NETHERLANDS

A2L-C3
AUTOMATIC REACTION TO A CHEMICAL EVENT DETECTED BY A LOW-COST WIRELESS CHEMICAL SENSING NETWORK
S. Beirne, K.T. Lau, B. Corcoran, and D. Diamond
Dublin City University, IRELAND

A2L-D3
DEVELOPMENT OF INTRINSIC OPTICAL FIBER PH SENSORS FOR INDUSTRIAL APPLICATIONS
T.H. Nguyen, T. Venugopalan, T. Sun, and K.T.V. Grattan
City University London, UK

10:00

A2L-A4
CHARACTERIZATION OF POROUS BASED OPTICAL SENSOR SYSTEM FOR BIOSENSOR APPLICATIONS
A. Kovacs, P. Jonnalagadda, X.Y. Meng, and U. Mescheder
Hochschule Furtwangen University, GERMANY

A2L-B4
ACOUSTIC IMPEDANCE MATCHING WITH POROUS ALUMINIUM
A. Dawson[1], G. Gouws[1], P. Harris[2], and R. Young[2]
[1]*Victoria University of Wellington, NEW ZEALAND and* [2]*Industrial Research Limited, NEW ZEALAND*

A2L-C4
GMR BASED EDDY CURRENT SENSING PROBE FOR WELD ZONE TESTING
O. Postolache, H. Ramos and A.L. Ribeiro, and F.C. Alegria
Instituto de Telecomunicações, PORTUGAL

A2L-D4
UV LED-BASED FIBRE COUPLED OPTICAL SENSOR FOR DETECTION OF OZONE IN THE PPM AND PPB RANGE
M. Degner[1], N. Damaschke[1], H. Ewald[1], S. O'Keeffe[2], and E. Lewis[2]
[1]*University of Rostock, GERMANY and* [2]*University of Limerick, IRELAND*

SESSION A2L-A *(continued)*	SESSION A2L-B *(continued)*	SESSION A2L-C *(continued)*	SPECIAL SESSION A2L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
10:15			
A2L-A5 **A FLOW-THROUGH OPTICAL SENSOR SYSTEM FOR LABEL-FREE DETECTION OF PROTEINS AND DNA** P.S. Petrou[1], M. Zavali[1], I. Raptis[1], K. Beltsios[2], S.E. Kakabakos[1], D. Ricklin[3], J.D. Lambris[3], and K. Misiakos[1] [1]*NCSR Demokritos, GREECE,* [2]*University of Ioannina, GREECE, and* [3]*University of Pennsylvania, USA*	**A2L-B5** **AN ESTIMATION METHOD OF ELECTROPLATING CURRENT DENSITIES IN LSI FABRICATION TECHNOLOGY BY INVERSE ANALYSIS OF ELECTRIC POTENTIALS IN CELLS** Y. Kishimoto[1], K. Amaya[1], and K. Hayabusa[2] [1]*Tokyo Institute of Technology, JAPAN and* [2]*Ebara Research Co., Ltd., JAPAN*	**A2L-C5** **LOW-VOLTAGE FLUXGATE MAGNETIC CURRENT SENSOR INTERFACE CIRCUIT WITH DIGITAL OUTPUT FOR PORTABLE APPLICATIONS** M. Ferri[1], A. Surano[1], A. Rossini[1], P. Malcovati[1], E. Dallago[1], and A. Baschirotto[2] [1]*University of Pavia, ITALY and* [2]*University of Milano Bicocca, ITALY*	**A2L-D5** **LOW FREQUENCY PERMITTIVITY MEASUREMENTS OF SEA ICE** G. Gouws[1], M. Ingham[1], S. Buchanan[1], A. Hibbard[1], A. Mahoney[2], and A. Gough[2] [1]*Victoria University of Wellington, NEW ZEALAND and* [2]*University of Otago, NEW ZEALAND*
10:30			
A2L-A6 **SIMULTANEOUSLY MONITORING OF TISSUE 02 AND C02 PARTIAL PRESSURES BY MEANS OF MINIATURIZED IMPLANTED FIBER OPTICAL SENSORS** M. Cajlakovic[1], A. Bizzarri[1], M. Suppan[1], C. Konrad[1], M. Tscherner[1], E. Beran[2], I. Knez[2], and V. Ribitsch[1] [1]*Joanneum Research Forschungsgesellschaft mbH, AUSTRIA and* [2]*Medical University Graz, AUSTRIA*	**A2L-B6** **A 3D PROFILE SIMULATOR FOR INCLINED/MULTI-DIRECTIONAL UV LITHOGRAPHY PROCESS OF NEGATIVE-TONE THICK PHOTORESISTS** Z. Zhu, Q.A. Huang, W.H. Li, and Z.-F. Zhou *Southeast University, CHINA*		**A2L-D6** **A NOVEL PLANAR INTERDIGITAL SENSOR FOR ENVIRONMENTAL MONITORING** A.R. Mohd Syaifudin, M.A. Yunus, K.P. Jayasundera, and S.C. Mukhopadhyay *Massey University, NEW ZEALAND*

10:45 BREAK & EXHIBITION

SESSION A3L-A Nano-Structured Metal Oxide Gas Sensors V. Bhethanabotla, *University of South Florida, USA* O.-K. Tan, *Nanyang Technological University, SINGAPORE*	SESSION A3L-B Optical Fiber Sensors I W. Wlodarski, *RMIT University, AUSTRALIA* Z. Zhou, *Peking University, CHINA*	SESSION A3L-C Position & Force Sensors G. Fedder, *Carnegie Mellon University, USA* P. Hauptmann, *Otto-von-Guericke University Magdeburg, GERMANY*	SPECIAL SESSION A3L-D Design Methodologies in Low Power Sensor and Memory Arrays A. Fish, *Ben-Gurion University, ISRAEL* O. Yadid-Pecht, *University of Calgary, CANADA*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
11:15			
A3L-A1 **CHEMICAL VAPOR DEPOSITION OF Cu2O AND CuO NANOSYSTEMS FOR INNOVATIVE GAS SENSORS** E. Comini[1], G. Sbervegieri[1], D. Barreca[2], C. Sada[2], A. Gasparotto[2], C. Maccato[2], and E. Tondello[2] [1]*Brescia University, ITALY and* [2]*Padova University, ITALY*	**A3L-B1** **INNOVATIVE SPECTROSCOPY OF LIQUIDS: A FIBER OPTIC SUPERCONTINUUM SOURCE AND AN INTEGRATING SPHERE FOR SCATTERING-FREE ABSORPTION MEASUREMENTS** A.G. Mignani[1], H. Ottevaere[2], L. Ciaccheri[1], H. Thienpont[2], I. Cacciari[1], O. Parriaux[3], and M. Johnson[4] [1]*CNR IFAC, ITALY,* [2]*VUB TONA, BELGIUM,* [3]*Université Jean Monnet, FRANCE, and* [4]*Sagentia Ltd, UK*	**A3L-C1** **A NEW TWO-BEAM DIFFERENTIAL RESONANT MICRO ACCELEROMETER** C. Comi[1], A. Corigliano[1], A. Longoni[1], G. Langfelder[1], B. Simoni[2], and A. Tocchio[1] [1]*Politecnico di Milano, ITALY and* [2]*STMicroelectronics, ITALY*	**INVITED A3L-D1** **LOW-VOLTAGE PROCESS-ADAPTIVE LOGIC AND MEMORY ARRAYS FOR ULTRALOW-POWER SENSOR NODES** K. Roy, J. Kulkarni, and M. Hwang *Purdue University, USA*

SESSION A3L-A *(continued)*	SESSION A3L-B *(continued)*	SESSION A3L-C *(continued)*	SPECIAL SESSION A3L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
11:30			
A3L-A2 **NANOWIRE HYDROGEN GAS SENSOR EMPLOYING CMOS MICRO-HOTPLATE** S.Z. Ali[1], S. Santra[1], P.K. Guha[2], I. Haneef[1], V. Garofalo[3], C. Schwandt[1], J.A. Covington[2], R.V. Kumar[1], J.W. Gardner[2], W.I. Milne[1], and F. Udrea[1] [1]*University of Cambridge, UK,* [2]*University of Warwick, UK, and* [3]*University of Naples, ITALY*	**A3L-B2** **FIBER-OPTIC SPECTROSCOPIC SENSOR FOR REACTIVE DYE MIXTURE SPECTRUM SYNTHESIS IN TEXTILE INDUSTRY** O.M. Conde[1], A.M. Cubillas[1], P. Anuarbe[1], M. Gutierrez[2], V. Martínez[2], and J.M. Lopez-Higuera[1] [1]*University of Cantabria, SPAIN and* [2]*Textil Santanderina S.A., SPAIN*	**A3L-C2** **SENSITIVITY IMPROVEMENT OF MEMS-BASED TILT SENSOR USING AIR MEDIUM** D.W. Jung, J.C. Choi, J.K. Lee, H. Jung, and S.H. Kong *Kyungpook National University, KOREA*	
11:45			
A3L-A3 **GAS SENSING PROPERTIES OF WO3-DOPED ZnO NANOPARTICLES SYNTHESIZED BY FLAME SPRAY PYROLYSIS** C. Siriwong[1], K. Wetchakun[1], A. Wisitsoraat[2], and S. Phanichphant[1] [1]*Chiang Mai University, THAILAND and* [2]*National Electronics and Computer Technology Center, THAILAND*	**A3L-B3** **AMMONIA DETECTION IN THE UV REGION USING AN OPTICAL FIBRE SENSOR** H. Manap, G. Dooly, S. O'Keeffe, and E. Lewis *University of Limerick, IRELAND*	**A3L-C3** **LINEARITY AND HEAT RESISTING IMPROVEMENT LOW-VOLTAGE FLUID-BASED INCLINATION SENSOR BY USING SILICA COATING PROCESS** A.B. Abd Manaf[1], O. Sidek[1], and Y. Matsumoto[2] [1]*Universiti Sains Malaysia, MALAYSIA and* [2]*Keio University, JAPAN*	**A3L-D3** **LOW POWER CMOS IMAGE SENSOR WITH PROGRAMMABLE SPATIAL FILTERING** R. Njuguna, M. Hall, and V. Gruev *Washington University, USA*
12:00			
A3L-A4 **HIGHLY SELECTIVE H2 GAS SENSORS BASED ON ZnO-MODIFIED SnO2 NANOROD ARRAYS** H. Huang, C.L. Chow, Y.C. Lee, C.K. Lim, and O.K. Tan *Nanyang Technological University, SINGAPORE*	**A3L-B4** **MONITORIZATION OF SEA SAND TRANSPORT IN COASTAL AREAS USING OPTICAL FIBER SENSORS** L.F. Ferreira[1], P.F.C. Antunes[1], F. Domingues[1], R.N. Nogueira[1], P.A. Silva[1], J. Fortes[2], J.L. Pinto[1], and P.S. André[1] [1]*Universidade de Aveiro, PORTUGAL and* [2]*Laboratório Nacional de Engenharia Civil Lisboa, PORTUGAL*	**A3L-C4** **ULTRA LOW-POWER ANGULAR POSITION SENSOR FOR HIGH-SPEED PORTABLE APPLICATIONS** P. Kejik, S. Reymond, and R.S. Popovic *Swiss Federal Institute of Technology (EPFL), SWITZERLAND*	**A3L-D4** **AN IMPROVED AB2C SCHEME FOR LEAKAGE POWER REDUCTION IN IMAGE SENSORS WITH ON-CHIP MEMORY** A. Teman, O. Yadid-Pecht, and A. Fish *Ben Gurion University, ISRAEL*
12:15			
A3L-A5 **SnO2 NANOWIRES FOR DETECTION OF CHEMICAL WARFARE AGENTS** E. Comini, A. Ponzoni, M. Ferroni, G. Faglia, and G. Sberveglieri *Brescia University, ITALY*	**A3L-B5** **RESONANCE BASED OPTICAL FIBER SENSORS BY MEANS OF TRANSPARENT CONDUCTIVE OXIDE COATING** C.R. Zamarreño, M. Hernáez, I.R. Matías, and F.J. Arregui *Public University of Navarre, SPAIN*	**A3L-C5** **WALKING ANALYSIS BY 6-AXIS FORCE SENSOR FOR SIMULTANEOUS MEASURING OF PLANTAR DEFORMATION** K. Sekiguchi, S. Suzuki, H. Takemura, and H. Mizoguchi *Tokyo University of Science, JAPAN*	**A3L-D5** **A CMOS IMAGE SENSOR WITH RECONFIGURABLE RESOLUTION FOR ENERGY HARVESTING APPLICATIONS** C. Shi, M.K. Law, and A. Bermak *Hong Kong University of Science and Technology, HONG KONG*
12:30			
	A3L-B6 **ORGANIC VAPORS DETECTION USING SINGLE MODE FIBER AT THIRD TELECOMMUNICATION WINDOW** C. Elosua[1], C. Bariain[1], I.R. Matías[1], F.J. Arregui[1], A. Luquin[2], and M. Laguna[2] [1]*Public University of Navarre, SPAIN and* [2]*Material Science Institute of Aragon, SPAIN*	**A3L-C6** **SENSOR FOR VASCULAR COMPLIANCE AND BLOOD PRESSURE** L. Lading[1], F. Nyboe[1], H. Pranov[2], D. Nilsson[1], and T.W. Hansen[3] [1]*Danish Technological Institute, DENMARK,* [2]*InMold Biosystems A/S, DENMARK, and* [3]*Hvidovre Hospital, DENMARK*	**A3L-D6** **A CROSS-LAYER DESIGN FOR LOW-POWER WIRELESS SENSOR NETWORK** M.A. Lopez-Gomez[1] and J.C. Tejero-Calado[2] [1]*Member IEEE, UK and* [2]*University of Malaga, SPAIN*
12:45 LUNCH & EXHIBIT INSPECTION			

Monday Posters

14:00 - 16:00 **POSTER SESSION A4P-1**
V. Bhethanabotla, *University of South Florida, USA*
P. French, *Delft University of Technology, THE NETHERLANDS*

POSTER SESSION - Phenomena, Modeling & Evaluation I

A4P-E01 **YOUNG'S MODULUS SIZE EFFECT OF SCS NANOBEAM BY TENSILE TESTING IN ELECTRON MICROSCOPY**
Q.H. Jin, T. Li, Y.L. Wang, X.X. Li, H. Yang, and F.F. Xu
Chinese Academy of Sciences, CHINA

A4P-E02 **MODELING OF ENERGY CONFINEMENT OF PLANO-CONVEX SHAPED RESONATORS FOR APPLICATIONS AT HIGH TEMPERATURES**
E. Ansorge[1], B. Schmidt[1], J. Sauerwald[2], and H. Fritze[2]
[1]*Otto-von-Guericke University Magdeburg, GERMANY and* [2]*Clausthal University of Technology, GERMANY*

A4P-E03 **A NON-ISOTHERMAL MODEL FOR SQUEEZE FILM DAMPING OF RAREFIED GAS**
H. Yang, H. Cheng, B. Dai, X. Li, and Y. Wang
Chinese Academy of Sciences, CHINA

A4P-E04 **UTILIZING ELECTROMAGNETIC-ACOUSTIC RESONATORS FOR LIQUID LEVEL SENSING**
F. Lucklum and B. Jakoby
Johannes Kepler University Linz, AUSTRIA

A4P-E05 **A HYDROGEN EVOLUTION REACTION DETERMINATION SYSTEM INTEGRATED HIGH ELECTROCATALYST PALLADIUM NANO-ELECTRODE ENSEMBLE**
C.-M. Chen[1], Y.-T. Chuang[2], M.-L. Yeh[1], C.-Y. Lee[3], and C.-H. Lin[2]
[1]*National Cheng Kung University, TAIWAN,* [2]*National Sun Yat-sen University, TAIWAN, and* [3]*National Ping Tung University of Science and Technology, TAIWAN*

A4P-E06 **NOVEL MILLIMETER-WAVE GAS SENSOR USING DIELECTRIC RESONATOR WITH SENSITIVE LAYER ON TiO2**
H. Hallil, P. Ménini, and H. Aubert
University of Toulouse, FRANCE

A4P-E07 **DESIGN AND FABRICATION OF NOVEL DEVICES USING THE CASIMIR FORCE FOR NON-CONTACT ACTUATION**
E.L. Carter, M. Ward, and C. Anthony
University of Birmingham, UK

A4P-E08 **A SYSTEM LEVEL MODELING METHOD FOR A MEMS VARIABLE CROSS-SECTION BEAM DRIVEN BY ELECTROSTATIC FORCE**
T.-Y Liu, W.-H. Li, and Q.-A. Huang
Southeast University, CHINA

A4P-E09 **CROSSTALK MEASUREMENTS ON PARTICLE SENSORS WITH UNBIASED AND SEGMENTED GUARD-RINGS**
R. Cornat
Ecole Polytechnique, FRANCE

A4P-E10 **IMPACT OF SENSOR HEAD GEOMETRY ON THE PERFORMANCE OF HARD-FIELD TOMOGRAPHY RECONSTRUCTION FROM LIMITED VIEWS**
E.P.A. Constantino, and K.B. Ozanyan
University of Manchester, UK

A4P-E11 **ANALYSIS OF REMNANT FIELD DETECTED BY HALL SENSORS ABOVE SUPERCONDUCTOR TAPE**
K.P. Thakur, R.A. Badcock, N.J. Long, and K.A. Hamilton
Industrial Research Limited, NEW ZEALAND

A4P-E12 **NANO-SWITCH FOR STUDY OF GOLD CONTACT BEHAVIOR**
A. Fruehling, S. Xiao, M. Qi, K. Roy, and D. Peroulis
Purdue University, USA

A4P-E13 **MICROWAVE MEASUREMENT OF WOOD IN PRINCIPAL DIRECTIONS**
M. Bogosanovic[1], A. Al Anbuky[1], and G. Emms[2]
[1]*Auckland University of Technology, NEW ZEALAND and* [2]*SCION, NEW ZEALAND*

A4P-E14 **MODELING AND SIMULATION OF A ZnO NANOWIRE BRIDGE AND DEVELOPMENT OF AN ELECTRICAL EQUIVALENT CIRCUIT IN LIQUID**
R. Bajpai, and M. Zaghloul
George Washington University, USA

POSTER SESSION - Chemical & Gas Sensors I

A4P-F01 **INFLUENCE OF OXYGEN CONTENT ON THE STRUCTURAL AND pH-SENSITIVE PROPERTIES OF THIN Nd2O3 ELECTROLYTE-INSULATOR-SEMICONDUCTOR**
T.-M. Pan, C.-W. Lin, J.-C. Lin, S.-H. Su, H.-M. Kuo, and Y.-K. Chien
Chang Gung University, TAIWAN

A4P-F02 **HIGHLY INTEGRATED ULTRA-SENSITIVE SILICON DISK MICRO RESONATOR FOR TRACE AMOUNT OF CHEMICALS DETECTION**
J. Lu[1,2], Y. Zhang[2], T. Itoh[2], R. Maeda[2], T. Mihara[3], and T. Suga[1]
[1]*University of Tokyo, JAPAN,*
[2]*National Institute of Advanced Industrial Science and Technology (AIST), JAPAN, and*
[3]*Olympus Corporation, JAPAN*

POSTER SESSION - Chemical & Gas Sensors I *(continued)*

A4P-F03 **A Pt/ORIENTED-C HYDROGEN GAS SENSOR**
A. Moafi, J.G. Partridge, A.Z. Sadek, K. Kalantar-zadeh, W. Wlodarski, and D.G. McCulloch
RMIT University, AUSTRALIA

A4P-F04 **ELECTRON BEAM EVAPORATION OF TUNGSTEN OXIDE FILMS FOR GAS SENSORS**
T. Tesfamichael
Queensland University of Technology, AUSTRALIA

A4P-F05 **A Zn2+/UV-INSPIRED MOLECULAR LOGIC FUNCTION BASED ON AN ORGANIC/INORGANIC HYBRID MATERIALS**
S. Wang, G. Men, L. Zhao, Y. Wu, Y. Wang, and S. Jiang
Jilin University, CHINA

A4P-F06 **HUMIDITY COMPENSATION BY NEURAL NETWORK FOR BAD-SMELL SENSING SYSTEM USING GAS DETECTOR TUBE AND BUILT-IN CAMERA**
T. Nakamoto[1], T. Ikeda[1], H. Hirano[1], and T. Arimoto[2]
[1]*Tokyo Institute of Technology, JAPAN and* [2]*Gastec Corporation, JAPAN*

A4P-F07 **SEPARATE DENSITY AND VISCOSITY DETERMINATION OF ROOM TEMPERATURE IONIC LIQUIDS USING DUAL QUARTZ CRYSTAL MICROBALANCES**
N. Doy[1], G. McHale[1], M. Newton[1], C. Hardacre[2], R. Ge[2], R.W. Allen[3], and J.M. MacInnes[3]
[1]*Nottingham Trent University, UK,* [2]*Queen's University Belfast, IRELAND, and* [3]*University of Sheffield, UK*

A4P-F08 **A NOVEL NON-FRAGILE CARBON NANOPARTICLE-PMMA CONDUCTIVE COMPOSITE VAPOR SENSOR WITH HIGH SENSITIVITY AND RAPID RESPONSE**
E. Danesh, S.R. Ghaffarian, and P. Molla-Abbasi
Amirkabir University of Technology, IRAN

A4P-F09 **Pt/GRAPHENE NANO-SHEET BASED HYDROGEN GAS SENSOR**
M. Shafiei[1], R. Arsat[1], J. Yu[1], K. Kalantar-zadeh[1], S. Dubin[2], R.B. Kaner[2], and W. Wlodarski[1]
[1]*RMIT University, AUSTRALIA and* [2]*University of California, Los Angeles, USA*

A4P-F10 **IMPROVEMENTS TO ATR-FTIR BASED CHEMICAL SENSORS FOR THE DETECTION OF ORGANIC CONTAMINANTS DISSOLVED IN WATER**
B. Pejcic[1], M. Myers[1,2], A. Ross[1], M. Baker[2], and E. Crooke[1]
[1]*CSIRO Petroleum, AUSTRALIA and* [2]*University of Western Australia, AUSTRALIA*

