GUIDEBOOK

The 28th European Conference on Solid-State Transducers

EUROSENSORS 2014

BRESCIA, ITALY
September 7 - 10 2014

Organized by
University of Brescia and
National Research Council

www.eurosensors2014.eu
Organizing Institutions

UNIVERSITY OF BRESCIA

DEPARTMENT OF INFORMATION ENGINEERING
UNIVERSITY OF BRESCIA

NATIONAL RESEARCH COUNCIL

NATIONAL INSTITUTE OF OPTICS
NATIONAL RESEARCH COUNCIL

Under the Auspices of:

COMUNE DI BRESCIA

ITALIAN ASSOCIATION FOR
SENSORS AND MICROSYSTEMS
Dear Colleague,

on behalf of all the members of the Local Organizing Committee we welcome you to the 28th edition of the EUROSENSORS Conference in Brescia, Italy.


Since 1987, the EUROSENSORS Conference has been a forum for scientists and engineers from academia, research centres, national research institutes, and industry to present and discuss the latest results in sensors, actuators, microsystems and nanosystems. The EUROSENSORS Conference now attracts hundreds of participants every year, mainly from Europe but also from countries in other continents.

In line with previous editions, EUROSENSORS 2014 in Brescia aims at providing a special occasion to promote your research and professional work, learn and discuss about innovations and potential future accomplishments, offering at the same time the opportunity to enjoy the charm of our country.

According to the established tradition, EUROSENSORS 2014 begins with the Eurosensors School on Sunday. The lectures will be given at the graduate level, spanning from the scientific basic principles to the implementation in actual devices.

The technical program on Monday to Wednesday consists of 402 contributions, composed of 145 oral and 257 poster presentations. Among them, 4 plenary lectures on cutting-edge and emerging technologies will be presented by world-wide recognized experts from both academia and industry. Moreover, 11 invited talks will be given by distinguished speakers who will cover subjects of special interest across a broad range of topics in the fields of sensors, actuators, Microsystems and nanosystems.

The oral contributions will be presented in up to four parallel sessions, without overlap among the invited talks. The poster contributions will be presented in two rounds organized in different sessions scheduled for Monday and Tuesday. Yet all posters will remain on display for the entire duration of the conference.

The technical program is complemented by satellite events including the lunch workshop by Gefran S.p.A. on Monday, and the open session on the COST action TD1105 on Wednesday.

The Proceedings of EUROSENSORS 2014 will be published in Procedia Engineering by Elsevier. Selected papers based on the conference contributions will be published in a Virtual Special Issue of the journals Sensors and Actuators A: Physical and Sensors and Actuators B: Chemical after the standard journal reviewing process.

The number of submissions was 525. All contributed abstracts were assigned to 5 reviewers, and no abstracts received less than 3 reviews, with an average of 4.6 received reviews per abstract. The contributions accepted in the program were 402 (145 lectures + 257 posters), corresponding to 77% of the submissions.
Abstracts were received from 47 countries. The regional distribution of the accepted contributions is the following: 85.3% from Europe, 10% from Asia/Pacific, 2% from North America, 1.5% from Latin America, and 1.2% from Middle East/Africa.

The distribution by affiliation types is the following: 77.6% from academia, 12.9% from research centres and institutes, 3.2% from government, 5.2% from industry, and 1.1% from other affiliation types.

Besides the scientific contents, EUROSENSORS 2014 will offer to the participants and accompanying persons a number of social events to make your stay in Brescia as enjoyable as possible and promote networking in a friendly atmosphere.

Special thanks go to all people who contributed to the development of the conference program and organization of the event. In particular, we wish to thank the members of the Technical Program Committee (TPC), who exemplarily carried out the peer review work, the Local Scientific Program Committee (LSPC) chaired by Dr. E. Comini for defining the conference program, the Outstanding Poster Award Committee chaired by Prof. A. D’Amico, and the Session Chairs for their fundamental service during the conference. In addition, we wish to thank the Lecturers of the Eurosensors School and the School Chair Prof. G. Faglia for their effort and dedication. Moreover, we want to express our sincere gratitude to all the members of the Local Organizing Committee (LOC) chaired by Dr. M. Ferrari, the Publication and Publicity Chairs Dr. A. Ponzoni and Dr. S. Dalola, respectively, and all the local staff and Secretariat office for their invaluable contribution.