A4P-F11 **COMPARATIVE STUDY OF THE GASOCHROMIC PERFORMANCE OF Pd/WO3 AND Pt/WO3 NANOTEXTURED THIN FILMS FOR LOW CONCENTRATION HYDROGEN SENSING**
M.H. Yaacob[1], M. Breedon[1], K. Kalantar-zadeh[1], W. Wlodarski[1], and Y. Li[2]
[1]*RMIT University, AUSTRALIA and* [2]*Chinese Academy of Sciences, CHINA*

A4P-F12 **ENHANCED HYDROGEN SENSING EMPLOYING ELECTRODEPOSITED PALLADIUM NANOWIRES ENCLOSED IN ANODIZED ALUMINUM OXIDE NANOPORES**
M. Kocanda[1], L. Potluri[1], A. Bose[2], M. Haji-Sheikh[1], and D. Ballantine[1]
[1]*Northern Illinois University, USA and* [2]*Ohio University, USA*

A4P-F13 **Cu2O DOPED ZnO AS MOISTURE SENSOR**
N.K. Pandey, K. Tiwari, and A. Roy
University of Lucknow, INDIA

A4P-F14 **EFFECT OF CARBON DOPING ON GAS SENSING PROPERTIES OF MOLYBDENUM OXIDE NANONEEDLES**
A. Wisitsoraat[1], C. Saikaew[2], C. Oros[3], D. Phokharatkul[1], P. Limsuwan[3], and A. Tuantranont[1]
[1]*National Electronics and Computer Technology Center, THAILAND,*
[2]*Khon Kaen University, THAILAND, and*
[3]*King Mongkut's University of Technology Thonburi, THAILAND*

A4P-F15 **GAS SENSING PERFORMANCE OF PURE AND Cr2O3-MODIFIED WO3 THICK FILMS**
V.B. Gaikwad[1], R.L. Patil[1], and G.H. Jain[2]
[1]*K.T.H.M. College, INDIA and* [2]*A.C.S. College, INDIA*

A4P-F16 **SIMULATION AND DESIGN OF NITRIC OXIDE SENSOR ARRAY FOR CELL CULTURES**
K. Aravindalochanan[1], J. Kieninger[1], G.A. Urban[1], and G. Jobst[2]
[1]*University of Freiburg (IMTEK), GERMANY and* [2]*Jobst Technologies GmbH, GERMANY*

A4P-F17 **DEVELOPMENT OF A NOVEL H2S GAS SENSOR BASED ON CuO-DOPED SnO2 HOLLOW NANOSPHERES**
J. Liu, L. He, X. Chen, F. Meng, and M. Li
Hefei Institute of IntelligMachines, CHINA

POSTER SESSION - Biosensors I

A4P-G01 **DIRECT DETECTION OF LONG, PERIODIC, ssDNA NANOSTRUCTURES ASSEMBLED ON CMOS TRANSISTOR ARRAYS**
M.-Y. Lin[1,2], S.-R. Chang[3], J.-S. Kao[1], H. Chen[3], and Y.-S. Yang[1,2]
[1]*National Applied Research Laboratories, TAIWAN,* [2]*National Chiao Tung University, TAIWAN, and* [3]*National Tsing Hua University, TAIWAN*

A4P-G02 **POLYELECTROLYTE MULTILAYERS STABILIZED PLASMONIC NANOSENSORS**
C. Wang, L. Ma, and M. Su
University of Central Florida, USA

POSTER SESSION - Biosensors I *(continued)*

A4P-G03 **POINT-OF-USE MEASUREMENT OF SALIVARY CORTISOL LEVELS**
M. Yamaguchi[1], S. Yoshikawa[1], Y. Tahara[1], D. Niwa[2], Y. Imai[2], and V. Shetty[3]
[1] *Iwate University, JAPAN,* [2] *Rohm Co., Ltd., JAPAN, and* [3] *University of California, Los Angeles, USA*

A4P-G04 **STUDYING NUCLEAR HORMONE RECEPTOR-RESPONSE ELEMENT INTERACTIONS USING SURFACE PLASMON RESONANCE IMAGING TECHNIQUE**
K.M.M. Aung, A.N.M. Naim, and X. Su
3 Research Link, SINGAPORE

A4P-G05 **DEVELOPMENT OF A NOVEL BIOSENSOR FOR IN-VITRO OBSERVATION OF PROTEIN BEHAVIORS**
I. Choi[1], S. Lee[1], S. Hong[1], Y.I. Yang[1], H.-D. Song[1], T. Kang[2], and J. Yi[1]
[1] *Seoul National University, KOREA and* [2] *Sogang University, KOREA*

A4P-G06 **MICRO CELL ANALYSIS DEVICE USING CELLULAR PHOTOTHERMAL EFFECT AND THERMAL SENSOR**
B.S. Kwak, B.S. Kim, S.-H. Song, H.H. Cho, and H.-I. Jung
Yonsei University, KOREA

A4P-G07 **DEVELOPMENT OF A PLATFORM FOR BIOCHEMICAL SENSING BASED ON OVERLAYERED LONG PERIOD GRATINGS WORKING IN TRANSITION**
P. Pilla[1], P. Foglia Manzillo[2], V. Malachovska[3], S. Campopiano[2], A. Cutolo[1], M. Giordano[3], and A. Cusano[1]
[1] *University of Sannio, ITALY,* [2] *University of Naples "Parthenope", ITALY, and*
[3] *National Research Council, ITALY*

A4P-G08 **STUDY OF SURFACE ENHANCED RAMAN SCATTERING (SERS) WITHIN HOLLOW CORE PHOTONIC CRYSTAL FIBER**
V. Tiwari, A. Khetani, M. Naji, and H. Anis
University of Ottawa, CANADA

A4P-G09 **MODIFIED ISFETs HAVING AN EXTENDED GATE ON THE THICK DIELECTRIC**
C.-G. Ahn, C.W. Park, A. Kim, J.-H. Yang, C.S. Ah, T. Kim, M. Jang, and G.Y. Sung
Electronics and Telecommunications Research Institute (ETRI), KOREA

A4P-G10 **AUTONOMOUS VALVE FOR DETECTION OF BIOPOLYMER DEGRADATION**
S. Keller[1], N. Noeth[1], S. Fetz[1], M. Grünefeld[1], O. Geschke[1], D. Haefliger[2], and A. Boisen[1]
[1] *Technical University of Denmark, DENMARK and* [2] *Sensirion, SWITZERLAND*

A4P-G11 **THE EFFECT OF GLUTARALDEHYDE CROSS-LINKING LAYER ON QCM BASED ALPHA-FETOPROTEIN BIOSENSOR**
C.Y. Lin, I.-Y. Huang, and E.-C. Wu
National Sun Yat-sen University, TAIWAN

A4P-G12 **INDEPENDENT-COMPONENT-ANALYSIS-BASED SPIKE SORTING ALGORITHM FOR HIGH DENSITY MICROELECTRODE ARRAY DATA PROCESSING**
J. Šedivý[1,2], U. Frey[2], D. Jäckel[2], and A. Hierlemann[2]
[1] *Czech Technical University, CZECH REP. and* [2] *ETH Zurich, SWITZERLAND*

A4P-G13 **CELL BIOPRINTING AS A POTENTIAL HIGH-THROUGHPUT METHOD FOR FABRICATING CELL-BASED BIOSENSORS (CBBs)**
F. Xu[1], S. Moon[1], A.E. Emre[1], C. Lien[1], E.S. Turali[1], and U. Demirci[1,2]
[1] *Women's Hospital, Harvard Medical School, USA and*
[2] *Harvard-MIT Health Sciences and Technology, USA*

A4P-G14 **A NOVEL PLATFORM TECHNOLOGY FOR THE DETECTION OF GENETIC VARIATIONS BY SURFACE PLASMON RESONANCE**
M. Mertig, A. Kick, M. Bönsch, B. Katzschner, J. Voigt, F. Sonntag, N. Schilling, U. Klotzbach, N. Danz, S. Begemann, A. Herr, and M. Jung
Dresden University of Technology, GERMANY

A4P-G15 **ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY FOR DETECTION OF PARASITES IN DRINKING WATER**
T. Houssin[1], J. Follet[2], E. Dei Cas[1], and V. Senez[1]
[1] *Universiteé Lille Nord de France, FRANCE and* [2] *Institut Supérieur d'Agriculture, FRANCE*

A4P-G16 **A CMOS CAPACITIVE DOPAMINE SENSOR WITH SUB-nM DETECTION RESOLUTION**
S.-W. Wang[1], C.H. Lin[2], Y.-S. Yang[2], and M.S.-C. Lu[1]
[1] *National Tsing Hua University, TAIWAN and* [2] *National Chiao Tung University, TAIWAN*

A4P-G17 **POCKET-SIZE MULTIPLEXED ELECTRICAL DETECTION OF BIO-SUBSTANCES BY ULTRA SENSITIVE NANOWIRE NANOSENSORS**
L. Novak[1], P. Neuzil[2], Y. Wee[3], and J.S.B. Soon[2]
[1] *Czech Technical University, CZECH REP.,* [2] *Institute of Microelectronics, SINGAPORE, and*
[3] *Nanyang Technological University, SINGAPORE*

POSTER SESSION - Optical Sensors I

A4P-H01 **IMPACT DETECTION IN CARBON FIBER BEAM USING SELF-MIXING SENSORS**
T. Bosch[1], J. El-Assad[1], and G. Plantier[2]
[1] *Université de Toulouse, FRANCE and* [2] *Ecole Supérieure d'Electronique de l'Ouest, FRANCE*

A4P-H02 **CANTILEVER-BASED POLY(DIMETHYLSILOXANE) MICROOPTOELECTROMECHANICAL SYSTEMS**
V.J. Cadarso[1], J.A. Plaza[1], K. Zinoviev[1], C. Dominguez[1], S. de Pedro[1], S. Büttgenbach[2], and A. Llobera[1]
[1] *Centre Nacional de Microelectronica (IMB-CNM, CSIC), SPAIN and*
[2] *Technische Universität Braunschweig, GERMANY*

POSTER SESSION - Optical Sensors I *(continued)*

A4P-H03 **PHOTORESPONSIVE INTERPENETRATING NETWORK PHOTONIC CRYSTAL**
M.K. Maurer, D.E. Condon, H. McKinney, and J.-K. Kim
Pennsylvania State University, USA

A4P-H04 **BIOMIMETIC SENSORS FOR THE HEAVY METAL DETECTION**
S. Lee[1], I. Choi[1], S. Hong[1], Y.I. Yang[1], J. Lee[1], H.-D. Song[1], T. Kang[2], and J. Yi[1]
[1]*Seoul National University, KOREA and* [2]*Sogang University, KOREA*

A4P-H05 **TEMPERATURE AND CURRENT DEPENDENCE OF DOPPLER SNR IN A VCSEL BASED SELF-MIXING SENSOR**
R.S. Matharu[1], Y.L. Lim[1], R. Kliese[1], K. Bertling[1], A. Ashrif[1], A. Bakar[1], J. Perchoux[2], and A.D. Rakic[1]
[1]*University of Queensland, AUSTRALIA and* [2]*Université de Toulouse, FRANCE*

A4P-H06 **ULTRA-MINIATURIZED MONOLITHICALLY INTEGRATED POLYMER COATED Si OPTOELECTRONIC CANTILEVERS FOR GAS SENSING APPLICATIONS**
K. Misiakos[1], I. Raptis[1], D. Goustouridis[1], A. Geradino[2], H. Contopanagos[1], M. Kitsara[1], and E. Valamontes[3]
[1]*NCSR Demokritos, GREECE,* [2]*Consiglio Nazionale delle Ricerche (CNR), ITALY, and* [3]*TEI of Athens, GREECE*

A4P-H07 **SIMPLIFIED BRILLOUIN DISTRIBUTED SENSING SCHEME USING ULTRA-HIGH EXTINCTION RATIO RF PULSES**
A. Zornoza, D. Olier, S. Díaz, and A. Loayssa
Universidad Pública de Navarra, SPAIN

A4P-H08 **ENHANCED PHOTO-RESPONSE OF THERMALLY TREATED ZINC OXIDE ULTRA-VIOLET PHOTON DETECTOR WITH FURNACE METHOD AND PULSED LASER IRRADIATION**
R. Menon, A. Chowdhuri , M. Tomar, K. Sreenivas, and V. Gupta
University of Delhi, INDIA

POSTER SESSION - Mechanical Sensors I

A4P-J01 **PIEZORESISTIVE CMOS SENSORS FOR OUT-OF-PLANE SHEAR STRESS**
M. Baumann, B. Lemke, P. Ruther, and O. Paul
University of Freiburg (IMTEK), GERMANY

A4P-J02 **A NOVEL MICROMACHINED QUARTZ GYROSCOPE BASED ON SHEAR STRESS DETECTION**
L.Q. Xie, H.X. Wang, Z.Q. Hou, D.B. Xiao, X.Z. Wu, and S.Y. Li
National University of Defense Technology, CHINA

A4P-J03 **SLIPPAGE DEGREE ESTIMATION FOR DEXTEROUS HANDLING OF VISION-BASED TACTILE SENSOR**
Y. Ito, Y. Kim, and G. Obinata
Nagoya University, JAPAN

A4P-J04 **PIEZOELECTRIC-CERAMIC-EMBEDDED SMART CONCRETE MODULE FOR STRUCTURE HEALTH MONITORY**
Y. Chen, Y. Wen, and L. Ping
Chongqing University, CHINA

A4P-J05 **A HIGH PERFORMANCE MEMS PIEZORESISTIVE ACCELEROMETER WITH ELECTROPLATED GOLD ATOP A THICKNESS REDUCED PROOF MASS**
A. Ravi Sankar[1] and S. Das[2]
[1]*Karunya University, INDIA and* [2]*Indian Institute of Technology, INDIA*

A4P-J06 **DEVELOPMENT OF STRUCTURE ENHANCED MICROMACHINED ACOUSTIC EMISSION SENSORS WITH WIDE-BANDWIDTH AND IMPROVED SENSITIVITY**
G.-H. Feng, M.-Y. Tsai, and J.-S. Chen
National Chung Cheng University, TAIWAN

A4P-J07 **HIGH PERFORMANCE MICROMACHINED GYROSCOPE WITH A SLANTED SUSPENSION CANTILEVER**
D.B. Xiao, H.O. Man, Z.Q. Hou, X.Z. Wu, Z.H. Chen, P.T. Dong, and S.Y. Li
National University of Defense Technology, CHINA

A4P-J08 **CMOS MULTI-TERMINAL PRESSURE SENSOR WITH ON-CHIP BIASING CIRCUIT**
G.G. de Oliveira Coraucci and F. Fruett
University of Campinas, BRAZIL

A4P-J09 **CIRCULAR PIEZOELECTRIC ACCELEROMETER FOR HIGH BAND WIDTH APPLICATION**
C.C. Hindrichsen[1], J. Larsen[1], R. Lou-Møller[2], K. Hansen[3], and E.V. Thomsen[1]
[1]*Technical University of Denmark, DENMARK,* [2]*Insensor A/S, DENMARK, and* [3]*Ferroperm Piezoceramics A/S, DENMARK*

A4P-J10 **FABRICATION OF SOI MEMS INERTIAL SENSORS WITH DRY RELEASING PROCESS**
X. Mao, Y.M. Wei, Z.C. Yang, and G.Z. Yan
Peking University, CHINA

POSTER SESSION - Physical Sensors I

A4P-K01 **TEMPERATURE STABILITY IMPROVEMENT OF THIN-FILM THERMOPILES BY IMPLEMENTATION OF A DIFFUSION BARRIER OF TiN**
R. Buchner, C. Sosna, and W. Lang
University of Bremen, GERMANY

POSTER SESSION - Physical Sensors I *(continued)*

A4P-K02 **DUAL MODE SENSOR FOR BELT CONVEYOR SYSTEMS BASED ON PLANAR METAMATERIALS**
M. Puentes, B. Stelling, M. Schüßler, A. Penirschke, C. Damm, and R. Jakoby
Technische Universität Darmstadt, GERMANY

A4P-K03 **MEMS GYROSCOPE CONTROL SYSTEMS FOR DIRECT ANGLE MEASUREMENTS**
C.-Y. Chi and T.-L. Chen
National Chiao Tung University, TAIWAN

A4P-K04 **A METHOD FOR MEASURING FREQUENCY SERIES WAVE SPEED IN VISCOELASTIC PIPES**
I.-Y. Lee[1], C.-R. Choi[1], and M.-G. Kang[2]
[1] *Pukyong National University, KOREA and* [2] *Daedong Industrial Company, KOREA*

A4P-K05 **STATIC DEFLECTION CONTROL FOR SENSITIVITY ENHANCEMENT OF PIEZOELECTRIC ULTRASONIC MICROSENSORS ON SILICON DIOXIDE DIAPHRAGMS**
K. Yamashita[1], T. Yoshizaki[2], M. Noda[1], and M. Okuyama[2]
[1] *Kyoto Institute of Technology, JAPAN and* [2] *Osaka University, JAPAN*

A4P-K06 **A MEMS PHASE DETECTOR AT X-BAND BASED ON MMIC TECHNOLOGY**
D. Hua, X.P. Liao, and Y. Jiao
Southeast University, CHINA

A4P-K07 **SINGLE CRYSTAL CVD DIAMONDS AS SENSORS FOR HEAVY ION SPECTROSCOPY**
R. Potenza and C. Tuve
University of Catania & INFN, ITALY

POSTER SESSION - Sensor & Actuator Systems I

A4P-L01 **WITHDRAWN**

A4P-L02 **DUAL GATE FET HYDROGEN GAS SENSOR**
K. Tsukada[1], M. Kariya[1], T. Yamaguchi[1], T. Kiwa[1], H. Yamada[1], T. Maehara[2], T. Yamamoto[2], and S. Kunitsugu[3]
[1] *Okayama University, JAPAN,* [2] *Phenitec Semiconductor Corp., JAPAN, and* [3] *Industrial Technology Center of Okayama Prefecture, JAPAN*

A4P-L03 **FLEXIBLE SENSOR FOR MCKIBBEN PNEUMATIC ACTUATOR**
S. Kuriyama[1], M. Ding[1], Y. Kurita[1], J. Ueda[2], and T. Ogasawara[1]
[1] *Nara Institute of Science and Technology, JAPAN and* [2] *Georgia Institute of Technology, USA*

A4P-L04 **DESIGN, FABRICATION, AND PRELIMINARY TEST OF MUTIL-LAYERS NANO RESONANT TUNNELING FILM GYROSCOPE**
J. Liu[1,2], K. Du[1], M. Li[1,2], and Y. Shi[1]
[1] *National Key Laboratory for Electronic Measurement Technology, CHINA and* [2] *Ministry of Education, CHINA*

A4P-L05 **ELECTROMAGNETIC MEMBRANE-PUMP WITH AN INTEGRATED MAGNETIC YOKE**
T. Lederer, M. Heinisch, W. Hilber, and B. Jakoby
Johannes Kepler University Linz, AUSTRIA

A4P-L06 **ENHANCEMENT IN ULTRASONIC MICRO-TRANSPORT USING FOCUSED INTER-DIGITAL TRANSDUCERS IN A SURFACE ACOUSTIC WAVE DEVICE: FLUID-STRUCTURE INTERACTION STUDY**
R. Singh and V.R. Bhethanabotla
University of South Florida, USA

A4P-L07 **INTEGRATED MICRO-SOLAR CELL STRUCTURES FOR HARVESTING SUPPLIED MICROSYSTEMS IN 0.35µm CMOS TECHNOLOGY**
M. Ferri, D. Pinna, E. Dallago, and P. Malcovati
University of Pavia, ITALY

A4P-L08 **CITY-WIDE MOBILE AIR QUALITY MEASUREMENT SYSTEM**
V. Carvalho[1], J. Gabriel Lopes[2], F. Corrêa Alegria[1,3], and H. Geirinhas Ramos[1,3]
[1] *Instituto Superior Técnico, PORTUGAL,* [2] *Instituto Superior de Engenharia de Lisboa, PORTUGAL, and* [3] *Instituto de Telecomunicações, PORTUGAL*

A4P-L09 **ULTRASENSITIVE MEMS-BASED INERTIAL SYSTEM**
L. Novak[1], P. Neuzil[2], J. Li[2], and M. Woo[2]
[1] *Czech Technical University, CZECH REP. and* [2] *Institute of Microelectronics, SINGAPORE*

POSTER SESSION - Sensor Networks I

A4P-M01 **MINIMIZING SLEEP DURATION TIME FOR ENERGY HARVESTING WIRELESS SENSOR NETWORKS**
B. Suh[1], C. Won[2], and S.-W. Kim[3]
[1] *Kongju National University, KOREA,* [2] *California State University, Fresno, USA, and* [3] *Dong-Eui University, KOREA*

A4P-M02 **SAMOP: SYNCHRONIZATION AVOIDING MODIFICATION OF OUTGOING PACKET IN WIRELESS SENSOR NETWORKS**
E. Kim, J. Park, S. Lee, J. Yoon, and K. Kim
Gwangju Institute of Science and Technology (GIST), KOREA

POSTER SESSION - Sensor Networks I *(continued)*

A4P-M03 **A ROBUST FUSION RULE USING PIECE-WISE LINEAR FUNCTION IN WIRELESS SENSOR NETWORKS**
J.T. Park[1], E.C. Kim[1], G.S. Kim[2], and K. Kim[1]
[1]*Gwangju Institute of Science and Technology (GIST), KOREA and* [2]*ADD, KOREA*

A4P-M04 **A NOVEL COVERAGE-PRESERVING ALGORITHM WITH ENERGY EFFICIENCY**
C.-P. Chen, C.-L. Chuang, T.-S. Lin, C.-W. Lui, K.-C. Liao, J.-C. Shieh, and J.-A. Jiang
National Taiwan University, TAIWAN

A4P-M05 **WIRELESS SENSOR NETWORK FOR POWER CONSUMPTION REDUCTION IN INFORMATION AND COMMUNICATION SYSTEMS**
T. Itoh, Y. Zhang, M. Matsumoto, and R. Maeda
National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

A4P-M06 **A NEW APPROACH TO DESIGN AMBIENT SENSOR NETWORK FOR REAL TIME HEALTHCARE MONITORING SYSTEM**
S.-J. Jung, T.-H. Kwon, and W.-Y. Chung
Pukyong National University, KOREA

A4P-M07 **USE OF ANTENNAS AS SENSORS TO DISCOVER SIGNALS TO FORM MOBILE BROADBAND NETWORKS**
A. Smith and E.T. Matson
Purdue University, USA

A4P-M08 **PERFORMANCE EVALUATION OF THE IMPACT OF MOBILE BASE STATION ON CLUSTERED WIRELESS SENSOR NETWORKS**
S.M. Guru, D. Smith, Y. Shu, and P. de Souza
CSIRO Tasmanian ICT Centre, AUSTRALIA

A4P-M09 **EVALUATION OF COORDINATION STRATEGIES FOR HETEROGENEOUS SENSOR NETWORKS AIMING AT SURVEILLANCE APPLICATIONS**
E. Pignaton de Freitas[1], T. Heimfarth[2], C.E. Pereira[2], A. Morado Ferreira[3], F. Rech Wagner[2], and T. Larsson[1]
[1]*Halmstad University, SWEDEN,* [2]*Federal University of Rio Grande do Sul, BRAZIL, and* [3]*Military Institute of Engineering, BRAZIL*

A4P-M10 **A FRAMEWORK FOR MEASUREMENT ANOMALY DETECTION IN SENSOR NETWORKS**
L. Reznik and K. Nathan
Rochester Institute of Technology, USA

A4P-M11 **ASYNCHRONOUS DISTRIBUTED MEASUREMENT SYSTEM FOR PQ MONITORING APPLICATIONS**
F. Ciancetta[1], G. Bucci[1], and C. Landi[2]
[1]*University of L'Aquila, ITALY and* [2]*Second University of Naples, ITALY*

A4P-M12 **LIQUID DAMPING ISOLATION ON QUARTZ CRYSTAL MICROBALANCE FOR EFFECTIVE PRESERVATION OF HIGH QUALITY FACTOR AND SENSITIVITY IN LIQUID**
C.R. Kirkendall and J.W. Kwon
University of Missouri, USA

POSTER SESSION - Applications I

A4P-N01 **GALFENOL RESONANT SENSOR FOR INDIRECT WIRELESS OSTEOSYNTHESIS PLATE BENDING MEASUREMENT**
W.J. Fischer[1], S. Sauer[1], U. Marschner[1], B. Adolphi[1], C. Wenzel[1], B. Jettkant[2], and B. Clasbrummel[2]
[1]*Technische Universität Dresden, GERMANY and*
[2]*Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil GmbH, GERMANY*

A4P-N02 **MONITORING OF SOIL MOISTURE AND GROUNDWATER LEVEL USING ULTRASONIC WAVES TO PREDICT SLOPE FAILURES**
K. Tanaka[1], T. Suda[1], K. Hirai[1], K. Sako[1], R. Fukagawa[1], M. Shimamura[2], and A. Togari[2]
[1]*Ritsumeikan University, JAPAN and* [2]*East Japan Railway Company, JAPAN*

A4P-N03 **RFID TAG ARRANGEMENT FOR MOBILE ROBOT LOCALIZATION**
S. Kim
Hankuk University of Foreign Studies, KOREA

A4P-N04 **IMPLEMENTATION OF ULTRASONIC TOUCHLESS INTERACTIVE PANEL USING THE POLYMER-BASED CMUT ARRAY**
T.-I. Chiu, H.-C. Deng, S.-Y. Chang, and S.-B. Luo
Identification and Security Technology Center/ITRI, TAIWAN

A4P-N05 **MICROWAVE APPLICATION FOR THE DETECTION OF BIODIESEL-GLYCERINE AND BIODIESEL-WATER INTERFACES IN THE BIODIESEL PRODUCTION**
K. Khalid, A. Hazwani Jabar, I. Valeriu Grozescu and M. Narenji
Universiti Putra Malaysia, MALAYSIA

A4P-N06 **EXPERIMENTAL STUDY OF Ti/Pt THIN FILM HEATER AND TEMPERATURE SENSORS ON Si PLATFORM**
D. Resnik, D. Vrtačnik, U. Aljančič, M. Možek, and S. Amon
University of Ljubljana, SLOVENIA

POSTER SESSION - Applications I *(continued)*

A4P-N07 **BLOOD PRESSURE SENSOR FABRICATED BY (111) Si BULK-MICROMACHINING FOR ARTERIAL APPLANATION TONOMETRY**
J. Kim[1], J. Jung[2], K.S. Shin[1], K. Chun[2], and B. Lee[3]
[1]*Samsung Advanced Institute of Technology, KOREA,* [2]*Seoul National University, KOREA, and* [3]*Korea University of Technology and Education, KOREA*

A4P-N08 **PROXIMITY SENSOR OF A COATED QUARTZ CRYSTAL IN AIR**
W.-T. Chang, C.-H. Ting, and Y.-T. Chen
National University of Kaohsiung, TAIWAN

A4P-N09 **ENHANCING THE PERFORMANCES OF A SPINE SURGERY BY USING A SILICON PRESSURE SENSOR**
X. Liu, Q.-A. Huang, M. Qin, and H. Chen
Southeast University, CHINA

A4P-N10 **A LOW-LOSS MEMS TUNABLE CAPACITOR WITH MOVABLE DIELECTRIC**
Y. Zhu, M.R. Yuce, and S.O.R. Moheimani
University of Newcastle, AUSTRALIA

A4P-N11 **AN APPROACH TO MONITOR SOLID PHASE RATIO OF SOLID/LIQUID MIXTURE FOR COLD ENERGY STORAGE AND TRANSFER SYSTEMS**
Y. Yamamoto and H. Ohkubo
Tamagawa University, JAPAN

A4P-N12 **FIELD-TEST SYSTEM FOR UNDERGROUND FIRE DETECTION BASED ON SEMICONDUCTOR GAS SENSOR**
P. Reimann, S. Horras, and A. Schütze
Saarland University, GERMANY

A4P-N13 **PATTERN RECOGNITION FOR SENSOR SIGNALS**
M. Wolff[1] and C. Tschöpe[2]
[1]*Technische Universität Dresden, GERMANY and*
[2]*Frauhofer Institute for Non-Destructive Testing / IZFP-D, GERMANY*

A4P-N14 **SENSING TRAIN INTEGRITY**
H. Scholten[1], R. Westenberg[2], and M. Schoemaker[2]
[1]*University of Twente, THE NETHERLANDS and* [2]*Strukton Rail, THE NETHERLANDS*

A4P-N15 **FLIGHT ATTITUDE TRACK RECONSTRUCTION USING TWO AHRS UNITS UNDER LABORATORY CONDITIONS**
M. Sipos, P. Paces, M. Reinstein, and J. Rohac
Czech Technical University, CZECH REP.

A4P-N16 **MICROFLUIDIC VALVELESS PUMP ACTUATED BY ELECTROMAGNETIC FORCE**
V.T. Dau, T.X. Dinh, Q.D. Nguyen, K. Tanaka, R. Amarasinghe,
and S. Sugiyama
Ritsumeikan University, JAPAN

A4P-N17 **TEMPERATURE AND PRESSURE MONITORING OF A WHIPPED CREAM DEVICE**
M.J. Moser and H. Zangl
Graz University of Technology, AUSTRIA

POSTER SESSION - Late News

A4P-001 **A BIOSENSOR FOR DETECTION OF DNA SEQUENCES BASED ON A 50MHZ QCM ELECTRONIC OSCILLATOR CIRCUIT**
E.A. Bustabad[1], G. García[1], L. Rodriguez-Pardo[1], J. Fariña[1], H. Perrot[2], C. Gabrielli[2], B. Bucur[2], M. Lazerges[2], D. Rose[2], C. Compére[3], and A. Arnau[4]
[1]*University of Vigo, SPAIN,* [2]*Université P. et M. Curie, FRANCE,* [3]*Centre de Brest, FRANCE, and* [4]*Universidad Politécnica de Valencia, SPAIN*

A4P-002 **SELF CALIBRATING PRESSURE SENSOR FOR BIOMEDICAL APPLICATIONS**
P. Yameogo[1], U. Heiba[1], M. Al Bahri[2], and P. Pons[2]
[1]*Université Paul Sabatier, FRANCE and* [2]*CNRS, FRANCE*

A4P-003 **AN OPTICAL SYSTEM TO MEASURE THE THICKNESS OF THE SUBCUTANEOUS ADIPOSE TISSUE LAYER**
H.K. Hong[1], Y.C. Jo[1], Y.S. Choi[1], H.D. Park[1], and B.J. Kim[2]
[1]*Korea Electronics Technology Institute, KOREA and* [2]*Ang University, KOREA*

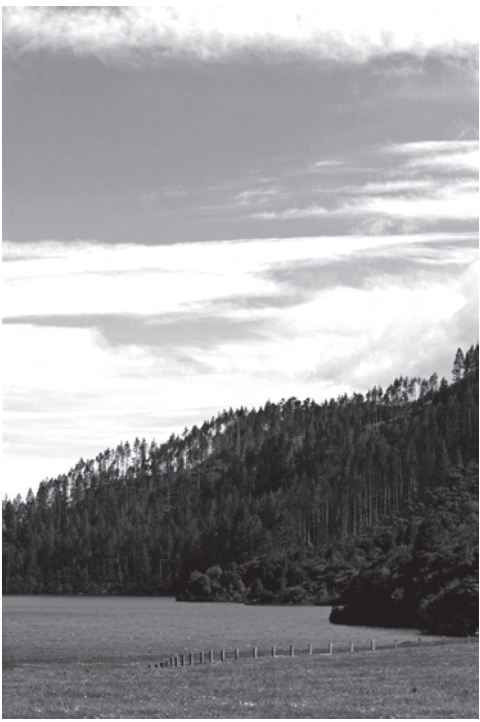
A4P-004 **DESIGN AND TESTING OF PIEZOELECTRIC ENERGY HARVESTING DEVICES FOR GENERATION OF HIGHER ELECTRIC POWER FOR WIRELESS SENSOR NETWORKS**
M. Zhu and E. Worthington
Cranfield University, UK

A4P-005 **DUAL-PROBE LUMINESCENCE LIFETIME MEASUREMENTS FOR THE OXYGEN COMPENSATION IN ENZYMATIC BIOSENSORS**
B. Collier, R. Long, and M. McShane
Texas A&M University, USA

A4P-006 **THERMALLY ACTUATED MEMS RESONANT SENSORS FOR MASS MEASUREMENT OF MICRO/NANOSCALE AEROSOL PARTICLES**
A. Hajjam, A. Rahafrooz, J.C. Wilson, and S. Pourkamali
University of Denver, USA

SESSION A5L-A Chemical/Gas Sensors	SESSION A5L-B Advanced Signal Processing Methods	SESSION A5L-C Sensors for Hostile & Hazardous Environments	SPECIAL SESSION A5L-D Encapsulation & Packaging
F.J. Arregui, *Universidad Pública de Navarra, SPAIN* A. Tuantranont, *National Electronics and Computer Centre, THAILAND*	G. Sen Gupta, *Massey University, NEW ZEALAND* P. van de Ven, *University of Limerick, IRELAND*	T. Kenny, Stanford University, USA T. Newe, *University of Limerick, IRELAND*	T. Prodromakis, *Imperial College London, UK*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
16:00			
A5L-A1 **GAS SENSING CHARACTERISTICS OF Au SENSING ELECTRODE FABRICATED ON YSZ SINGLE-CRYSTALS** V.V. Plashnitsa, P. Elumalai, Y. Fujio, and N. Miura *Kyushu University, JAPAN*	**A5L-B1** **A FAST MAXIMUM LIKELIHOOD METHOD FOR IMPROVING AMCW LIDAR PRECISION USING WAVEFORM SHAPE** J.P. Godbaz, M.J. Cree, A.A. Dorrington, and A.D. Payne *University of Waikato, NEW ZEALAND*	**A5L-C1** **DIAGNOSTIC MODELS FOR SENSOR MEASUREMENTS IN ROCKET ENGINE TESTS** M. Russell[1], G. Lecakes Jr.[1], S. Mandayam[1], and S. Jensen[2] [1]*Rowan University, USA and* [2]*NASA-SSC, USA*	**INVITED** **A5L-D1** **BIOCOMPATIBLE ENCAPSULATION OF CMOS BASED CHEMICAL SENSORS** T. Prodromakis[1], K. Michelakis[1], T. Zoumpoulidis[2], R. Dekker[3], and C. Toumazou[1] [1]*Imperial College London, UK,* [2]*Delft University of Technology, THE NETHERLANDS, and* [3]*Philips Research, THE NETHERLANDS*
16:15			
A5L-A2 **MIXED-POTENTIAL-TYPE ZIRCONIA-BASED SENSOR USING Ni-Ti-O SENSING ELECTRODE FOR DETECTION OF PROPYLENE** Y. Fujio, V.V. Plashnitsa, P. Elumalai, and N. Miura *Kyushu University, JAPAN*	**A5L-B2** **SPACE-TIME VERSUS FREQUENCY DOMAIN SIGNAL PROCESSING FOR 3D THz IMAGING** R. Heremans, M. Vandewal, and M. Acheroy *Royal Military Academy, BELGIUM*	**A5L-C2** **ROBUST DESIGNED CAPACITIVE GAS PRESSURE SENSOR FOR HARSH ENVIRONMENT** H.-S. Lee, C. Cho, and S.P. Chang *Inha University, KOREA*	
16:30			
A5L-A3 **NOVEL IMPEDIMETRIC AND PERFORATED THERMAL FLOW SENSOR FOR INLINE CHEMICAL PROCESS ANALYSIS IN MICRO RESIDENCE TIME REACTORS** T. Jacobs[1], C. Kutzner[1], M. Kropp[2], G. Brokmann[3], W. Lang[2], A. Steinke[3], A. Kienle[4], and P. Hauptmann[1] [1]*Otto von Guericke University Magdeburg, GERMANY,* [2]*University of Bremen, GERMANY,* [3]*CiS Research Institute for Microsensors and Photovoltaics GmbH, GERMANY, and* [4]*Max Planck Institute for Dynamics of Complex Technical Systems, GERMANY*	**A5L-B3** **PERFORMANCE OF A CONSTANT PHASE ELEMENT (CPE) SENSOR TO DETECT ADULTERATION IN COW-MILK WITH WHEY** S. Das[1], M. Sivaramakrishna[1], M. Dey[1], B. Goswami[1], and K. Biswas[2] [1]*Jadavpur University, INDIA and* [2]*Indian Institutes of Technology (IIT), INDIA*	**A5L-C3** **THERMAL AND CHEMICAL IDENTIFICATION OF MATERIALS PRIOR TO COMBUSTION** R. Ghosh, C.A. Kramer, R. Loloee, and I.S. Wichman *Michigan State University, USA*	**A5L-D3** **POST-CMOS PACKAGING METHODS FOR INTEGRATED BIOSENSORS** M. Dandin[1], I. Deok Jung[1], M. Piyasena[1], J. Gallagher[2], N. Nelson[1], M. Urdaneta[1], C. Artis[1], P. Abshire[1], and E. Smela[1] [1]*University of Maryland, USA and* [2]*Tulane University, USA*
16:45			
A5L-A4 **MICRO-CALORIMETRIC SENSOR FOR VAPOUR PHASE EXPLOSIVE DETECTION WITH OPTIMIZED HEAT PROFILE** A. Greve[1], J.K. Olsen[1], N. Privorotskaya[2], L. Senesac[3], T. Thundat[3], W.P. King[2], and A. Boisen[1] [1]*Technical University of Denmark, DENMARK,* [2]*University of Illinois, Urbana-Champaign, USA, and* [3]*Oak Ridge National Laboratory, USA*	**A5L-B4** **ON LINE WIRE DIAGNOSIS USING MULTCARRIER TIME DOMAIN REFLECTOMETRY FOR FAULT LOCATION** A.L. Lelong and M.O. Carrion *CEA, FRANCE*	**A5L-C4** **HIGH TEMPERATURE STORAGE FOR ENERGY HARVESTING IN HOSTILE ENVIRONMENTS** S. Barker, B. Miao, D. Brennan, N. Wright, and A.B. Horsfall *Newcastle University, UK*	**A5L-D4** **WAFER LEVEL ENCAPSULATION TECHNIQUES FOR A MEMS MICROREACTOR WITH INTEGRATED HEAT EXCHANGER** F. Santagata, L. Mele, M. Mihailovic, B. Morana, J.F. Creemer, and P.M. Sarro *Delft University of Technology, THE NETHERLANDS*

SESSION A5L-A *(continued)*	SESSION A5L-B *(continued)*	SESSION A5L-C *(continued)*	SPECIAL SESSION A5L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
17:00			
A5L-A5 **MICROCANTILEVER HUMIDITY SENSOR BASED ON EMBEDDED nMOSFET WITH <100>-CRYSTAL-ORIENTATION CHANNEL** J. Wang, W.G. Wu, Y. Huang, and Y.L. Hao *Peking University, CHINA*	**A5L-B5** **ARTIFICIAL TRANSMISSION LINES FOR HIGH SENSITIVE MICROWAVE SENSORS** C. Damm, M. Schüßler, M. Puentes, H. Maune, M. Maasch, and R. Jakoby *Technische Universität Darmstadt, GERMANY*	**A5L-C5** **WHITE RABBIT - SENSOR/ACTUATOR PROTOCOL FOR THE CERN LHC PARTICLE ACCELERATOR** P. Loschmidt[1], G. Gaderer[1], N. Simanic[1], A. Hussain[1], and P. Moreira[2] [1]*Austrian Academy of Sciences, AUSTRIA and* [2]*CERN, SWITZERLAND*	**A5L-D5** **WAFER LEVEL PACKAGED CANTILEVER ARRAY TYPE CONTACT FORCE SENSOR** J. Jeong[1], J. Kim[2], B. Lee[3], and K. Chun[1] [1]*Seoul National University, KOREA,* [2]*Samsung Advanced Institute of Technology, KOREA, and* [3]*Korea University of Technology and Education, KOREA*
17:15			
A5L-A6 **CHARACTERIZATION OF A LOGARITHMIC SPIKE TIMING ENCODING SCHEME FOR A 4X4 TiN OXIDE GAS SENSOR ARRAY** K.T. Ng[1,2], B. Guo[2], A. Bermak[2], D. Martinez[3], and F. Boussaid[1] [1]*University of Western Australia, AUSTRALIA,* [2]*Hong Kong University of Science and Technology, HONG KONG, and* [3]*LORIA, FRANCE*	**A5L-B6** **MULTIVARIATE DATA ANALYSIS FOR ACCURACY ENHANCEMENT AT THE EXAMPLE OF AN INDUCTIVE PROXIMITY SENSOR** H. Krüger, H. Ewald, and A. Frost *University of Rostock, GERMANY*	**A5L-C6** **VARIABLE SENSITIVITY ONLINE OPTICAL FIBRE RADIATION DOSIMETER** S. O'Keeffe[1], E. Lewis[1], A. Santhanam[2,3], and J.P. Rolland[2,4] [1]*University of Limerick, IRELAND,* [2]*University of Central Florida, USA,* [3]*MD Anderson Cancer Center Orlando, USA, and* [4]*University of Rochester, USA*	**A5L-D6** **PACKAGING AND ANTENNA DESIGN FOR WIRELESS SAW TEMPERATURE SENSORS IN METALLIC ENVIRONMENTS** A. Binder[1], E. Kaldjob[2], B. Geck[2], and R. Fachberger[1] [1]*CTR AG, AUSTRIA and* [2]*Leibnitz University Hannover, GERMANY*
17:30	**ADJOURN FOR THE DAY**		



Tuesday, 27 October

08:00

KEYNOTE PRESENTATION B1K-A:
Chair: E. Lewis, *University of Limerick, IRELAND*

STRUCTURAL HEALTH MONITORING OF BETTER SOLUTIONS USING FIBER OPTIC SENSORS?
S.K.T. Grattan[1,3], S.E. Taylor[1,3], P.A.M. Basheer[1,3], T. Sun[2,3], and K.T.V. Grattan[2,3]
[1] *Queen's University of Belfast, UK,* [2] *City University London, UK, and* [3] *Sengenia Ltd., UK*