We gratefully acknowledge the University of Brescia for hosting and sustaining the conference, the Institutions of the city of Brescia, the National Research Council (CNR) and AISEM for their patronage, and the Sponsors and Exhibitors for their qualified participation and support.

Finally, we wish to warmly thank you and all the conference attendees. The quality of your work and your enthusiastic participation to the event are key features to guarantee the high scientific level and success of EUROSENSORS 2014.

We wish you a fruitful EUROSENSORS 2014 Conference and a pleasant stay in Brescia!
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- Mattia Rizzi
- Gurpreet Singh Selopal
- Giulia Zambotti
- Dario Zappa
PLENARY SPEAKERS

Fiber-Optic Lossy Mode Resonance Sensors

Francisco J. Arregui
Electrical and Electronic Engineering Department
Universidad Publica de Navarra,
Pamplona, Spain

Nanoreactors for Atomic-Scale Microscopy

Fredrik Creemer
DIMES-ECTM, Delft Institute of Microsystems and Nanoelectronics
Delft University of Technology,
Delft, The Netherlands

Selective Chemosensing and the Diagnostic Breathalyzer

Pelagia-Irene (Perena) Gouma
Center for Nanomaterials and Sensor Development
Department of Materials Science and Engineering
State University of New York,
Stony Brook, NY, USA

MEMS Technology Impact on Daily Life

Bruno Murari
STMicroelectronics,
Comaredo (Milan), Italy
INVITED SPEAKERS

Membrane Platforms for Sensors
István Bársony
MFA, Research Centre for Natural Sciences
Hungarian Academy of Sciences,
Budapest, Hungary

Soft Piezoelectric MEMS Technologies for Tactile Sensing and Energy Harvesting
Massimo De Vittorio
Istituto Italiano di Tecnologia (IIT),
Center for Bio-Molecular Nanotechnology
Dip. Ingegneria dell’Innovazione
Università del Salento
Lecce, Italy

Wireless Sensor Networking in the Internet of Things and Cloud Computing Era
Alessandra Flammini
Department of Information Engineering
University of Brescia,
Brescia, Italy

Phononic Crystals and Metamaterials Promising New Sensor Platforms
Ralf Lucklum
Institute for Micro and Sensor Systems (IMOS)
Faculty of Electrical Engineering and Information Technology
Otto-von-Guericke-University Magdeburg,
Germany

Gas Dependent Changes in the Electrical Behavior of Selective Metal-Oxide Layers
Stefan Palzer
Laboratory for Gas Sensors
Department of Microsystems Engineering - IMTEK
University of Freiburg,
Freiburg, Germany

Semiconductor Metal Oxides as Hydrogen Gas Sensors
Sukon Phanichphan
Materials Science Research Center,
Faculty of Science
Chiang Mai University,
Chiang Mai, Thailand
INVITED SPEAKERS

Bio-inspired Explosive Sensors and Specific Signatures

Denis Spitzer
Laboratoire des Nanomatériaux pour les Systèmes Sous Sollicitations Extrêmes (NS3E)
UMR 3208 ISL-CNRS-UdS, Saint-Louis, France

Flexible Piezoelectric Nanogenerators for Energy Autonomy

Christos Tsamis
Institute of Nanoscience and Nanotechnology National Center for Scientific Research “Demokritos”, Athens, Greece

Novel Multichannel Fluorescence Detection for Lab-on-a-Chip Applications with Quantum Rods Fluorochromes

Rafał Walczak
Wrocław University of Technology, Faculty of Microsystem Electronics and Photonics, Wrocław, Poland

Overview of p-type Semiconducting Metal Oxides (SMOX) for Gas Sensings

Udo Weimar
Institute of Physical Chemistry University of Tübingen (IPC), Tübingen, Germany

Trends in Near Infrared Spectroscopy and Multivariate Data Analysis from an Industrial Perspective

Kerstin Wiesner
Corporate Technology, Siemens AG, Munich, Germany

COSTAction TD1105: Overview of Sensor-Systems for Air-Quality Monitoring

Michele Penza
Chair of COSTAction TD1105 EuNetAir ENEA, Brindisi, Italy
SCHOOL LECTURERS