SESSION B2L-A Physical Biosensors V. Bhethanabotla, *University of South Florida, USA* T. Nagle, *North Carolina State University, USA*	SESSION B2L-B Optical Fiber Sensors II E. Lewis, *University of Limerick, IRELAND* K.B. Ozanyan, *University of Manchester, UK*	SESSION B2L-C Resonant Sensors & Fatigue Q.-A. Huang, *Southeast University, CHINA* L. Sarro, *Technical University of Delft, THE NETHERLANDS*	SPECIAL SESSION B2L-D Antennas for Sensors & Sensor Networks T. Bird, *CSIRO ICT Centre, AUSTRALIA* A. Zaghloul, *Virginia Tech, USA*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
09:00			
B2L-A1 **THIN MEMBRANE TRANSDUCER DETECTING DNA HYBRIDIZATION ON CHIP** J.K. Choi, M. Cha, and J. Lee *Seoul National University, KOREA*	**B2L-B1** **FIBER-OPTIC SAGNAC INTERFEROMETER AS SEISMOGRAPH FOR INVESTIGATION ROTATION SEISMIC EVENTS** L.R. Jaroszewicz[1], Z. Krajewski[1], and J. Wiszniowski[2] [1] *Military University of Technology, POLAND and* [2] *Institute of Geophysics Polish Academy of Sciences, POLAND*	**B2L-C1** **FREQUENCY RESOLUTION OF A MULTI DEGREE OF FREEDOM RESONATOR** K. Moran[1], B.E. DeMartini[1], K.L Turner[1], and K.J. Åström[2] [1] *University of California, Santa Barbara, USA and* [2] *Lund University, SWEDEN*	**B2L-D1** **WIRELESS ACCESS SYSTEM FOR WIDE AREA UBIQUITOUS NETWORK** Y. Shimizu, D. Uchida, F. Nuno, S. Kuwano, S. Ishihara, and O. Kagami *NTT Network Innovation Laboratories, JAPAN*
09:15			
B2L-A2 **LABEL-FREE DETECTION OF p53 ANTIBODY USING A MICROCANTILEVER BIOSENSOR WITH PIEZORESISTIVE READOUT** Y. Zhou[1], Z. Wang[1], W. Yue[2], K. Tang[2], W. Ruan[1], Q. Zhang[1], and L. Liu[1] [1] *Tsinghua University, CHINA and* [2] *Beijing Chest Hospital, CHINA*	**B2L-B2** **FIBER-OPTIC pH SENSORS FABRICATION BASED ON SELECTIVE DEPOSITION OF NEUTRAL RED** C.R. Zamarreño, M. Hernáez, I.R. Matías, and F.J. Arregui *Public University of Navarra, SPAIN*	**B2L-C2** **EFFECT OF LASER DEFLECTION DETECTION ON RESONANT CANTILEVER SENSORS** C.-K. Yang, H. Sadeghian, K. Babaei Gavan, J.F.L. Goosen, A. Bossche, E.W.J.M. van der Drift, F. van Keulen, P.J. French, and H.S.J. van der Zant *Delft University of Technology, THE NETHERLANDS*	**B2L-D2** **IMPROVING THE READ RANGE OF RFID SENSORS** U. Olgun, C.-C. Chen, D. Psychoudakis, and J. Volakis *Ohio State University, USA*
09:30			
B2L-A3 **SURFACE FORCE SENSED BY CELLS USED FOR AUTONOMOUS MIGRATION** J.H. Hong, S.J. Lee, M. Cha, and J. Lee *Seoul National University, KOREA*	**B2L-B3** **NOVEL MULTIMODE FIBRE-CAVITY FOR RING-DOWN EXPERIMENTS** M. Fabian[1], E. Lewis[1], T. Newe[1], and S.I. Lochmann[2] [1] *University of Limerick, IRELAND and* [2] *Hochschule Wismar, GERMANY*	**B2L-C3** **DESIGN AND MODELING OF AN ALL-OPTICAL FREQUENCY MODULATED MEMS STRAIN SENSOR USING NANOSCALE BRAGG GRATINGS** K. Reck, N.S. Almind, M. Mar, J. Hübner, O. Hansen, and E.V. Thomsen *Technical University of Denmark, DENMARK*	**B2L-D3** **A THREE-DIMENSIONAL ANTENNA ARRAY FOR TERAHERTZ SENSING** A. Goltsman[1] and A.I. Zaghloul[2] [1] *Virginia Polytechnic Institute and State University, USA and* [2] *Army Research Laboratory, USA*
09:45			
B2L-A4 **CONTINUOUS BLOOD PRESSURE MEASUREMENT IN DAILY ACTIVITIES** G. Lopez[1], K. Hidaka[1], H. Ushida[1], M. Shuzo[1], Y. Imai[2], J.-J. Delaunay[1], and I. Yamada[1] [1] *University of Tokyo, JAPAN and* [2] *University of Tokyo Hospital, JAPAN*	**B2L-B4** **ALL-FIBER HYBRID CAVITY FOR SENSING APPLICATIONS** D. Paladino[1], G. Quero[1], A. Cutolo[1], A. Cusano[1], C. Caucheteur[2], and P. Mégret[2] [1] *University of Sannio, ITALY and* [2] *Faculté Polytechnique de Mons, BELGIUM*	**B2L-C4** **A RESONANT CMUT SENSOR FOR FLUID APPLICATIONS** M. Thränhardt[1,2], P.-C. Eccardt[1], H. Mooshofer[1], P. Hauptmann[2], and L. Degertekin[3] [1] *Siemens AG, GERMANY,* [2] *Otto-von-Guericke University Magdeburg, GERMANY, and* [3] *Georgia Institute of Technology, USA*	**B2L-D4** **94GHZ FABRICATION OF A SLOTTED WAVEGUIDE ARRAY ANTENNA BY DIFFUSION BONDING OF LAMINATED THIN PLATES** J. Hirokawa, M. Zhang, and M. Ando *Tokyo Institute of Technology, JAPAN*

SESSION B2L-A *(continued)*	SESSION B2L-B *(continued)*	SESSION B2L-C *(continued)*	SPECIAL SESSION B2L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
10:00			
B2L-A5 **AVIAN INFLUENZA-DNA HYBRIDIZATION DETECTION USING WAVELENGTH INTERROGATION-BASED SURFACE PLASMON RESONANCE BIOSENSOR** S.A. Kim[1], S.H. Lee[1], K.M. Byun[2], T.H. Park[1], S.G. Kim[3], S.J. Kim[1], and M. Shuler[3] [1]*Seoul National University, KOREA,* [2]*Kyung Hee University, KOREA, and* [3]*Cornell University, USA*	**B2L-B5** **IN-LINE FIBER-OPTIC FABRY-PEROT ULTRASOUND SENSOR FORMED BY HOLLOW-CORE PHOTONIC-CRYSTAL FIBER** Y.-J. Rao[1,2], W. Wang[1,2], T. Zhu[1,2], and D. Duan[1] [1]*Chongqing University, CHINA and* [2]*University of Electronic Science & Technology of China, CHINA*	**B2L-C5** **FATIGUE ANALYSIS OF OUT-OF-PLANE VIBRATION POLYSILICON CANTILEVER BEAM UNDER HIGH-CYCLE VIBRATION LOADS** L.L. Chen, J. Song, Q.-A. Huang, and J.-Y. Tang *Southeast University, CHINA*	**B2L-D5** **NOVEL MINIATURIZED ANTENNAS FOR RFID-ENABLED SENSORS** A. Traille, L. Yang, A. Rida, and M. Tentzeris *Georgia Institute of Technology, USA*
10:15			
B2L-A6 **A BIO-THERMOCHEMICAL SENSOR OF MICROBOLOMETER IMMOBILIZED LIPOSOME FOR DETECTION OF CAUSATIVE PROTEIN OF ALZHEIMER'S DISEASE, AMYLOID BETA** M. Noda[1], T. Asai[1], T. Shimanouchi[2], K. Yamashita[1], H. Umakoshi[2], M. Okuyama[2], and R. Kuboi[2] [1]*Kyoto Institute of Technology, JAPAN and* [2]*Osaka University, JAPAN*	**B2L-B6** **NOVEL IN-LINE FIBER-OPTIC FABRY-PEROT SENSORS BASED ON ETCHED ERBIUM- AND BORON-DOPED OPTICAL FIBERS** Y.-J. Rao, B. Xu, Z.-L. Ran, and Y. Gong *University of Electronic Science & Technology of China, CHINA*	**B2L-C6** **REAL-TIME MONITORING OF THE FATIGUE DAMAGE ACCUMULATION IN POLYSILICON MICROSTRUCTURES AT DIFFERENT APPLIED STRESSES** G. Langfelder[1], A. Longoni[1], F. Zaraga[1], A. Corigliano[1], A. Ghisi[1], and A. Merassi[2] [1]*Politecnico di Milano, ITALY and* [2]*ST Microelectronics, ITALY*	**B2L-D6** **ANTENNA IMPEDANCE MATCHING FOR MAXIMUM POWER TRANSFER IN WIRELESS SENSOR NETWORKS** T.S. Bird, N. Rypkema, and K.W. Smart *CSIRO ICT Centre, AUSTRALIA*

10:30 BREAK & EXHIBIT INSPECTION

SESSION B3L-A (Bio)-Medical Sensors	SESSION B3L-B Mechanical Sensors	SESSION B3L-C Electromagnetic Sensing	SESSION B3L-D WSN: Performance, Optimization & Applications
A. Lloyd Spetz, *Linköping University, SWEDEN* S. O'Keeffe, *University of Limerick, IRELAND*	G. Fedder, *Carnegie Mellon University, USA* J. Goosen, *Delft University of Technology, THE NETHERLANDS*	P. Ripka, *Czech Technical University* in Prague, CZECH REPUBLIC T. Sun, *City University London, UK*	C. Alippi, *Politecnico di Milano, ITALY* A. Bossche, *Delft University of Technology, THE NETHERLANDS*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
11:00			
B3L-A1 **A FUSED pH AND FLUORESCENCE SENSOR USING THE SAME SENSING AREA** H. Nakazawa[1], H. Ishii[1], M. Ishida[1,2], and K. Sawada[1,2] [1]*Toyohashi University of Technology, JAPAN and* [2]*Japan Science and Technology Center, JAPAN*	**B3L-B1** **ULTRATHIN FLEXIBLE NANOCOMPOSITE MEMBRANES AS MINIATURE PRESSURE SENSORS** V.V. Tsukruk and M. McConney *Georgia Institute of Technology, USA*	**B3L-C1** **AN INHERENTLY-ROBUST 300°C MEMS TEMPERATURE SENSOR FOR WIRELESS HEALTH MONITORING OF BALL AND ROLLING ELEMENT BEARINGS** S. Scott, F. Sadeghi, and D. Peroulis *Purdue University, USA*	**B3L-D1** **REVIEW OF PLATFORMS AND SECURITY PROTOCOLS SUITABLE FOR WIRELESS SENSOR NETWORKS** S. Möller[1], T. Newe[1], and S. Lochmann[2] [1]*University of Limerick, IRELAND and* [2]*Hochschule Wismar, GERMANY*
11:15			
B3L-A2 **AUTOMATIC PROCESSING OF SOLUTIONS FOR CHEMICAL ANALYSES USING AN ELECTROWETTING-BASED VALVE AND AN INTEGRATED CELL** P. Siribunbandal[1], S. Yamaguchi[2], J. Fukuda[2], and H. Suzuki[2] [1]*Thammasat University, THAILAND and* [2]*University of Tsukuba, JAPAN*	**B3L-B2** **A VERY LOW-COST, 3-AXIS, MEMS ACCELEROMETER FOR CONSUMER APPLICATIONS** D. Hollocher, X. Zhang, A. Sparks, S. Bart, W. Sawyer, P. Narayanasamy, C. Pipitone, J. Memishian, H. Samuels, S.-L. Ng, R. Mhatre, D. Whitley, F. Sammoura, M. Bhagavat, C. Tsau, K. Nunan, M. Judy, M. Farrington, and K. Yang *Analog Devices, Inc., USA*	**B3L-C2** **VERSATILE WIRELESS SACRIFICIAL TRANSDUCERS FOR ELECTRONIC STRUCTURAL SURVEILLANCE SENSORS** P. Pasupathy, S. Munukutla, D.P. Neikirk, and S.L. Wood *University of Texas, USA*	**B3L-D2** **LOCALIZATION IN WIRELESS SENSOR NETWORKS** G. Gaderer, P. Loschmidt, A. Nagy, R. Exel, and T. Sauter *Austrian Academy of Sciences, AUSTRIA*

SESSION B3L-A *(continued)*	SESSION B3L-B *(continued)*	SESSION B3L-C *(continued)*	SESSION B3L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
	11:30		
B3L-A3 **ADVANCED DIASCOPIC ILLUMINATION TECHNIQUE FOR MULTI-WAVELENGTH FLUORESCENCE DETECTION IN CAPILLARY ELECTROPHORESIS SYSTEM** S.-W. Lin[1], C.-H. Chang[1], and C.-H. Lin[2] [1]*National Cheng Kung University, TAIWAN and* [2]*National Sun Yat-sen University, TAIWAN*	**B3L-B3** **SLIPPAGE AND DIRECTION SENSING BASED ON A FLEXIBLE TACTILE SENSOR WITH STRUCTURAL ELECTRODES** C.-H. Chuang[1], C.-T. Lu[1], and T.-H. Fang[2] [1]*Southern Taiwan University, TAIWAN and* [2]*National Formosa University, TAIWAN*	**B3L-C3** **TIMBER CHARACTERIZATION USING A NON-INVASIVE TDR SENSOR** M. Hagedorn, I.G. Platt, and I.M. Woodhead *Lincoln Ventures Ltd, NEW ZEALAND*	**B3L-D3** **INTEGRATING MOBILE TELEPHONE BASED SENSOR NETWORKS INTO THE SENSOR WEB** J. Clarke[1], J. Lethbridge[1], R.P. Liu[2], and A. Terhorst[2] [1]*CSIRO, AUSTRALIA and* [2]*University of Tasmania, AUSTRALIA*
	11:45		
B3L-A4 **DNA-PROGRAMMED INTEGRATED PROTEIN-NANOELECTRONIC TRANSDUCER ARRAY** J.H. Kim[1], G. Withey[2], and J. Xu[1,3] [1]*Brown University, USA,* [2]*Affymetrix Inc., USA, and* [3]*Seoul National University, KOREA*	**B3L-B4** **M&NEMS: A NEW APPROACH FOR ULTRA-LOW COST 3D INERTIAL SENSOR** Ph. Robert, V. Nguyen, S. Hentz, L. Duraffourg, G. Jourdan, J. Arcamone, and S. Harrisson *CEA-LETI, FRANCE*	**B3L-C4** **HIGH SENSITIVITY SLIP SENSOR USING PRESSURE CONDUCTIVE RUBBER** S. Teshigawara[1], S. Shimizu[1], K. Tadakuma[1], M. Aiguo[1], M. Ishikawa[2], and M. Shimojo[1] [1]*University of Electro-Communications, JAPAN and* [2]*University of Tokyo, JAPAN*	**B3L-D4** **OBJECT-CENTRIC THERMAL MAPPING: A WIRELESS SENSOR NETWORK PERSPECTIVE** N. Yamani and A. Al-Anbuky *Auckland University of Technology, NEW ZEALAND*
	12:00		
B3L-A5 **A NOVEL HYBRID BIOELECTRODE MODULE FOR THE ZERO-PREP EEG MEASUREMENTS** L.-D. Liao, P.C.-P. Chao, Y.-H. Chen, C.-T. Lin, L.-W. Ko, H.-H. Lin, and W.-H. Hsu *National Chiao-Tung University, TAIWAN*	**B3L-B5** **VERTICAL CONTACT POSITION DETECTION AND GRASPING FORCE MONITORING FOR MICRO-GRIPPER APPLICATIONS** M. Porta, J. Wei, M. Tichem, P.M. Sarro, and U. Staufer *Delft University of Technology, THE NETHERLANDS*	**B3L-C5** **RESONANT MEMS MAGNETOMETER WITH CAPACITIVE READ-OUT** M.J. Thompson and D.A. Horsley *University of California, Davis, USA*	**B3L-D5** **ACQUISITION, ANALYSIS AND DISTRIBUTION OF REAL-TIME MULTI-SENSOR SATELLITE DATA, IN A HIGH PERFORMANCE COMPUTING ENVIRONMENT, FOR DISASTER MITIGATION APPLICATIONS: CASE STUDIES FROM THE NATO SCIENCE FOR PEACE FUNDED KAMAL EWIDA EARTH OBSERVATORY IN EGYPT, THE ELECTRONIC GEOPHYSICAL YEAR (eGY)-AFRICA AND THE US GEOLOGICAL SURVEY SUPPORTED AMERICAVIEW** G.L. Rochon[1], B. Araya[1], L.L. Biehl[1], D. Grant[1], O. Ersoy[1], J. Quansah[1], G. Altay[2], M.M.A. Wahab[3], G.S. El Afandi[4], T. El Ghazawi[5], M. A. Mohamed[6], M. Shokr[7] and H. Sithole[8] [1]*Purdue University, USA,* [2]*Boğaziçi University, TURKEY,* [3]*Cairo University, EGYPT,* [4]*Azhar University, EGYPT,* [5]*George Washington University, USA,* [6]*United Nations Department of Peacekeeping Operations (DPKO), CHAD,* [7]*Data Assimilation & Satellite Meteorology Research, CANADA, and* [8]*Center for High Performance Computing (CHPC), SOUTH AFRICA*

SESSION B3L-A *(continued)*	SESSION B3L-B *(continued)*	SESSION B3L-C *(continued)*	SESSION B3L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
12:15			
B3L-A6 **IMPEDANCE SENSING OF BLADDER CANCER CELLS BASED ON A SINGLE-CELL-BASED DEP MICROCHIP** C.H. Chuang[1], Y.M. Hsu[1], H.S. Huang[2], C.H. Wei[1], and F.B. Hsiao[2] [1]*Southern Taiwan University, TAIWAN and* [2]*National Cheng Kung University, TAIWAN*	**B3L-B6** **MICRO-G SILICON ACCELEROMETER USING SURFACE ELECTRODES** R.G. Walmsley, L.K. Kiyama, D.M. Milligan, R.L. Alley, D.L. Erickson, and P.G. Hartwell *Hewlett-Packard Company, USA*	**B3L-C6** **FIELD DEPENDENCE OF MAGNETO-MECHANICAL DAMPING IN MAGNETOSTRICTIVE MATERIAL FOR MAGNETIC FIELD SENSING** L.X. Bian, Y.M. Wen, and P. Li *Chongqing University, CHINA*	**B3L-D6** **INTRUSION DETECTION IN SENSOR NETWORKS BASED ON MEASUREMENTS** L. Reznik[1], B.K. Bitemirov[1], and M. Negnevitsky[2] [1]*Rochester Institute of Technology, USA, and* [2]*University of Tasmania, AUSTRALIA*
12:30	**LUNCH & EXHIBIT INSPECTION**		

Tuesday Posters

14:00 - 16:00 **POSTER SESSION B4P-2**
M. Cole, *University of Warwick, UK*
Z. Wang, *Tsinghua University, CHINA*

POSTER SESSION - Phenomena, Modeling & Evaluation II

B4P-E01 **EXPERIMENTAL STUDY ON THE DIELECTROSTRICTION OF SiO2 WITH A MICRO-FABRICATED CANTILEVER**
J.-Q. Huang[1], Q.-A. Huang[1], M. Qin[1], W.-J Dong[2], and X.-W. Chen[2]
[1]*Southeast University, CHINA and* [2]*Dalian University of Technology, CHINA*

B4P-E02 **DEVELOPMENT AND EXPERIMENTAL VERIFICATION OF ANALYTICAL MODELS FOR PRINTABLE INTERDIGITAL CAPACITOR SENSORS ON PAPERBOARD**
Y. Feng[1], J. Hällstedt[1], Q. Chen[1], Y.P. Huang[2], and L.-R. Zheng[1]
[1]*Royal Institute of Technology (KTH), SWEDEN and* [2]*Fudan University, CHINA*

B4P-E03 **GAS AMBIENT DEPENDENCE OF QUALITY FACTOR IN MEMS RESONATORS**
Q. Li[1,2], J.F.L. Goosen[1], J.T.M van Beek[3], and F. van Keulen[2]
[1]*Materials Innovation Institute M2i, THE NETHERLANDS,*
[2]*Delft University of Technology, THE NETHERLANDS, and*
[3]*NXP Semiconductors, THE NETHERLANDS*

B4P-E04 **DESIGN OF MUTUALLY INTERACTING MULTI-DIRECTIONAL TRANSDUCER CONFIGURATIONS ON A SURFACE ACOUSTIC WAVE DEVICE FOR ENHANCED BIOSENSING**
R. Singh and V.R. Bhethanabotla
University of South Florida, USA

B4P-E05 **PIEZORESISTIVE AND THERMOELECTRIC EFFECTS OF CNT THIN FILM PATTERNED BY EB LITHOGRAPHY**
V.T. Dau[1], T. Yamada[2], D.V. Dao[1], B.T. Tung[1], K. Hata[2], and S. Sugiyama[1]
[1]*Ritsumeikan University, JAPAN and*
[2]*National Institute of Advanced Industrial Science and Technology, JAPAN*

B4P-E06 **IMPACT OF SACRIFICIAL LAYER TYPE ON THIN FILM METAL RESIDUAL STRESS**
A. Garg, J. Small, X. Liu, A.K. Mahapatro, and D. Peroulis
Purdue University, USA

B4P-E07 **EVALUATION OF MICROELECTROMECHANICAL DEVICES FOR DC AND RF VOLTAGE MEASUREMENTS**
J. Dittmer[1], R. Judaschke[1], and S. Büttgenbach[2]
[1]*Physikalisch-Technische Bundesanstalt, GERMANY and*
[2]*Technische Universität, Braunschweig, GERMANY*

B4P-E08 **A NOVEL THREE DIMENSIONAL FLUID-STRUCTURE INTERACTION FINITE ELEMENT MODEL OF WAVE PROPAGATION IN SAW DEVICE: APPLICATION TO BIOSENSING & MICROFLUIDICS**
R. Singh[1], S.K.R.S. Sankaranarayanan[2], and V.R. Bhethanabotla[1]
[1]*University of South Florida, USA and* [2]*Harvard University, USA*

B4P-E09 **SENSITIVITY ANALYSIS OF A LFE ACOUSTIC WAVE GAS SENSOR WITH FINITE ELEMENT METHOD**
Y.-Y. Chen and C.-C. Liu
Tatung University, TAIWAN

B4P-E10 **FERROFLUIDS FOR A NOVEL APPROACH TO THE MEASUREMENT OF VELOCITY PROFILES AND SHEAR STRESSES IN BOUNDARY LAYERS**
B. Andò, S. Baglio, C. Trigona, and C. Faraci
DIEES - University of Catania, ITALY

B4P-E11 **THREE DIMENSIONAL FINITE ELEMENT MODELING AND SIMULATION OF QUASI-SHEAR MODE RESONATOR BASED ON C-AXIS-TITLED ZnO FILM**
C.-J. Cheng and M.Z. Atashbar
Western Michigan University, USA

POSTER SESSION - Chemical & Gas Sensors II

B4P-F01 **ETHANOL VAPOR SENSORS BASED ON CARBOXYL- ALKANETHIOLATE SELF-ASSEMBLED MONOLAYERS MODIFIED AU/GaAs SCHOTTKY DIODES**
P.-J. Lin[1], Y.-I. Chou[2], W.-C. Liu[1], C.-C. Tung[1], and H.-I. Chen[1]
[1]*National Cheng Kung University, TAIWAN and* [2]*Industrial Technology Research Institute, TAIWAN*

B4P-F02 **MICRO GAS CHROMATOGRAPH FOR HARSH REFINERY GAS ENVIRONMENT: MICROVALVES BASED ON PEEK MEMBRANES**
K. Nachef[1,2], S. Bourlon[1], F. Marty[2], K. Danaie[1], P. Guieze[1], E. Donzier[1], and T. Bourouina[2]
[1]*MEMS Schlumberger Center, FRANCE and* [2]*Universite Paris, FRANCE*

B4P-F03 **A COMPARISON OF FABRICATION METHODS FOR IRIDIUM OXIDE REFERENCE ELECTRODES**
R. Franklin[1], S. Negi[2], F. Solzbacher2, R.B. Brown[2], and S. Joo[3]
[1]*University of Michigan, USA,* [2]*University of Utah, USA, and* [3]*Seoul National University, KOREA*

B4P-F04 **DISCRIMINATION EFFECTS IN ZEOLITE MODIFIED METAL OXIDE SEMICONDUCTOR GAS SENSORS**
R. Binions[1], A. Afonja[1], S. Dungey[1], D.W. Lewis[1], I.P. Parkin[1], and D.E. Williams[2]
[1]*University College London, UK and* [2]*University of Auckland, NEW ZEALAND*

POSTER SESSION - Chemical & Gas Sensors II *(continued)*

B4P-F05 **DEMONSTRATION OF FREE SPACE TRANSMISSION FROM A THz QUANTUM CASCADE LASER TO A QUANTUM WELL DETECTOR**
P.D. Grant, R. Dudek, S. Laframboise, M. Graf, Z.R. Wasilewski, and H.C. Liu
National Research Council of Canada, CANADA

B4P-F06 **DEVELOPMENT OF LOW-COST OZONE AND NITROGEN DIOXIDE MEASUREMENT INSTRUMENTS SUITABLE FOR USE IN AN AIR QUALITY MONITORING NETWORK**
D.E. Williams[1], G.S. Henshaw[2], D.B. Wells[2], G. Ding[2], J. Wagner[2], Y.-F. Yung[1], J. Akaji[1], J. Salmond[1], G. Laing[2], B. Wright[1], and J. Wilson[1]
[1]*University of Auckland, NEW ZEALAND and* [2]*Aeroqual Ltd, NEW ZEALAND*

B4P-F07 **RELATIVE AIR HUMIDITY SENSING ELEMENT BASED ON A MICROMACHINED FLOATING POLYSILICON RESISTOR**
P. Zambrozi Jr., F.L. Della Lucia, and F. Fruett
University of Campinas, BRAZIL

B4P-F08 **EFFECTS OF VARIOUS SURFACE MODIFICATIONS ON GAS SENSING CHARACTERISTICS OF MWCNT/POLYANILINE COMPOSITE FILMS**
M.J. Lee[1], K.-P. Yoo[1], C.-W. Park[2], K.-H. Kwon[1], and N.-K. Min[1]
[1]*Korea University, KOREA and* [2]*KangWon University, KOREA*

B4P-F09 **EXTENDED BASE H+-ION SENSITIVE BIPOLAR JUNCTION TRANSISTOR WITH SnO2/ITO GLASS SENSING MEMBRANE**
C.-Y. Chen, H.-L. Hsieh, T.-P. Sun, C.T.-S. Ching, and P.-L. Liu
National Chi Nan University, TAIWAN

B4P-F10 **SELECTION OF OPTIMAL SENSOR/TEMPERATURE CONDITIONS FOR WINEGRAPE ANALYSIS USING GENERALIZED ADDITIVE MODELING OF THERMALLY CYCLED METAL OXIDE SENSORS**
A.Z. Berna, D. Clifford, P. Boss, and S. Trowell
Commonwealth Scientific and Industrial Research Organization, AUSTRALIA

B4P-F11 **HIGHLY SENSITIVE NO2 DETECTION OF ZnO NANORODS GROWN BY SONOCHEMICAL PROCESS**
J. Park, J.-Y. Oh, and S.-Y. Kang
Electronics and Telecommunications Research Institute (ETRI), KOREA

B4P-F12 **SENSITIVITY IMPROVEMENTS OF HfXWYOZ SENSING MEMBRANES FOR pK SENSORS BASED ON ELECTROLYTE-INSULATOR-SEMICONDUCTOR STRUCTURE**
W.-Y. Chuang[1], T.-F. Lu[1], C.-M. Yang[2], and C.-S. Lai[1]
[1]*Chang Gung University, TAIWAN and* [2]*Intotera Memories, Inc, TAIWAN*

B4P-F13 **SODIUM AND POTASSIUM ION SENSING PROPERTIES OF EIS AND ISFET STRUCTURES WITH FLUORINATED HAFNIUM OXIDE SENSING FILM**
K.-I. Ho[1], T.-F. Lu[1], C.-P. Chang[1], C.-M. Yang[2], and C.-S. Lai[1]
[1]*Chang Gung University, TAIWAN and* [2]*Intotera Memories, Inc, TAIWAN*

B4P-F14 **BI-LAYERED SENSOR STRUCTURES (SnO2 FILM-CuO NANOLAYER) WITH IMPROVED RESPONSE CHARACTERISTICS FOR H2S GAS**
M. Verma, A. Chowdhuri, K. Sreenivas, and V. Gupta
University of Delhi, INDIA

B4P-F15 **APPLICATION OF TRIS(2-2'-BIPYRIDYL)RUTHENIUM(II)-NAFION-ORMOSIL-MODIFIED ELECTRODE IN SELECTIVE SENSING OF DOPAMINE**
D.S. Chauhan and P.C. Pandey
Banaras Hindu University, INDIA

B4P-F16 **A COMPARATIVE STUDY ON ELECTROCHEMICAL SYNTHESIS OF CARBOXYLIC ACID SUBSTITUTED INDOLES AND THEIR APPLICATION IN SELECTIVE OXIDATION OF DOPAMINE**
V. Singh, D.S. Chauhan, and P.C. Pandey
Banaras Hindu University, INDIA

B4P-F17 **KULLBACK-LEIBLER DISTANCE OPTIMIZATION FOR ARTIFICIAL CHEMO-SENSORS**
A. Vergara, M.K. Muezzinoglu, N. Rulkov, and R. Huerta
University of California, San Diego, USA

B4P-F18 **FABRICATION OF CONDUCTING POLYMER NANOWIRE SENSOR ARRAY**
W. Choi, T. An, and G. Lim
Pohang University of Science and Technology (POSTECH), KOREA

B4P-F19 **MULTI-COUPLING GAP SYSTEM MODELING FOR METHANE DETECTION USING HOLLOW-CORE PHOTONIC BANDGAP FIBERS**
A.M. Cubillas[1], J.M. Lazaro[1], O.M. Conde[1], M.N. Petrovich[2], F. Madruga[1], and J.M. Lopez-Higuera[1]
[1]*University of Cantabria, SPAIN and* [2]*University of Southampton, UK*

POSTER SESSION - Biosensors II

B4P-G01 **AN AMPEROMETRIC IMMUNOSENSOR BASED ON CARBON NANOTUBE EMBEDED CONDUCTING POLYMER**
Y. Zhu, S.-C. Chang, D.-S. Park, and Y.-B. Shim
Pusan National University, KOREA

B4P-G02 **INVESTIGATION OF IN-VITRO BACTERIAL SURFACE LAYER FORMATION BY FBARs**
M. Mertig[1], A. Blüher[1], C. Erler[1], B. Katzschner[1], W. Pompe[1], M. Nirschl[2], and M. Schreiter[2]
[1]*Dresden University of Technology, GERMANY and* [2]*Siemens AG, GERMANY*

POSTER SESSION - Biosensors II *(continued)*

B4P-G03 **UNIFORM MAGNETIC MOBILITY IN A CURVED MAGNETOPHORETIC CHANNEL**
J. Kim[1], J. Park[1], M. Müller[1], H.-H. Lee[1], and H. Seidel[2]
[1]*Korea Institute of Science and Technology (KIST) - Europe, GERMANY and*
[2]*University of Saarland, GERMANY*

B4P-G04 **FABRICATION AND EXPERIMENTAL VERIFICATION OF A DIELECTROPHORETIC SEPARATION DEVICE**
L. Zhang, J. Bastemeijer, J.R. Mollinger, and A. Bossche
Delft University of Technology, THE NETHERLANDS

B4P-G05 **A FULLY-INTEGRATED RF LC TRANSPONDER PLATFORM FOR IMPLANTABLE WIRELESS SENSOR APPLICATIONS**
S.-H. Cho and J.-B. Lee
University of Texas, USA USA

B4P-G06 **CARBON NANOTUBE BASED ELECTROCHEMICAL IMMUNOSENSORS FOR HIGH-SENSITIVE DETECTION OF E. COLI**
J.-Y. Lee, E.-J. Park, C.-J. Lee, M.J. Kim, S.-W. Kim, S.-I. Hong, J.J. Pak, and N.-K. Min
Korea University, KOREA

B4P-G07 **DEVELOPMENT OF TRANSPARENT BIOCHIP PLATFORM FOR PATCH CLAMP TECHNOLOGY**
H.-K. Ken, S.-H. Kuo, J.-J. Li, C.-Y. Chen, and C.-H. Luo
National Cheng Kung University, TAIWAN

B4P-G08 **SURFACE MODIFICATION AND IMMUNOASSYS ON COC, CROSS-FLOW MICROFLUID CHANNELS AND FRET MOLECULES**
Y.J. Kim, K.H. Chung, W.I. Jang, H.-Y. Kim, M.Y. Jung, and S.H. Park
Electronics and Telecommunications Research Institute (ETRI), KOREA

B4P-G09 **DESIGN AND FABRICATION OF A HOLLOW MICRO-DISK MASS SENSOR**
L. Zhao[1], J. Jiao[1], Y. Zhang[1], B. Mi[1], J. Gu[1], P. Zhou[1], and X. Zhang[2]
[1]*Shanghai Institute of Microsystem and Information Technology, CHINA and*
[2]*University of Shanghai for Science and Technology, CHINA*

B4P-G10 **HOMOGENEOUS ELECTROGENERATED CHEMILUMINESCENCE BIOSENSING FOR THE DETERMINATION OF THROMBIN**
Y. Zhang, H.L Qi, and C.X. Zhang
Shaanxi Normal University, CHINA

B4P-G11 **DEVELOPMENT OF A DIRECT DETECTION METHOD FOR ALEXANDRIUM SPP. USING SURFACE PLASMON RESONANCE AND PEPTIDE NUCLEIC ACID PROBES**
A.R. Bratcher, L.B. Connell, R.L. Smith
University of Maine, USA

B4P-G12 **ELECTROCHEMICAL BIOSENSOR FOR INVESTIGATION OF ANTICANCER DRUGS INTERACTIONS (DOXORUBICIN AND ELLIPTICINE) WITH DNA**
L. Trnkova[1], D. Huska[2], T. Eckschlager[3], M. Stiborova[3], V. Adam[2], J. Hubalek[4], and R. Kizek[2]
[1]*Masaryk University, Brno, CZECH REP.,* [2]*Mendel University, Brno, CZECH REP.,*
[3]*Charles University, Prague, CZECH REP., and* [4]*University of Technology, Brno, CZECH REP.*

B4P-G13 **MULTIPLEXED DETECTION FOR BIOMOLECULES TAGGED TO MAGNETIC NANOPARTICLES USING A MINIATURIZED AC MAGNETIC SUSCEPTOMETER**
K. Park, S. Sonkusale, R.P. Guertin, T. Harrah, and E.B. Goldberg
Tufts University, USA

B4P-G14 **NANOFILMS FOR UNIVERSAL COATINGS FOR BIOSENSORS**
J. Park and M. McShane
Texas A&M University, USA

B4P-G15 **IMPEDANCE BASED ELECTROCHEMICAL BIOSENSORS**
B.B. Narakathu, B.E. Bejcek, and M.Z. Atashbar
Western Michigan University, USA

B4P-G16 **NATURAL CONVECTION PCR IN A DISPOSABLE POLYMER CHIP**
K.H. Chung, Y.H. Choi, and M.Y. Jung
Electronics and Telecommunications Research Institute (ETRI), KOREA

B4P-G17 **OPTIMIZATION OF NANOSTRUCTURED METAL LAYERS FOR DNA HYBRIDIZATION MONITORING IN A SPR-i EXPERIMENT**
M.G. Manera[1], R. Rella[1], J. Spadavecchia[2], J. Moreau[2], M. Canva[2], and A. Savchenko[3]
[1]*Consiglio Nazionale delle Ricerche (CNR), ITALY,* [2]*University of Paris, FRANCE, and*
[3]*National Academy of Sciences, Kyiv, UKRAINE*

B4P-G18 **MICROMACHINED ULTRASONIC TRANSDUCER USING PIEZOELECTRIC PVDF FILM TO MEASURE THE MECHANICAL PROPERTIES OF BIO CELLS**
M. Jung, M.G. Kim, and J.-H. Lee
Gwangju Institute of Science and Technology (GIST), KOREA

POSTER SESSION - Optical Sensors II

B4P-H01 **SIMULTANEOUS MEASUREMENT OF STRAIN AND TEMPERATURE USING TYPE I AND PRE-STRAINED FIBER BRAGG GRATINGS**
R. Aashia and S. Asokan
Indian Institute of Science, INDIA

POSTER SESSION - Optical Sensors II *(continued)*

B4P-H02 **FUNDAMENTAL STUDY OF OPTICAL PROBE CURRENT SENSOR USING KERR EFFECT OF SINGLE MAGNETIC DOMAIN FILM**
M. Sonehara[1], K. Asanuma[2], N. Otani[1], T. Goto[1], Y. Kikuchi[1], T. Sato[1], K. Yamasawa[1], and Y. Miura[1]
[1]*Shinshu University, JAPAN and* [2]*Nagano Prefectural Institute of Technology, JAPAN*

B4P-H03 **CVD DIAMOND X-RAY DETECTORS FOR RADIOTHERAPY DOSIMETRY**
S.P. Lansley[1], G.T. Betzel[1], F. Baluti[2], L. Reinisch[3], and J. Meyer[1]
[1]*University of Canterbury, NEW ZEALAND,* [2]*Christchurch Hospital, NEW ZEALAND, and* [3]*Jacksonville State University, USA*

B4P-H04 **A SCINTILLATING FIBER-OPTIC DOSIMETER FOR Co-60 RADIOTHERAPY**
K.W. Jang[1], D.H. Cho[1], W.J. Yoo[1], J.K. Seo[1], J.Y. Heo[1], B. Lee[1], J.H. Moon[2], B.G. Park[3], and S. Kim[4]
[1]*Konkuk University, KOREA,* [2]*Dongguk University, KOREA,* [3]*Soonchunhyang University, KOREA, and* [4]*Cheju National Univversity, KOREA*

B4P-H05 **VISUALIZATION AND MEASUREMENT OF DISSOLVED OXYGEN CONCENTRATIONS IN HYDRODYNAMIC FLOW FOCUSING**
V. Nock and R.J. Blaikie
University of Canterbury, NEW ZEALAND

B4P-H06 **FABRICATION, CHARACTERIZATION AND MODELING OF PVDF BASED ORGANIC IR-SENSORS FOR HUMAN BODY RECOGNITION**
G. Scheipl[1], M. Zirkl[1], B. Stadlober[1], J. Groten[1], G. Jakopic[1], J.R. Krenn[1], A. Sawatdee[2], P. Bodö[2], and P. Andersson[2]
[1]*Institute of Nanostructured Materials and Photonics, AUSTRIA and* [2]*Acreo AB, SWEDEN*

B4P-H07 **IMPROVED SPECTRAL TAG METHOD FOR FBG SENSOR MULTIPLEXING WITH EQUALLY SPACED SPECTRAL CODES AND SIMULATED ANNEALING ALGORITHM**
K.-S. Choi[1], J. Youn[1], E. You[1], J.A. Yoon[1], G.-A. Kim[1], S.-J. Baik[1], K.T. Kim[2], S.-H. Jeong[3], and K. Im[1]
[1]*Chonnam National University, KOREA,* [2]*Honam University, KOREA, and* [3]*Orion Communication Co., Ltd., KOREA*

B4P-H08 **DEVELOPMENT OF AN OPTICAL BIOSENSOR DEVICE BASED ON GRATING-ASSISTED GUIDED HYBRID-MODE EXCITATION**
B. Menges[1], H. Halberstadt[1], and U. Langbein[2]
[1]*Max Planck Institute for Polymer Research, GERMANY and* [2]*University of Applied Sciences, GERMANY*

B4P-H09 **SnO2 NANOWIRES FOR OPTICAL AND OPTOELECTRONIC GAS SENSING**
S. Todros, C. Baratto, E. Comini, G. Faglia, M. Ferroni, and G. Sberveglieri
University of Brescia, ITALY

B4P-H10 **ADVANCED NANOCRYSTALLINE ZrO2 FOR OPTICAL OXYGEN SENSORS**
J.D. Fidelus[1], D. Millers[2], K. Smits[2], L. Grigorjeva[2], and W. Łojkowski[1]
[1]*Polish Academy of Sciences, POLAND and* [2]*Institute of Solid State Physics, LATVIA*

B4P-H11 **MULTI-CHANNEL TURBIDITY DETECTION OF SHRIMP VIRUS BY LOOP-MEDIATED ISOTHERMAL AMPLIFICATION REACTION**
A. Sappat[1], W. Jaroenram[2], S. Mongpraneet[1], W. Kiatpathomchai[2,3], T. Lomas[1], and A. Tuantranont[1]
[1]*National Electronics and Computer Technology Center, THAILAND,*
[2]*Mahidol University, THAILAND, and*
[3]*National Center for Genetic Engineering and Biotechnology, THAILAND*

B4P-H12 **DETECTION OF TSUNAMI WAVE GENERATION AND PROPAGATION USING FIBER BRAGG GRATING SENSORS**
A.S Guru Prasad[1], R. Tatavarti[2], and S. Asokan[1]
[1]*Indian Institute of Science, INDIA and* [2]*VIT University, INDIA*

POSTER SESSION - Mechanical Sensors II

B4P-J01 **A LATCHING ACCELERATION SWITCH WITH CYLINDRICAL CONTACTS INDEPENDENT TO THE PROOF-MASS**
Z.Y. Guo, Z.C. Yang, L.T. Lin, Q.C. Zhao, H.T. Ding, X.S. Liu, X.Z. Chi, J. Cui, and G.Z. Yan
Peking University, CHINA

B4P-J02 **SENSITIVE IN PLANE MOTION DETECTION OF NEMS THROUGH SEMICONDUCTING (p+) PIEZORESISTIVE GAUGE TRANSDUCERS**
E. Mile, G. Jourdan, L. Duraffourg, S. Labarthe, C. Marcoux, D. Mercier, P. Robert, and P. Andreucci
CEA-LETI-MINATEC, FRANCE

B4P-J03 **SMART-CUT™ PIEZORESISTIVE STRAIN SENSORS FOR HIGH TEMPERATURE APPLICATIONS**
H.I. Kuo and W.H. Ko
Case Western Reserve University, USA

B4P-J04 **HIGH FERROUS SHIELDING RATIO FOR MAGNETIC PROXIMITY SWITCH APPLICATIONS**
M. Neumayer and H. Zangl
Graz University of Technology, AUSTRIA

B4P-J05 **TACTILE SENSOR USING GELLED POLY-URETHANE ULTRATHIN FILM**
M. Suzuki, Y. Ikejiri, T. Fukutani, and S. Aoyagi
Kansai University, JAPAN

B4P-J06 **PMMA HIGH SENSITIVE CAPACITIVE MICRO ACCELEROMETER FABRICATED BASED ON HOT EMBOSSING**
S. Amaya, D.V. Dao, and S. Sugiyama
Ritsumeikan University, JAPAN

POSTER SESSION - Mechanical Sensors II *(continued)*

B4P-J07 **ULTRA MINIATURE NOVEL THREE-AXIS MICRO ACCELEROMETER**
R. Amarasinghe, D.V. Dao, V.T. Dau, and S. Sugiyama
Ritsumeikan University, JAPAN

POSTER SESSION - Physical Sensors II

B4P-K01 **DETECTING THE MAGNETIC FIELD DIRECTION BY A CANTILEVER OPERATING IN DIFFERENT VIBRATION MODES**
J. Chen, Q. Huang, and M. Qin
Southeast University, CHINA

B4P-K02 **A SURFACE-MICROMACHINED MEMS ACOUSTIC SENSOR WITH X-SHAPE BOTTOM ELECTRODE ANCHOR**
J. Lee, S.C. Ko, C.H. Je, M.L. Lee, C.A. Choi, Y.S. Yang, S. Heo, and J. Kim
Electronics and Telecommunication Research Institute (ETRI), KOREA

B4P-K03 **BULK DISK RESONATOR BASED ULTRASENSITIVE MASS SENSOR**
A. Cagliani and Z.J. Davis
Technical University of Denmark, DENMARK

B4P-K04 **A MICROMACHINED RESONANT PRESSURE SENSOR WITH DETF RESONATOR AND DIFFERENTIAL STRUCTURE**
J. Wang, D. Chen, L. Liu, and Z. Wu
Chinese Academy of Sciences, CHINA

B4P-K05 **A NOVEL THERMAL TRANSDUCTION METHOD FOR SUB-mW FLOW SENSORS**
S. Ćerimović[1], A. Talić[1], T. Sauter[1], F. Kohl1, R. Beigelbeck[1], J. Schalko[2], and A. Jachimowicz[2]
[1]*Austrian Academy of Sciences, AUSTRIA and* [2]*Vienna University of Technology, AUSTRIA*

B4P-K06 **EXPERIMENTAL COMPARISON OF PIEZORESISTIVE MEMS AND FIBER BRAGG GRATING STRAIN SENSORS**
J. Rausch, P. Heinickel, B. Koegel, K. Zogal, P. Meissner, and R. Werthschuetzky
University of Techology Darmstadt, GERMANY

B4P-K07 **NANOSTRUCTURED NEUTRON DETECTORS WITH ON CHIP INTEGRATED CIRCUITS FOR SPACE FLIGHT MONITORING**
S. Pellegrin, R. Waguespack, D. Harbour, S. Forrest, and C. Wilson
Louisiana Tech University, USA

POSTER SESSION - Sensor & Actuator Systems II

B4P-L01 **2D MAGNETIC FIELD MOBILE SENSING SYSTEM FOR EDDY CURRENT TESTING**
B. Silva[1], D. Pasadas[1], F. Carvalho[1], P. Agulha[1], H. Geirinhas Ramos[1,2], A. Lopes Ribeiro[1,2], O. Postolache[2], and F. Corrêa Alegria[1,2]
[1]*Instituto Superior Técnico, PORTUGAL and* [2]*Instituto de Telecomunicações, PORTUGAL*

B4P-L02 **PERFORMANCE TRADEOFFS OF INTEGRATED CMOS CHARGE AMPLIFIERS**
A.J. Lopez-Martin, M. Massarotto, and A. Carlosena
Public University of Navarra, SPAIN

B4P-L03 **A NOVEL NON-INVASIVE IMPLEMENTATION OF PUMPING MECHANISM IN PRE-EXISTING CAPILLARY**
B. Andò, S. Baglio, and A. Beninato
University of Catania, ITALY

B4P-L04 **LOW POWER CAPACITIVE HUMIDITY SENSOR READOUT IC WITH ON-CHIP TEMPERATURE SENSOR AND FULL DIGITAL OUTPUT FOR USN APPLICATIONS**
Y.C. Jo[1], T.Y. Nam[2], and K.N. Kim[1]
[1]*Korea Electronics Technology Institute (KETI), KOREA and* [2]*Korea University, KOREA*

B4P-L05 **BIOMIMETIC INSECT INFOCHEMICAL COMMUNICATION SYSTEM**
M. Cole[1], J.W. Gardner[1], Z. Rácz[1], S. Pathak[1], T.C. Pearce[2], J. Challiss[2], D. Markovic[2], B.S. Hansson[3], S. Olsson[3], L. Kübler[3], A. Guerrero[4], L. Muñoz[4], G. Carot[4], J.G.E. Gardeniers[5], N. Dimov[5], and W. Bula[5]
[1]*University of Warwick, UK,* [2]*University of Leicester, UK,* [3]*Max Planck Institute for Chemical Ecology, GERMANY,* [4]*Consejo Superior de Investigaciones Cientificas (CSIC), SPAIN, and* [5]*University of Twente, The Netherlands*

B4P-L06 **NEW GENERATION OF INTEGRATED POSITION SENSOR SYSTEMS FOR PARALLEL ROBOTIC APPLICATIONS**
C. Boese, M.R. Kirchhoff, M. Feldmann, J. Güettler, and S. Büttgenbach
Technische Universität, Braunschweig, GERMANY

B4P-L07 **A MECHANICAL FREQUENCY UP-CONVERSION METHOD FOR VIBRATION BASED ENERGY HARVESTERS**
Ö. Zorlu, E.T. Topal, and H. Külah
Middle East Technical Univeristy, TURKEY

B4P-L08 **MICROFLUIDIC ACTUATION BY DEHYDRATION OF HYDROGEL**
Y.H. Choi[1], K.H. Chung[1], and S.S. Lee[2]
[1]*Electronics and Telecommunications Research Institute (ETRI), KOREA and*
[2]*Korea Advanced Institute of Science and Technology (KAIST), KOREA*

B4P-L09 **WIRELESS SENSOR SYSTEM FOR DETECTION OF AVIAN INFLUENZA OUTBREAK FARMS AT AN EARLY STAGE**
H. Okada[1], K. Suzuki[2], K. Tsukamoto[2], and T. Itoh[1]
[1]*National Institute of Advanced Industrial Science and Technology (AIST), JAPAN and*
[2]*National Institute of Animal Health, JAPAN*

POSTER SESSION - Sensor Networks II

B4P-M01 **WITHDRAWN**

B4P-M02 **SELECTION AND OPTIMIZATION OF WIRELESS SENSORS IN A SMART DIGITAL HOME FOR THE ELDERLY**
A. Gaddam, K. Kaur, S.C. Mukhopadhyay, and G. Sen Gupta
Massey University, NEW ZEALAND

B4P-M03 **HYBRID RF MAPPING AND RANGING BASED LOCALIZATION FOR WIRELESS SENSOR NETWORKS**
B.-C. Seet[1], Q. Zhang[2], C.H. Foh[2], A.C.M. Fong[1], and A. Gonzalez[3]
[1]*Auckland University of Technology, NEW ZEALAND,*
[2]*Nanyang Technological University, SINGAPORE, and*
[3]*Munich University of Technology, GERMANY*

B4P-M04 **APPLICATION OF LOAD-BALANCED TREE ROUTING ALGORITHM WITH DYNAMIC MODIFICATION TO CENTRALIZED WIRELESS SENSOR NETWORKS**
Y.J. Chu[1], C.P. Tseng[1], C.H. Hung[1], Y.-C. Wang[2], K.-C. Liao[1], C.-L. Tseng[2], E.-C. Yang[1], C.-S. Ouyang[1], C.-W. Yen[1], and J.-A. Jiang[1]
[1]*National Taiwan University, TAIWAN and* [2]*National Taipei University of Technology, TAIWAN*

B4P-M05 **MOBILE AND WIDE AREA DEPLOYABLE SENSOR SYSTEM FOR NETWORKED SERVICES**
Z.B. Pang, J. Chen, D.S. Mendoza, Z. Zhang, J. Gao, Q. Chen, and L. Zheng
Royal Institute of Technology (KTH), SWEDEN

B4P-M06 **A GLOBAL SATELLITE LINK SENSOR NETWORK**
B. Preindl[1], L. Mehnen[2], F. Rattay[1], J.D. Nielsen[1,3], S. Krinninger[1], and K.K. Sørensen[3]
[1]*Vienna University of Technology, AUSTRIA,* [2]*FH Technikum Wien, AUSTRIA, and*
[3]*Aalborg University, DENMARK*

B4P-M07 **POWERING OF WIRELESS SENSORS THROUGH THE EXCLUSIVE USE OF KINETIC ENERGY**
B. Dick, M. Fralick, H. Jazo, M. Kerber, and R. Waters
Space and Naval Warfare System Center Pacific (SSC Pacific), USA

B4P-M08 **NON-PLANAR TARGET FOR MULTI-CAMERA NETWORK CALIBRATION**
E. Shen[1], G.P.K. Carr[2], P. Thomas[1], and R. Hornsey[1]
[1]*York University, CANADA and* [2]*Australian National University, AUSTRALIA*

B4P-M09 **POWER CONSIDERATIONS WHEN USING HIGH CAPACITY DATA STORAGE ON WIRELESS SENSOR MOTES**
M. Healy, T. Newe, and E. Lewis
University of Limerick, IRELAND

B4P-M10 **ROBUST THERMAL FLOW SENSOR FOR A CONTAINMENT TEST FACILITY**
M. Ritterath[1], P. Voser[1], W. Dietze[1], H.-M. Prasser[1], and D. Paladino[2]
[1]*ETH Zurich, SWITZERLAND and* [2]*Paul-Scherrer-Institute, SWITZERLAND*

B4P-M11 **TINYREEF: A REGISTER-BASED VIRTUAL MACHINE FOR WIRELESS SENSOR NETWORKS**
I.L. Marques, J. Ronan, and N.S. Rosa
Federal University of Pernambuco, BRAZIL

B4P-M12 **MULTI-AGENT-BASED INTEROPERABLE WIRELESS SENSOR NETWORK MODEL**
F. Xiong[1], L. Bai[1], and F. Ferrese[2]
[1]*Temple University, USA and* [2]*Naval Surface Warfare Center, USA*

B4P-M13 **WIRELESS TELEMETRY FOR ELECTRONIC PILL TECHNOLOGY**
M.R. Yuce, T. Dissanayake, and H.C. Keong
University of Newcastle, AUSTRALIA

B4P-M14 **A COMPARATIVE REVIEW OF WIRELESS SENSOR NETWORK MOTE TECHNOLOGIES**
M. Johnson, M. Healy, P. van de Ven, M.J. Hayes, J. Nelson, T. Newe, and E. Lewis
University of Limerick, IRELAND

POSTER SESSION - Applications II

B4P-N01 **MUST FERMENTATION PROGRESS MONITORING BY POLYMER COATED CAPACITIVE VAPOUR SENSOR ARRAYS**
P. Oikonomou, K. Manoli, D. Goustouridis, I. Raptis, and M. Sanopoulou
NCSR Demokritos, GREECE

B4P-N02 **A VIBRATION ENERGY HARVESTER USING MAGNETOSTRICTIVE/PIEZOELECTRIC COMPOSITE TRANSDUCER**
X.Z. Dai, Y.M. Wen, P. Li, J. Yang, and X.F. Jiang
Chongqing University, CHINA

B4P-N03 **TOWARDS ISFET BASED DNA LOGIC FOR RAPID NUCLEIC ACID DETECTION**
W. Wong Jr, L. Shepherd, P. Georgiou, and C. Toumazou
Imperial College London, UK

B4P-N04 **PATCH TYPE SENSOR MODULE FOR ESTIMATING THE ENERGY EXPENDITURE**
L. Meina[1], K.H. Byun[2], H.J. Kim[2], J. Kang[2], and Y.T. Kim[1]
[1]*Chosun University, KOREA and* [2]*Seoul National University, KOREA*

POSTER SESSION - Applications II *(continued)*

B4P-N05 **NEW APPROACH OF SIGNAL PROCESSING FOR CLASSIFICATION PROBLEMS USING A-PRIORI INFORMATION**
H. Krüger and H. Ewald
University of Rostock, GERMANY

B4P-N06 **INDOOR LOCALIZATION: AUTOMATICALLY CONSTRUCTING TODAY'S RADIO MAP BY iROBOT AND RFIDs**
L.-W. Yeh[1], M.-S. Hsu[1], Y.-F. Lee[2], and Y.-C. Tseng[1,3]
[1]*National Chiao Tung University, TAIWAN,* [2]*Industrial Technology Research Institute, TAIWAN, and* [3]*Chung-Yuan Christian University, TAIWAN*

B4P-N07 **IMAGING SENSOR SYSTEM USING A COMPOSITE ULTRASONIC ARRAY**
H. Furuhashi[1], Y. Uchida[1], and M. Shimizu[2]
[1]*Aichi Institute of Technology, JAPAN and* [2]*Kansai Electric Power Co. Inc., JAPAN*

B4P-N08 **IDENTIFICATION OF SHREDDED PLASTICS IN MILLISECONDS USING RAMAN SPECTROSCOPY FOR RECYCLING**
A. Tsuchida[1], H. Kawazumi[1], A. Kazuyoshi[2], and Y. Yasuo[2]
[1]*Kinki University, JAPAN and* [2]*Saimu Corporation, JAPAN*

B4P-N09 **A ROBUST AND REAL-TIME VELOCITY SENSOR FOR AGRICULTURAL VEHICLE**
I. Ohmura[1,2], T. Mitamura[1], H. Takauji[2], S. Kaneko[2], M. Shimizu[3], Y. Miyashita[3], and K. Yamamura[3]
[1]*Hokkaido Industrial Research Institute, JAPAN,* [2]*Hokkaido University, JAPAN, and* [3]*Toyo Agricultural Machinery M.F.G. Co., Ltd., JAPAN*

B4P-N10 **THE DESIGN OF PRACTICAL MAPPING SYSTEM FOR MOBILE ROBOTS USING LASER RANGE SENSOR**
Y.-C. Lee and W. Yu
Electronics and Telecommunications Research Institution, KOREA

B4P-N11 **5.4 GHZ HIGH-Q BANDPASS FILTER FOR WIRELESS SENSOR NETWORK SYSTEM**
C.M. Fang[1], S.C. Lin[1], P.Y. Chen[2], Y.C. Chin[3], H.R. Lin[1], and P.Z. Chang[1]
[1]*National Taiwan University, TAIWAN,* [2]*Chung-Shan Institute of Science and Technology, TAIWAN, and* [3]*TXC Corporation, TAIWAN*

B4P-N12 **ONBOARD WAVEFRONT ESTIMATION USING SPATIAL LIGHT MODULATOR AS A PHASE DIVERSITY GENERATOR**
N. Miyamura
University of Tokyo, JAPAN

B4P-N13 **A VEHICULAR WIRELESS SENSOR NETWORK FOR CO2 MONITORING**
S.-C. Hu, Y.-C. Wang, C.-Y. Huang, and Y.-C. Tseng
National Chiao-Tung University, TAIWAN

B4P-N14 **MINIATURIZED FLOW-THROUGH SENSOR ARRAY FOR METHANE FERMENTATION MONITORING**
P. Ciosek, A. Buczkowska, E. Witkowska, A. Zamojska, K. Szewczyk, and W. Wróblewski
Warsaw University of Technology, POLAND

B4P-N15 **TEMPERATURE DISTRIBUTIONS IN LPG TANK WITH RBF NEURAL NETWORK**
C.-Y. Lee, S.-H. Ryu, S.-R. Lee, and C.-W. Park
Kyungpook National University, KOREA

B4P-N16 **CALIBRATION OF A TRIAXIAL FLUXGATE MAGNETOMETER AND ACCELEROMETER WITH AN AUTOMATED NON-MAGNETIC CALIBRATION SYSTEM**
V. Petrucha, and P. Kaspar
Czech Technical University, CZECH REP.

B4P-N17 **SAW-RFID AND TEMPERATURE MONITORING OF SLIDE GATE PLATES**
R. Fachberger[1], A. Erlacher[2], and A. Binder[1]
[1]*Carinthian Tech Research AG, AUSTRIA and* [2]*RHI AG, AUSTRIA*

B4P-N18 **ULTRASONIC NON-DESTRUCTIVE EVALUATION FOR SPOT WELDING IN THE AUTOMOTIVE INDUSTRY**
N. Athi[1], S. Wylie[1], J.D. Cullen[1], A. Al-Shamma'a[1], and T. Sun[2]
[1]*Liverpool John Moores University, UK and* [2]*City University London, UK*

B4P-N19 **CALIBRATION OF DELTA-SIGMA DATA CONVERTERS IN SYNCHRONOUS DEMODULATION SENSING APPLICATIONS**
A. Duggal[1], S. Sonkusale[1], and J. Lachappelle[2]
[1]*Tufts University, USA and* [2]*Charles Stark Draper Laboratory, USA*

B4P-N20 **MEASUREMENT OF WEAK LIGHT EMITTED FROM MECHANOLUMINESCENCE MATERIALS USING Si PHOTODIODE AND LIGHT CONCENTRATOR**
N. Bu, N. Ueno, C.-N. Xu, and O. Fukuda
National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

B4P-N21 **USEFULNESS VERIFICATION OF BIOCOMPATIBLE MICRONEEDLE PATCH FOR TRANSDERMAL DRUG DELIVERY**
C.Y. Jin[1], M.H. Han[1], S.S. Lee[1], and Y.H. Choi[2]
[1]*Korea Advanced Institute of Science and Technology (KAIST), KOREA and* [2]*Electronics and Telecommunications Research Institute (ETRI), KOREA*

B4P-N22 **NOVEL PROCESSING FOR A POLYMER PATCH CLAMPING SYSTEM**
S. Wilson[1], W. Pfleging[1], M. Bruns[1], P.B. Kirby[2], and A. Welle[1]
[1]*Forschungszentrum Karlsruhe, GERMANY and* [2]*Cranfield University, UK*

POSTER SESSION - Applications II *(continued)*

B4P-N23 **A 2-DOF WIDEBAND ELECTROSTATIC TRANSDUCER FOR ENERGY HARVESTING AND IMPLANTABLE APPLICATIONS**
Y. Zhu, S.O.R. Moheimani, and M. Yuce
University of Newcastle, AUSTRALIA

POSTER SESSION - Open Posters

B4P-001 **RF TIME OF FLIGHT MEASUREMENT BASED ON VERNIER EFFECT FOR SHORT DISTANCE RANGING**
S.-I. Ko, J.-Y. Takayama, and S. Ohyama
Tokyo Institute of Technology, JAPAN

B4P-002 **QCM OSCILLATOR SENSORS: COMPARISON BETWEEN MILLER AND ABO TOPOLOGIES**
A.M. Cao-Paz, L. Rodríguez-Pardo, and J. Fariña
University of Vigo, SPAIN

B4P-003 **WIRELESS SENSOR NETWORK PROJECT: PLEISTER - PACKAGE LABEL ELECTRONICS INCLUDING SENSING TALKATIVE RADIO**
J. Bastemeijer, J.R. Mollinger, L. Giangrande, B. Palacios Aguilera, P.J. French, and A. Bossche
Delft University of Technology, THE NETHERLANDS

B4P-004 **APPLICATION OF THE QCM IN LEAD ACID BATTERIES ELECTROLITE MEASUREMENTS**
A. Cao-Paz, L. Rodríguez-Pardo, and J. Fariña
University of Vigo, SPAIN

B4P-005 **HYDROGEN GAS SENSOR USING QUARTZ RESONATOR**
D. Yamazaki, Y. Kakimoto, and T. Ueda
Waseda University, JAPAN

B4P-006 **AFFINITY INTERACTION OF THE GAPO$_4$ BIOSENSOR**
L. Burianova and J. Nosek
Technical University of Liberec, CZECH REP.

B4P-007 **EXPERIMENTAL STUDY ON A CURVATURE MONITORING OF UNDERWATER CABLE USING OTDR FIBER OPTIC SENSOR**
S. Oh and H. Choi
Korea Ocean Research and Development Institute, KOREA

B4P-008 **MICROFLUIDIC REACTOR FOR THE ANALYSIS OF BACTERIAL CHEMOTAXIS**
S.-H. Lee[1], H. Jeong[2], C.-S. Lee[2], K. Kang[1], J.-Y. Hwang[1], and H. Kang[1]
[1]*Korea Institute of Industrial Technology (KITECH), KOREA and* [2]*Chungnam National University, KOREA*

B4P-009 **REAL TIME NON-CONTACT DETECTION OF HEARTBEAT AND RESPIRATION USING DOPPLER RADAR SYSTEM**
J.Y. Shin[1], S.P. Cho[1], H.D. Park[2], B.J. Jang[3], and K.J. Lee[1]
[1]*Yonsei University, KOREA,* [2]*MEZOO Co., KOREA, and* [3]*Kookmin University, KOREA*

B4P-010 **WIRELESS SENSOR NETWORKS FOR ENVIRONMENTAL DATA MONITORING**
A. Ghobakhlou, P. Sallis, O. Diegel, S. Zandi, and A. Perera
Auckland University of Technology, NEW ZEALAND

B4P-011 **SENSOR NETWORK TESTBED FOR DISASTER MONITORING**
S. Veeramachaneni and M.B. Srinivas
Birla Institute of Technology and Science (BITS), INDIA

B4P-012 **OPTICAL MICRORING RESONATOR FOR DNA SENSING APPLICATION**
Y. Chen[2,3], S. Shao[3], Z. Li[3], H. Yi[3], and Z. Zhou[1,4]
[1]*Peking University, CHINA,* [2]*Guangxi University, CHINA,*
[3]*Huazhong University of Science and Technology, CHINA, and*
[4]*Georgia Institute of Technology, USA*

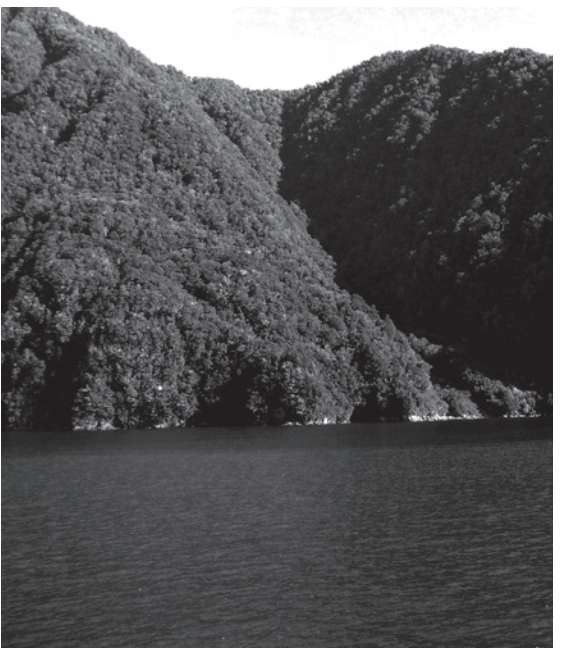
B4P-013 **RESISTANCE SENSOR EMPLOYING THERMOPHORESIS FOR SOOT IN DIESEL EXHAUST**
R. Bjorklund[1], A. Grant[2], P. Jozsa[2], M. Johansson[3], P.E. Fägerman[4], J. Paaso[5], M. Andersson[6], L. Hammarlund[6], A. Larsson[7], E. Popovici[8], D. Lutic[8], J. Pagels[9], M. Sanati[9], and A. Lloyd Spetz[1]
[1]*Linköping University, SWEDEN,* [2]*Volvo Technology Corporation, SWEDEN,* [3]*Volvo Cars, SWEDEN,*
[4]*Mandalon Technologies, SWEDEN,* [5]*Selmic Oy, FINLAND,* [6]*SenSiC AB, SWEDEN,*
[7]*SINTEF ICT, NORWAY,* [8]*University of Iasi, ROMANIA, and* [9]*Lund University, SWEDEN*

This paper can be found in the Technical Digest under C2L-B4

B4P-P01 **AN OFFSET REDUCTION INFRARED TRACKING SYSTEM WITH WINNER-TAKE-ALL IMPLEMENTATION FOR CMOS THERMAL MICROSENSOR**
J.-Q. Wang and C.-H. Shen
National Changhua University of Education, TAIWAN

SESSION B5L-A Optical Biomedical Systems F.J. Arregui, *Universidad Pública de Navarra, SPAIN* A. Tuantranont, *National Electronics and Computer Centre, THAILAND*	SESSION B5L-B Sensor Arrays T. Newe, *Univerisity of Limerick, IRELAND* G. Sen Gupta, *Massey University, NEW ZEALAND*	SESSION B5L-C Robot Sensors & Sensor Arrays J.-B. Lee, *University of Texas, Dallas, USA* L. Mele, *Technical University of Delft, THE NETHERLANDS*	SESSION B5L-D Imaging & Vision Sensor J.-H. Lee, *Gwangju Institute of Science and Technology (GIST), KOREA* A. Grazia Mignani, *Consiglio Nazionale delle Ricerche (CNR), ITALY*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
16:00			
B5L-A1 **MAGNETIC SENSOR MACROSPHERES AS EASY-TO-USE, REMOTE-CONTROLLED, OPTICAL SENSORS IN BIOPROCESS MONITORING** G. Mistlberger, K. Koren, S.M. Borisov, and I. Klimant *Graz University of Technology, AUSTRIA*	**B5L-B1** **EXPLOITATION OF MULTIPLE SENSOR ARRAYS IN ELECTRONIC NOSE** N.H. Saad, C.J. Anthony, R. Al-Dadah, and M.C.L. Ward *University of Birmingham, UK*	**B5L-C1** **AN AMORPHOUS SILICON PHOTODIODE ARRAY FOR GLASS-BASED OPTICAL MEMS APPLICATION** M. Moridi[1], S. Tanner[1], N. Wyrsch[1], P.A. Farine[1], and S. Rohr[2] [1]*Ecole Polytechnique Fédérale de Lausanne (EPFL), SWITZERLAND and* [2]*University of Bern, SWITZERLAND*	**B5L-D1** **DEVELOPMENT OF 77 GHZ MILLIMETER WAVE PASSIVE IMAGING CAMERA** H. Sato[1], K. Sawaya[1], K. Mizuno[1], J. Uemura[2], M. Takeda[2], J. Takahashi[2], K. Yamada[2], K. Morichika[3], T. Hasegawa[3], H. Hirai[3], H. Niikura[3], T. Matsuzaki[3], and J. Nakata[1,3] [1]*Tohoku University, JAPAN,* [2]*Maspro Denkoh Corporation, JAPAN, and* [3]*Chuo Electronics Corporation Ltd., JAPAN*
16:15			
B5L-A2 **MULTI-COLOR INFRARED SENSING WITH SUPERLATTICE QUANTUM DOT STRUCTURES AND ABSORPTION ENHANCEMENTS** A.G.U. Perera[1], G. Ariyawansa[1], M. Shishodia[1], G. Huang[2], P. Bhattacharya[2], M. Buchanan[3], Z.R. Wasilewski[3], and H.C. Liu[3] [1]*Georgia State University, USA,* [2]*University of Michigan, USA, and* [3]*National Research Council of Canada, CANADA*	**B5L-B2** **DEVELOPMENT AND EVALUATION OF TEMPERATURE SENSORS FOR TEXTILE INTEGRATION** T. Kinkeldei, C. Zysset, K. Cherenack, and G. Troester *Swiss Federal Institute of Technology (EPFL), SWITZERLAND*	**B5L-C2** **FIRST DEMONSTRATION OF MEGAPIXEL DUAL-BAND QWIP FOCAL PLANE ARRAY** S. Gunapala, S.V. Bandara, J.K. Liu, J.W. Mumolo, D.Z. Ting, C.J. Hill, and J. Nguyen *California Institute of Technology, USA*	**B5L-D2** **ALL PDMS MULTI-COLOR TOTAL INTERNAL REFLECTION (TIR)-BASED DEVICES FOR MULTI-FLUORESCENCE DETECTION AND IMAGING** N.C.H. Le[1,2], D.V. Dao[1], R. Yokokawa[1,3,4], J.C. Wells[1], and S. Sugiyama[1] [1]*Ritsumeikan University, JAPAN,* [2]*Dublin City University, IRELAND,* [3]*Japan Science and Technology Agency (JST), JAPAN, and* [4]*Kyoto University, JAPAN*
16:30			
B5L-A3 **EXPERIMENTAL CHARACTERISATION OF ROUGHNESS INDUCED SCATTERING LOSS IN Si AND SiC WAVEGUIDE SENSORS** E. Margallo-Balbás, C.K. Yang, G. Pandraud, and P.J. French *Delft University of Technology, THE NETHERLANDS*	**B5L-B3** **INNER CAR SMART FLOORING FOR MONITORING CHASSIS DEFORMATION** A.F. Silva[1], F. Goncalves[2], L.A. Ferreira[3,4], F.M. Araujo[3,4], P.M. Mendes[1], and J.H. Correia[1] [1]*University of Minho, PORTUGAL,* [2]*TMG Automotive, PORTUGAL,* [3]*FiberSensing/ INESC Porto, PORTUGAL, and* [4]*University of Porto, PORTUGAL*	**B5L-C3** **DEVELOPMENT OF INFRARED SENSORS USING CARBON NANOTUBE (CNT) BASED FIELD EFFECT TRANSISTOR (FET)** H. Chen, N. Xi, K.W.C Lai, C.K.M. Fung, and R. Yang *Michigan State University, USA*	**B5L-D3** **A NOVEL CMOS COLOR PIXEL FOR VISION CHIPS** Q.Y. Fu, W.C. Zhang, Q.Y. Lin, and N.J. Wu *Chinese Academy of Sciences, CHINA*
16:45			
B5L-A4 **A MID INFRARED LED-PHOTODIODE BASED SENSOR FOR CELL ANALYSIS** S. van den Driesche[1], W. Witarski[2], and M.J. Vellekoop[1] [1]*Vienna University of Technology, AUSTRIA and* [2]*Slovak Academy of Sciences, SLOVAKIA*	**B5L-B4** **SENSOR MODELING FOR THE VIRTUAL AUTONOMOUS NAVIGATION ENVIRONMENT** C. Goodin[1], A. Carrillo[1], R. Kala[1], and L.Y. Liu[2] [1]*United States Army Corps of Engineers, USA and* [2]*Massachusetts Institute of Technology, USA*	**B5L-C4** **DEVELOPMENT OF MAGNETIC POSITION SENSOR FOR UNMANEED DRIVING OF ROBOTIC VEHILCLE** D.-Y. Im[1], Y.-J. Ryoo[1], S.G. Park[1], and H.-R. Cha[2] [1]*Mokpo National University, KOREA and* [2]*Korea Institute of Industrial Technology, KOREA*	**B5L-D4** **A CMOS IMAGE SENSOR ZERO POWER DYNAMIC RANGE INCREASING TECHNIQUE** T.-H. Tsai[1] and C.-C. Wang[2] [1]*York University, CANADA and* [2]*National Cheng Kung University, TAIWAN*

SESSION B5L-A *(continued)*	SESSION B5L-B *(continued)*	SESSION B5L-C *(continued)*	SESSION B5L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
17:00			
B5L-A5 **MINIATURIZED ABSORBANCE BASED CELL ANALYSIS SYSTEM WITH INTEGRATED MICROFLUIDIC AND OPTICAL ELEMENTS** M. Rosenauer and M.J. Vellekoop *Vienna University of Technology, AUSTRIA*	**B5L-B5** **APPLYING A THREE-ANTENNA GPS AND SUSPENSION DISPLACEMENT SENSORS TO A ROAD VEHICLE** L.-Y. Hsu and T.-L. Chen *National Chiao Tung University, TAIWAN*	**B5L-C5** **DEVELOPMENT OF SUSPENDED GATE FIELD EFFECT TRANSISTORS ARRAY-BASED MICROSYSTEM FOR pH MEASUREMENTS** B. da Silva Rodrigues[1,2], O. De Sagazan[1], S. Crand[1], F. Le Bihan[1], T. Mohammed-Brahim[1], and N. Morimoto[2] [1]*Université de Rennes, FRANCE and* [2]*University of São Paulo, BRAZIL*	**B5L-D5** **A WIDE DYNAMIC RANGE CHECKERED-COLOR CMOS IMAGE SENSOR WITH IR-CUT RGB AND VISIBLE-TO-NEAR-IR PIXELS** S. Kawada, S. Sakai, N. Akahane, R. Kuroda, and S. Sugawa *Tohoku University, JAPAN*
17:15			
B5L-A6 **SURFACE PLASMON RESONANCE IMAGING FOR MEDICAL AND BIOSENSING** T. Wilkop, A.S. Ramlogan, I.L. Alberts, J.D. de Bruijn, and A.K. Ray *University of London, UK*	**B5L-B6** **WSN BASED 3D MOBILE INDOOR MULTIPLE USER TRACKING** B.-G. Lee[1], K.-H. Do[2], and W.-Y. Chung[1] [1]*Pukyong National University, KOREA and* [2]*Dongseo University, KOREA*	**B5L-C6** **FULLY PRINTED, FLEXIBLE, LARGE AREA ORGANIC OPTOTHERMAL SENSORS FOR HUMAN-MACHINE-INTERFACES** M. Zirkl[1], G. Scheipl[1], B. Stadlober[1], A. Haase[1], G. Jakopic[1], J.R. Krenn[1], A. Sawatdee[2], P. Bodö[2], and P. Andersson[2] [1]*Joanneum Research, AUSTRIA and* [2]*Acreo AB, AUSTRIA*	**B5L-D6** **THE TRANSVERSE FIELD DETECTOR: A CMOS ACTIVE PIXEL SENSOR CAPABLE OF "ON-LINE" TUNING OF THE SPECTRAL RESPONSE** G. Langfelder, A. Longoni, and F. Zaraga *Politecnico di Milano, ITALY*
17:30	ADJOURN FOR THE DAY		
18:30 - 21:00	CONFERENCE BANQUET: *Student Paper and Best Poster Awards*		



Wednesday, 28 October

08:00

KEYNOTE PRESENTATION C1K-A:
Chair: R. Ghosh, *State University, Michigan, USA*

SMART CONFIGURABLE WIRELESS SENSORS AND ACTUATORS FOR INDUSTRIAL MONITORING AND CONTROL
A.M. Madni
BEI Technologies Inc., USA (currently with Crocker Capital, USA)

SESSION C2L-A Biomedical & Healthcare Applications	**SESSION C2L-B** Temperature & Power Sensing	**SESSION C2L-C** Environmental Monitoring	**SESSION C2L-D** Surface-Activated Sensors
T. Bird, *CSIRO ICT Centre, AUSTRALIA* E. Margallo-Balbas, *Technical University of Delft, THE NETHERLANDS*	S. Bart, *Analog Devices, Inc, USA* P. Ripka, *Czech Technical University in Prague, CZECH REPUBLIC*	D.-W. Lee, *Chonnam National University, KOREA* S. Xia, *Chinese Academy of Sciences, CHINA*	M. Atashbar, *Western Michigan University, USA* H. Suzuki, *University of Tsukuba, JAPAN*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
09:00			
C2L-A1 **OPTO-CHEMICAL METHOD FOR ULTRA-LOW OXYGEN TRANSMISSION RATE MEASUREMENT** M. Tscherner[1], C. Konrad[1], A. Bizzarri[1], M. Suppan[1], M. Cajlakovic[1], V. Ribitsch[1], and F. Stelzer[2] [1] *Joanneum Research Forschungsgesellschaft mbH, AUSTRIA and* [2] *Graz University of Technology, AUSTRIA*	**C2L-B1** **LOW DOSE PLASTIC OPTICAL FIBRE RADIATION DOSIMETER FOR CLINICAL DOSIMETRY APPLICATIONS** S. O'Keeffe[1], E. Lewis[1], A. Santhanam[2], A. Winningham[3], and J.P. Rolland[4] [1] *University of Limerick, IRELAND,* [2] *University of Central Florida, USA,* [3] *MD Anderson Cancer Center Orlando, USA, and* [4] *University of Rochester, USA*	**C2L-C1** **USING LOCAL WIND INFORMATION FOR GAS DISTRIBUTION MAPPING IN OUTDOOR ENVIRONMENT WITH A MOBILE ROBOT** M. Reggente, and A.J. Lilienthal *Örebro University, SWEDEN*	**C2L-D1** **OPTIMIZATION OF THE WORK FUNCTION RESPONSE OF C02-SENSING POLYSILOXANE LAYERS BY MODIFICATION OF THE POLYMERIZATION** S. Stegmeier[1], M. Fleischer[1], A. Tawil[1], and P. Hauptmann[2] [1] *Siemens AG, Corporate Technology, GERMANY and* [2] *Otto-von-Guericke University Magdeburg, GERMANY*
09:15			
C2L-A2 **DISCRIMINATION OF EATING HABITS WITH A WEARABLE BONE CONDUCTION SOUND RECORDER SYSTEM** M. Shuzo[1], G. Lopez[1], T. Takashima[1], S. Komori[1], S. Yanagimoto[2], T. Tatsuta[3], J.-J. Delaunay[1], and I. Yamada[1] [1] *University of Tokyo, JAPAN,* [2] *University of Tokyo Hospital, JAPAN and* [3] *Olympus Corporation, JAPAN*	**C2L-B2** **A MICROMACHINED SILICON CAPACITIVE TEMPERATURE SENSOR FOR RADIOSONDE APPLICATIONS** H.-Y. Ma, Q.-A. Huang, M. Qin, and T.T. Lu *Southeast University, CHINA*	**C2L-C2** **ESTIMATING GAS-SOURCE LOCATION IN OUTDOOR ENVIRONMENT USING MOBILE ROBOT EQUIPPED WITH GAS SENSORS AND ANEMOMETER** Y. Fukazawa, and H. Ishida *Tokyo University of Agriculture and Technology, JAPAN*	**C2L-D2** **FUNCTIONALIZATION OF HIGH FREQUENCY SAW RFID DEVICES FOR OZONE DOSIMETRY** R.S. Westafer[1], G. Levitin[1], D.W. Hess[1], M.H. Bergin[1], P.J. Edmonson[2], and W.D. Hunt[1] [1] *Georgia Institute of Technology, USA and* [2] *Zen Sensing, LLC, USA*
09:30			
C2L-A3 **WIRELESS POWER RECHARGING FOR IMPLANTABLE BLADDER PRESSURE SENSOR** P. Cong, M.A. Suster, N. Chaimanonart, and D.J. Young *Case Western Reserve University, USA*	**C2L-B3** **LINEARIZATION OF A THERMAL-DIFFUSIVITY-BASED TEMPERATURE SENSOR** C.P.L. van Vroonhoven, and K.A.A. Makinwa *Delft University of Technology, THE NETHERLANDS*	**C2L-C3** **THE AIRBORNE EARTH SCIENCE MICROWAVE IMAGING RADIOMETER (AESMIR) - NASA'S NEW PASSIVE MICROWAVE AIRBORNE IMAGER** E. Kim *NASA, USA*	**C2L-D3** **HUMIDITY SENSOR USING LEAKY SURFACE ACOUSTIC WAVES IN YX-LiTa03 WITH NANOSTRUCTURED PORPHYRIN FILM** R. Rimeika[1], D. Čiplys[1], V. Poderys[1], R. Rotomskis[1], and M. Shur[2] [1] *Vilnius University, LITHUANIA and* [2] *Rensselaer Polytechnic Institute, USA*
09:45			
C2L-A4 **A WIRELESS SELF-POWERED URINARY INCONTINENCE SENSOR SYSTEM** A. Tanaka[1], Y. Nakagawa[1], K. Kitamura[1], F. Utsunomiya[1], N. Hama[2], and T. Douseki[1] [1] *Ritsumeikan University, JAPAN and* [2] *Seiko Epson, JAPAN*	**C2L-B4** **A GaAs MMIC-BASED INLINE RF MEMS POWER SENSOR** Z.Q. Zhang, X.P. Liao, L. Han, and S. Su *Southeast University, CHINA*	**C2L-C4** **DEVELOPMENT AND OCEANOGRAPHIC APPLICATIONS OF UNDERWATER IN-SITU RADON SENSOR USING PLASTIC SCINTILLATOR** K. Shitashima[1], K. Karasawa[2], and K. Miyakawa[1] [1] *Central Research Institute of Electric Power Industry, JAPAN and* [2] *CERES Inc., JAPAN*	**C2L-D4** **ELECTRICAL CHARACTERIZATION OF A PIG ODORANT BINDING PROTEIN BY IMPEDANCE SPECTROSCOPY** S. Capone[1], L. Francioso[1], P. Siciliano[1], K.C. Persaud[2], A.M. Pisanelli[2], and C. De Pascali[1] [1] *Consiglio Nazionale delle Ricerche (CNR), ITALY and* [2] *University of Manchester, UK*

SESSION C2L-A *(continued)*	SESSION C2L-B *(continued)*	SESSION C2L-C *(continued)*	SESSION C2L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
10:00			
C2L-A5 **INTEGRATION OF A SUITE OF SENSORS IN A WIRELESS HEALTH SENSOR PLATFORM** P. van de Ven[1], A. Bourke[1], C. Tavares[2], R. Feld[3], J. Nelson[1], A. Rocha[2], and G. O'Laighin[4] [1]*University of Limerick, IRELAND,* [2]*INESC Porto, PORTUGAL,* [3]*Corscience, GERMANY, and* [4]*National University of Ireland, Galway, IRELAND*	**C2L-B5** **A NON-CONTACT TEMPERATURE SENSING WITH ULTRASOUND AND THE POTENTIAL FOR MONITORING HEATED MATERIALS** I. Ihara, M. Takahashi, and H. Yamada *Nagaoka University of Technology, JAPAN*	**C2L-C5** **LONG TERM MONITORING OF CONSTRUCTED WETLANDS USING AN NMR SENSOR** R.H. Morris[1], M.I. Newton[1], M. Bencsik[1], P.R. Knowles[2], P.A. Davies[2], and P. Griffin[3] [1]*Nottingham Trent University, UK,* [2]*Aston University, UK, and* [3]*Severn Trent Water Ltd, UK*	**C2L-D5** **TOWARDS EASILY REPRODUCIBLE NANO-STRUCTURED SERS SUBSTRATES** M.S. Schmidt, A. Boisen, and J. Hübner *Technical University of Denmark, DENMARK*
10:15			
C2L-A6 **INCREASING THE ACCURACY WITH A RICH SENSOR SYSTEM FOR ROBOTIC LASER OSTEOTOMY** H. Mönnich, D. Stein, J. Raczkowsky, and H. Wörn *University of Karlsruhe, GERMANY*		**C2L-C6** **DEVELOPMENT OF HIGH RESOLUTION SNOW DEPTH SENSOR USING ULTRASONICS** Z.S. Lim *Research Institute of Industrial Science and Technology (RIST), KOREA*	**C2L-D6** **REAL TIME AND LABEL-FREE ANALYSIS OF CELLULAR ACTIVITY ON CHIP** S. Milgram[1], S. Cortes[2], M.B. Villiers[2], P.N. Marche[2], T. Livache[1], and Y. Roupioz[1] [1]*CNRS, FRANCE and* [2]*Université J. Fourier, FRANCE*

10:30 BREAK

SESSION C3L-A Electrochemical Biosensors	SESSION C3L-B Wireless Sensor Networks for Environmental Monitoring	SESSION C3L-C Dynamic Sensors & Systems	SPECIAL SESSION C3L-D Magnetic Sensors
M. Atashbar, *Western Michigan University, USA* P. Hauptmann, *Otto-von-Guericke University Magdeburg, GERMANY*	P. van de Ven, *University of Limerick, IRELAND* H. Zangle, *Graz University of Technology, AUSTRIA*	T. Kenny, *Stanford University, USA*	A. Edelstein, *US Army Research Laboratory, USA*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
11:00			
C3L-A1 **RAPID DIAGNOSTIC DEVICE FOR MASTITIS BASED ON ELECTROCHEMICAL DETECTION OF SUPEROXIDE PRODUCED FROM NEUTROPHILS IN FRESH MILK** K. Okada[1], J. Fukuda[1], H. Suzuki[1], S. Ayano[2], Y. Nikaido[2], T. Nishi[2], and K. Oka[2] [1]*University of Tsukuba, JAPAN and* [2]*Kuraray Co., LTD, JAPAN*	**C3L-B1** **WIRELESS MAGNETIC SENSOR NETWORK FOR COLLECTING VEHICLE DATA** J. Chinrungrueng and S. Kaewkamnerd *NECTEC, THAILAND*	**C3L-C1** **GaPO4: AN INTERESTING CRYSTAL FOR VIBRATING INERTIAL SENSORS** O. Le Traon, O. Ducloux, R. Levy, and S. Masson *ONERA, FRANCE*	**INVITED C3L-D1** **UNCOOLED, MILLIMETER-SCALE ATOMIC MAGNETOMETERS WITH FEMTOTESLA SENSITIVITY** J. Kitching[1], S. Knappe[1], W.C. Griffith[1], J. Preusser[1], V. Gerginov[1], P.D.D. Schwindt[1], V. Shah[2], and R. Jimenez-Martinez[2] [1]*National Institute of Standards and Technology (NIST), USA and* [2]*University of Colorado, USA*
11:15			
C3L-A2 **RAPID CHOLESTEROL DETECTION BY FUNCTIONALIZED CARBON NANOTUBE BASED ELECTROCHEMICAL SENSOR ON FLOW INJECTION MICROFLUIDIC CHIP** A. Wisitsoraat, P. Sritongkham, C. Karuwan, D. Phokharatkul, T. Maturos, and A. Tuantranont *National Electronics and Computer Technology Center, THAILAND*	**C3L-B2** **WIRELESS SENSOR NETWORK TESBED FOR STRUCTURAL HEALTH MONITORING OF BRIDGES** Y. Tselishchev and A. Boulis *NICTA, AUSTRALIA*	**C3L-C2** **DIGITAL CONTROL OF TUNNELING ACCELEROMETER** C. Burgner, Z. Yie, N. Kataria, L. Oropeza, K. Åström, F. Brewer, and K. Turner *University of California, Santa Barbara, USA*	

SESSION C3L-A *(continued)*	SESSION C3L-B *(continued)*	SESSION C3L-C *(continued)*	SPECIAL SESSION C3L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
11:30			
C3L-A3 **NANODIAMOND MACRO- AND MICROELECTRODE ARRAY BIO-SENSOR** W.P. Kang, J.L. Davidson, and S. Raina *Vanderbilt University, USA*	**C3L-B3** **DEVELOPMENT OF A PROTOTYPING PLATFORM FOR THE INTEGRATION OF MULTIPLE FIBER OPTIC SENSING DEVICES TO A SHIMMER™ SYSTEM FOR IN-SITU MARITIME MONITORING** E. O'Connell[1], S. O'Keeffe[1], T. Newe[1], M. Healy[1], E. Lewis[1], and W. Lyons[2] *[1]University of Limerick, IRELAND and [2]City University, London, UK*	**C3L-C3** **A WIDE BANDWIDTH, WIDE DYNAMIC-RANGE THERMAL Σ Δ ARCHITECTURE FOR CONVECTIVE ACCELEROMETERS** O. Leman, F. Mailly, L. Latorre, and P. Nouet *University Montpellier II, FRANCE*	**C3L-D3** **MAGNETIC NOISE IN A LOW-POWER PICOTESLA MAGNETORESISTIVE SENSOR** S.H. Liou[1], D. Sellmyer[1], S.E. Russek[2], R. Heindl[2], F.C.S. Da Silva[2], J. Moreland[2], D.P. Pappas[2], L. Yuan[3], and J. Shen[3] *[1]University of Nebraska, USA, [2]National Institute of Standards and Technology (NIST), USA, and [3]Western Digital Corp, USA*
11:45			
C3L-A4 **FABRICATION OF A BIOMIMETIC MEMBRANE WITH BIOMATERIALS ATTACHED CONDUCTING POLYMER: APPLICATION TO A NADH SENSOR** K.-S. Lee[1], H.-B. Noh[1], M.-S. Won[2], and Y.-B. Shim[1] *[1]Pusan National University, KOREA and [2]Korea Basic Science Institute, KOREA*	**C3L-B4** **LOW POWER SENSOR PLATFORM FOR ENVIRONMENTAL MONITORING** A. Sieber[1], J. Markert[2], M.F. Wagner[2], and C. Woegerer[3] *[1]SZS Research and Innovation, ITALY, [2]University of Applied Science Frankfurt, GERMANY, and [3]Profactor Research and Solutions GmbH, AUSTRIA*	**C3L-C4** **NOVEL STRUCTURE AND FABRICATION OF AN ENERGY HARVESTING DEVICE BASED ON VIBRATION-ORIENTED GENERATION FOR LOW-OSCILLATION OPERATION** T. Suzuki, S. Nagasawa, H. Okamoto, and H. Kuwano *Tohoku University, JAPAN*	**C3L-D4** **ACHIEVING 1/f NOISE REDUCTION WITH THE MEMS FLUX CONCENTRATOR** A. Edelstein[1], G.A. Fischer[1], J.E. Burnette[1], W.F. Egelhoff[2], and S.F. Cheng[3] *[1]US Army Research Labortory, USA, [2]National Institute of Standards & Technology, USA, and [3]Naval Research Laboratory, USA*
12:00			
C3L-A5 **A NOVEL MICROCHIP SYSTEM INTEGRATED WITH GOLD NANO-ELECTRODE ENSEMBLE FOR ELECTROCHEMICAL DETERMINATION OF HYALURONIC ACID** C.-M. Chen[1], C.S. Chien[2], M.-L. Yeh[1], Y.-T. Chuang[3], and C.-H. Lin[3] *[1]National Cheng Kung University, TAIWAN, [2]Chi Mei Medical Center, TAIWAN, and [3]National Sun Yat-sen University, TAIWAN*	**C3L-B5** **THE FIRST ORDER LOAD-BALANCED ALGORITHM WITH STATIC FIXING SCHEME FOR CENTRALIZED WSN SYSTEM IN OUTDOOR ENVIRONMENTAL MONITORING** Y.-C. Wang[1], C.-L. Tseng[1], Y.-J. Chu[2], C.-P. Tseng[2], K.-C. Liao[2], Y.-C. Wu[2], K.-Y. Ho[3], E.-C. Yang[2], F.-M. Lu[2], and J.-A. Jiang[2] *[1]National Taipei University of Technology, TAIWAN, [2]National Taiwan University, TAIWAN, and [3]TARI, TAIWAN*	**C3L-C5** **RESONANCE FREQUENCY BEHAVIOR OF SILICON NITRIDE CANTILEVERS AS A FUNCTION OF PRESSURE IN DIFFERENT GAS ENVIRONMENTS** K. Babaei Gavan, J. van der Heijden, E. van der Drift, and H. van der Zant *Kavli Institute of Nanoscience, THE NETHERLANDS*	**C3L-D5** **GMR-BASED SENSORS FOR ULTRA-SENSITIVE MAGNETOMETRY** M. Pannetier-Lecoeur[1], C. Fermon[1], H. Polovy[1], H. Dyvorne[1], and J. Paul[2] *[1]CEA Saclay, FRANCE and [2]Sensitec Naomi GmbH, GERMANY*
12:15			
	C3L-B6 **MICROCLIMATE REAL-TIME MONITORING BASED ON ZIGBEE SENSOR NETWORK** N. Watthanawisuth[1], T. Kerdcharoen[2], and A. Tuantranont[1] *[1]National Electronic and Computer Technology Center, THAILAND and [2]Mahidol University, THAILAND*	**C3L-C6** **OPTIMIZATION OF KINETIC ENERGY HARVESTER FOR LOW AMPLITUDE VIBRATION** B. Dick, M. Fralick, H. Jazo, M. Kerber, J. Brewer, and R. Waters *Space and Naval Warfare Systems Center, USA*	**C3L-D6** **CROSSFIELD EFFECT IN MAGNETIC SENSORS** P. Ripka[1], M. Janosek[1], M. Butta[1], S.W. Billingsley[2], and E. Wakefield[2] *[1]Czech Technical University, CZECH REP. and [2]Billingsley Aerospace & Defense, USA*
12:30 LUNCH			

SESSION C4L-A Electrical Biosensors A. Bossche, *Delft University of Technology, THE NETHERLANDS* R. Smith, *University of Maine, USA*	SESSION C4L-B High Performance Optical Detectors A. Grazia Mignani, *Consiglio Nazionale delle Ricerche (CNR), ITALY* P. Robert, *CEA-LETI, FRANCE*	SESSION C4L-C Force & Fluid Sensing J. Bastemeijer, *Delft University of Technology, THE NETHERLANDS* T. Sun, *City University London, UK*	SESSION C4L-D Hydrocarbon Sensing R. Binions, *Universal College London, UK* H. Suzuki, *University of Tsukuba, JAPAN*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
13:30			
C4L-A1 **IMPEDIMETRIC BIOSENSOR SYSTEM FOR THE ON-LINE ANALYSIS OF STIMULATED NEURONAL CELLS EMBEDDED IN GEL MATRICES** T. Jacobs[1], T. Valero[2], M. Naumann[1], S. Kintzios[2], and P. Hauptmann[1] [1] *Otto von Guericke University Magdeburg, GERMANY and* [2] *Agricultural University of Athens, GREECE*	**C4L-B1** **CHARACTERIZATION OF SINGLE-PHOTON AVALANCHE DIODES IN STANDARD CMOS** B. Nouri, M. Dandin, and P. Abshire *University of Maryland, USA*	**C4L-C1** **PLATINUM SPUTTERED CMOS-MEMS ELECTROTHERMAL PROBES WITH PIEZORESISTIVE FORCE SENSING** J. Liu, L. Draghi, M. Noman, J.A. Bain, T.E. Schlesinger, and G.K. Fedder *Carnegie Mellon University, USA*	**C4L-D1** **EFFECT OF MICROPILLAR DENSITY ON SEPARATION EFFICIENCY OF SEMI-PACKED MICRO GAS CHROMATOGRAPHY COLUMNS** S. Nishiyama[1], T. Nakai[1], M. Shuzo[1,2], J.-J. Delaunay[1,2], and I. Yamada[1,2] [1] *University of Tokyo, JAPAN and* [2] *Japan Science and Technology Agency (JST), JAPAN*
13:45			
C4L-A2 **APTAMER-BASED LABEL-FREE IMMUNOSENSORS USING CARBON NANOTUBE FIELD-EFFECT TRANSISTORS** K. Maehashi and K. Matsumoto *Osaka University, JAPAN*	**C4L-B2** **SILICON CARBIDE PHOTOMULTIPLIERS AND AVALANCHE PHOTODIODE ARRAYS FOR ULTRAVIOLET AND SOLAR-BLIND LIGHT DETECTION** A. Vert, S. Soloviev, A. Bolotnikov, and P. Sandvik *GE Global Research, USA*	**C4L-C2** **DESIGN, FABRICATION, AND CALIBRATION OF CAPACITIVE AIR GAP SENSORS FOR APPLICATION IN LEVITATION BASED GUIDES IN MICROACTUATORS** B. Denkena, H.-H. Gatzen, H. Kayapinar, and F. Pape *Leibniz Universität Hannover, GERMANY*	**C4L-D2** **TOTAL HYDROCARBON ANALYSIS WITH A PLANAR MICRO FLAME IONIZATION DETECTOR** W.J. Kuipers and J. Müller *Hamburg University of Technology, GERMANY*
14:00			
C4L-A3 **A LABEL-FREE IMMUNOSENSOR FOR DIAGNOSIS OF DENGUE INFECTION WITH SIMPLE ELECTRICAL MEASUREMENTS** X.Q. Fang[1], O.K. Tan[1], M.S. Tse[1], and E.E. Ooi[2] [1] *Nanyang Technological University, SINGAPORE and* [2] *DSO National Laboratories, SINGAPORE*	**C4L-B3** **UV SiC AVALANCHE PHOTODETECTORS FOR PHOTON COUNTING** S. Soloviev, A. Vert, A. Bolotnikov, and P. Sandvik *General Electric Global Research Center, USA*	**C4L-C3** **DEVELOPMENT OF AN ELASTIC TACTILE SENSOR EMULATING HUMAN FINGERS FOR TELE-PRESENTATION SYSTEMS** Y. Hidaka[1], Y. Shiokawa[1], K. Tashiro[1], T. Maeno[1], M. Konyo[2], and T. Yamauchi[2] [1] *Keio University, JAPAN and* [2] *Tohoku University, JAPAN*	**C4L-D3** **EXTREMELY SMALL METHANOL SENSOR WITH MICRO/NANO POROUS Au-Pt ELECTRODES FOR COMPACT DMFC APPLICATIONS** J.D. Kim, Y.J. Lee, and J.Y. Park *Kwangwoon University, KOREA*
14:15			
C4L-A4 **AMPEROMETRIC MICRO-IMMUNOSENSOR FOR RAPID SUBSTANCE-P QUANTIFICATION IN BIOLOGICAL FLUIDS** J. Horak, B. Enderle, H. Bakirci, and G.A. Urban *University of Freiburg (IMTEK), GERMANY*	**C4L-B4** **HIGHLY SENSITIVE RADIO-FREQUENCY UV SENSOR BASED ON PHOTOCAPACITIVE EFFECT IN GaN** V.S. Chivukula[1], D. Čiplys[1,2], A. Sereika[2], M.S. Shur[1], J. Yang[3], and R. Gaska[3] [1] *Rensselaer Polytechnic Institute, USA,* [2] *Vilnius University, LITHUANIA and* [3] *Sensor Electronic Technology, USA*	**C4L-C4** **A NOVEL CALORIMETRIC FLOW SENSOR IMPLEMENTATION BASED ON THERMAL SIGMA-DELTA MODULATION** S. Čerimović[1], A. Talić[1], R. Beigelbeck[1], T. Sauter[1], F. Kohl[1], J. Schalko[2], and F. Keplinger[2] [1] *Austrian Academy of Sciences, AUSTRIA and* [2] *Vienna University of Technology, AUSTRIA*	**C4L-D4** **MICRO PRECONCENTRATOR WITH SEEDLESS ELECTROPLATED GOLD AS SELF-HEATING ADSORBENT** B. Alfeeli[1,2], M.A. Zareian-Jahromi[1], and M. Agah[1] [1] *Virginia Polytechnic Institute, USA and* [2] *Kuwait Institute for Scientific Research, KUWAIT*
14:30			
C4L-A5 **A LEAKAGE CURRENT MICROSENSOR FOR DETECTION OF INTERACTION BETWEEN AN ELECTROLYTE-ENTRAPPING LIPOSOME AND PROTEIN** M. Noda[1], T. Asai[1], T. Shimanouchi[2], K. Yamashita[1], H. Umakoshi[2], M. Okuyama[2], and R. Kubo[2] [1] *Kyoto Institute of Technology, JAPAN and* [2] *Osaka University, JAPAN*	**C4L-B5** **A HIGH DYNAMIC RANGE CMOS IMAGE SENSOR WITH A GLOBAL TONE-MAPPING RESPONSE** H.-Y. Cheng, D. Ellis, T. Chambers, D. Das, and S. Collins *University of Oxford, UK*	**C4L-C5** **DESIGN OF A NEUTRALLY BUOYANT SELF-POWERED MULTI-PARAMETER SENSOR FOR DATA LOGGING IN FLOW APPLICATIONS** S. Thiele, S. Schöne, F. Voigt, M.J. Da Silva, and U. Hampel *Forschungszentrum Dresden-Rossendorf, GERMANY*	**C4L-D5** **IMPROVING THE SENSITIVITY AND SELECTIVITY OF ALCOHOL SENSORS BASED ON ORGANIC THIN-FILM TRANSISTORS BY USING CHEMICALLY-MODIFIED DIELECTRIC INTERFACES** T. Mori, Y. Kikuzawa, and K. Noda *Toyota Central R&D Labs., Inc., JAPAN*

SESSION C4L-A *(continued)*	SESSION C4L-B *(continued)*	SESSION C4L-C *(continued)*	SESSION C4L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
14:45			
C4L-A6 **LABEL FREE POTENTIOMETRIC SIALIC ACID DETECTION APPLICABLE TO LIVING CELL DIAGNOSIS** A. Matsumoto[1], N. Sato[1], H. Cabral[1], K. Kataoka[1], and Y. Miyahara[1,2] [1]*University of Tokyo, JAPAN and* [2]*National Institute for Materials Science, JAPAN*	**C4L-B6** **PPT-LEVEL AQUEOUS BENZENE DETECTION WITH AN UV-SPECTROSCOPY BASED PORTABLE SENSOR** S. Camou, A. Shimizu, T. Horiuchi, and T. Haga *NTT Corporation, JAPAN* ***This paper can be found in the Technical Digest under C5L-C6.**	**C4L-C6** **PNEUMATIC PUMPING OF LIQUIDS USING THERMAL TRANSPIRATION FOR LAB-ON-A-CHIP APPLICATIONS** C. Yamarthy, K. Pharas, A. Schultz, and S. McNamara *University of Louisville, USA*	**C4L-D6** **FIBER OPTIC BIO-SNIFFER (BIOCHEMICAL GAS SENSOR) USING UV-LED LIGHT FOR MONITORING ETHANOL VAPOR WITH HIGH SENSITIVITY & SELECTIVITIY** H. Kudo[1], M. Sawai[2], K. Miyajima[1], D. Takahashi[1], T. Arakawa[1], H. Saito[1], and K. Mitsubayashi[1] [1]*Tokyo Medical and Dental University, JAPAN and* [2]*Tokai University, JAPAN*
15:00 **BREAK**			
SESSION C5L-A Patient Monitoring T. Nagle, *North Carolina State University, USA* S. Xia, *Chinese Academy of Sciences, CHINA*	**SESSION C5L-B** Special Imaging & Spectroscopic Applications O. Conde, *University of Cantabria, SPAIN* T. Otsuji, *Tohoku University, JAPAN*	**SESSION C5L-C** Liquid-Based Sensors J. Goosen, *Technical University of Delft, THE NETHERLANDS* Z. Wang, *Tsinghua University, CHINA*	**SPECIAL SESSION** **C5L-D** Molecular Level Detection Mechanism for Bio & Chemical Sensing A. Lloyd Spetz, *Linköping University, SWEDEN*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
15:30			
C5L-A1 **A WSN-BASED WIRELESS MONITORING SYSTEM FOR INTRADIALYTIC HYPOTENSION OF DIALYSIS PATIENTS** Y.-C. Wu[1], W.-D. Chang[2], T.-S. Lin[1], J.-Y. Wang[1], C.-T. Tsai[2], C.-K. Hsu[2], J.-C. Shieh[1], J.A. Jiang[1], and T.-Y. Lai[1] [1]*National Taiwan University, TAIWAN and* [2]*Da Chien General Hospital, TAIWAN*	**C5L-B1** **OPTICAL ABSORPTION SPECTROMETRY USING LASER AMPLITUDE MODULATION** J.H. Chow[1], A.R. Wade[1], C. Mow-Lowry[1], D.S. Rabeling[1], I.C.M. Littler[1], M.B. Gray[2], and D. McClelland[1] [1]*Australian National University, AUSTRALIA and* [2]*National Measurements Institute, AUSTRALIA*	**C5L-C1** **ULTRA LOW-INPUT IMPEDANCE CMOS POTENTIOSTAT FOR ENVIRONMENTAL SENSING APPLICATIONS** S. Hwang and S. Sonkusale *Tufts University, USA*	**INVITED** **C5L-D1** **STEPWISE IMPROVEMENT OF ROOM TEMPERATURE VOC SENSING LAYERS BY ADDITION OF CATALYSTS ON MICRO- AND NANOSCALE** S. Stegmeier[1], M. Fleischer[1], and P. Hauptmann[2] [1]*Siemens AG, GERMANY and* [2]*Otto-von-Guericke University Magdeburg, GERMANY*
15:45			
C5L-A2 **DESIGN OF FLEXIBLE, LOW-POWER AND WIRELESS SENSOR NODES FOR HUMAN POSTURE TRACKING AIDING EPILEPTIC SEIZURE DETECTION** B. Huyghe[1], J. Vanfleteren[1,2], and J. Doutreloigne[1,2] [1]*Ghent University, BELGIUM and* [2]*IMEC, BELGIUM*	**C5L-B2** **DESIGN OF HIGHLY REFLECTIVE SUBWAVELENGTH DIFFRACTION GRATINGS FOR USE IN A TUNABLE SPECTROMETER** M. Kerber, B. Dick, M. Fralick, H. Jazo, and R. Waters *Space and Naval Warfare Systems Center, USA*	**C5L-C2** **A PLASMA SPECTROSCOPIC MICRODEVICE FOR ON-SITE WATER MONITORING** J. Sweeney, C. Whitney, and C.G. Wilson *Louisiana Tech University, USA*	
16:00			
C5L-A3 **WEARABLE WIRELESS ACCELEROMETER WITH EMBEDDED FALL-DETECTION LOGIC FOR MULTI-SENSOR AMBIENT ASSISTED LIVING APPLICATIONS** A. Lombardi, M. Ferri, G. Rescio, M. Grassi, and P. Malcovati *University of Pavia, ITALY*	**C5L-B3** **SUBWAVELENGTH DETECTION OF TERAHERTZ RADIATION USING GaAs HEMTs** T.A. Elkhatib[1], A.V. Muravjov[1], D.B. Veksler[1], W.J. Stillman[1], V.Y. Kachorovskii[2], X.-C. Zhang[1], and M.S. Shur[1] [1]*Rensselaer Polytechnic Institute, USA and* [2]*A.F. Ioffe Physical-Technical Institute, RUSSIA*	**C5L-C3** **pH MICRO SENSOR WITH MICRO-FLUIDIC LIQUID-JUNCTION REFERENCE ELECTRODE ON-CHIP FOR CELL CULTURE APPLICATIONS** J. Kieninger[1], A. Marx[1], F. Spies[1], A. Weltin[1], G.A. Urban[1], and G. Jobst[2] [1]*University of Freiburg (IMTEK), GERMANY and* [2]*Jobst Technologies GmbH, GERMANY*	**C5L-D3** **TAILORING OF FIELD EFFECT GAS SENSORS FOR SENSING OF NON-HYDROGEN CONTAINING SUBSTANCES FROM MECHANISTIC STUDIES ON MODEL SYSTEMS** M. Andersson and A. Lloyd Spetz *Linköping University, SWEDEN*

SESSION C5L-A *(continued)*	SESSION C5L-B *(continued)*	SESSION C5L-C *(continued)*	SPECIAL SESSION C5L-D *(continued)*
HALL A	**ROOM 6-7**	**ROOM 4-5**	**ROOM 1-2**
16:15			
C5L-A4 **IMPLANTABLE OPTICAL SENSOR FOR CONTINUOUS MONITORING OF VARIOUS HEMOGLOBIN DERIVATIVES AND TISSUE PERFUSION** J. Fiala, R. Gehrke, N. Weber, P. Bingger, H. Zappe, and A. Seifert *University of Freiburg, GERMANY*	**C5L-B4** **TERAHERTZ PLASMON-RESONANT MICROCHIP EMITTERS AND THEIR POSSIBLE SENSING AND SPECTROSCOPIC APPLICATIONS** T. Otsuji, Y. Tsuda, T. Komori, A. El Fatimy, and T. Suemitsu *Tohoku University, JAPAN*	**C5L-C4** **FABRICATION OF A MULTI-MODAL SENSOR WITH PH, EC AND TEMPERATURE SENSING AREAS FOR AGRICULTURE APPLICATION** M. Futagawa[1], T. Iwasaki[1], H. Takao[1,2], M. Ishida[1,2], and K. Sawada[1,2] [1]*Toyohashi University of Technology, JAPAN and* [2]*Japan Science and Technology Agency, JAPAN*	**C5L-D4** **OXYGEN DETECTION VIA NANOSCALE OPTICAL INDICATORS** R. Ghosh, S.P. Kramer, R. Loloee, P. Askeland, and C. Weeks *Michigan State University, USA*
16:30			
C5L-A5 **SENSOR SYSTEM FOR NON-INVASIVE OPTICAL HEMOGLOBIN DETERMINATION** U. Timm[1], E. Lewis[1], D. McGrath[1], J. Kraitl[2], and H. Ewald[2] [1]*University of Limerick, IRELAND and* [2]*University of Rostock, GERMANY*	**C5L-B5** **SURFACE PLASMON RESONANCE IMAGING WITH POLARISATION MODULATION** D.J.L. Graham and L.R. Watkins *University of Auckland, NEW ZEALAND*	**C5L-C5** **MEASUREMENT OF LIQUID COMPLEX DIELECTRIC CONSTANTS USING NON-CONTACT SENSORS** J.W. Kim, P. Pasupathy, S. Zheng, and D. Neikirk *University of Texas, USA*	**C5L-D5** **EFFECT OF WATER VAPOUR ON GALLIUM DOPED ZINC OXIDE NANOPARTICLE SENSOR GAS RESPONSE** R. Pearce[1], F. Söderlind[1], A. Hagelin[1], P.-O. Käll[1], R. Yakimova[1], A. Lloyd Spetz[1], E. Becker[2], and M. Skoglundh[2] [1]*Linköping University, SWEDEN and* [2]*Chalmers University of Technology, SWEDEN*
16:45			
		C5L-C6 **This paper has moved to C4L-B6 at 14:45.**	

16:45 CONFERENCE ADJOURNS

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