**Flexible and Printed Sensors and Sensing Systems**

Danick Briand  
École Polytechnique Fédérale de Lausanne, Switzerland

**Silicon-based Micro Mechanics: Applications, Technology and Device Principles**

Fredrik Creemer  
DIMES-ECTM, Delft Institute of Microsystems and Nanoelectronics  
Delft University of Technology, Delft, The Netherlands

**Microelectronic Technology from Solid State to Flexible Substrates: Tactile Sensors as a Case Study**

Leandro Lorenzelli  
FBK-CMM Center for Materials and Microsystems, Trento, Italy
Access to Social Events of EUROSENSORS 2014 will be permitted after presentation of the badge and ticket. Please do not forget to bring your badge and invitation card with you.

**INFORMAL GET TOGETHER**

University of Brescia, San Faustino Cloister  
Via San Faustino 74/B - Brescia  
Sunday, September 7, 2014  
18.00 - 21.00

The Informal Get-Together reception will be held in the beautiful ex-Convent historical building of San Faustino, a complex originally built in the 9th century. Most of the complex dates back from the 16th century and was part of a Benedictine convent. During the Napoleonic times, the religious community was suppressed whilst the convent was confiscated and used as barracks. The military use of the complex continued until the 1980s, after which it became the property of the University of Brescia. The complex is built around three cloisters. The first one, named “della campanella”, was the former convent main entrance. The major cloister, a square with a 35 m side bordered by an open gallery, was built in 1534 by Andrea Moroni, which is especially known because of its important architectural work in Padua. The third one had more practical uses; it was formerly surrounded by stables, workshops and warehouses. The restoration, ended by 1997, made all the buildings suitable for academic use. Some rooms still have the old frescoes, including paintings by Gian Domenico Tiepolo.”

**How to reach the Informal Get Together Venue**

**By underground (metro)**  
University of Brescia, San Faustino Cloister is a few steps away from “San Faustino” underground station.

**By car**

San Faustino Cloister is located in the historical center, in a limited traffic zone.  
Car parks at walking distance:
- “Fossa Bagni” car park, in Piazzale Cesare Battisti and via Lombroso  
- “Piazza Vittoria” underground car park, in Piazza Vittoria
EVENING CONCERT
Auditorium San Barnaba
Corso Magenta 44/A - Brescia
Monday, September 8, 2014
19.30 - 21.00

The Church of San Barnaba dates back to XIII century, with a sumptuous marble XVII century Baroque façade, was turned deconsecrated and turned into a lavish Auditorium and Concert Hall. In this beautiful hall, rich in history, will take place the Evening Concert. The concert will be performed by the orchestra from the renown adjacent Conservatory “Luca Marenzio”.

How to reach the Evening Concert Venue

The Auditorium San Barnaba is located in the heart of historical center, in a limited traffic zone, midway between Corso Zanardelli and Piazza Arnaldo. Entrance from Piazzetta Benedetto Michelangeli.

By underground (metro)

From the Engineering campus go to “Europa” station and take the Southbound line (end-of-line station “Sant’Eufemia”) and get off at “Vittoria” underground station, then is just a 10 min walk.

By car

The Auditorium San Barnaba is located in the heart of historical center, in a limited traffic zone, midway between Corso Zanardelli and Piazza Arnaldo.

Car parks at walking distance:
- “Fossa Arnaldo” car park, in Piazza Arnaldo
- “AutosiloUno” car park, in Via Vittorio Emanuele II, 68
- “Piazza Vittoria” underground car park, in Piazza Vittoria
The Conference Banquet will take place at “Antica Cascina San Zago” Restaurant, a strikingly refurbished farmhouse, formerly a XVII century monastery. Located on the hills overlooking Lake Garda, the inner courtyard of this ancient building is enclosed in stone walls, amid a 50.000 sq mt park, amid olive trees, and with breathtaking views over the Lake Garda.

Dress Code: Business Informal

Transportation to Salò (about 45 minutes from the Conference Venue) and return has been arranged by bus.

Meeting Point at the Conference Venue at 19.30.

Please make sure you bring your badge and Conference Banquet invitation card with you

Please refer to the Secretariat Desk for detailed information about transportation.
The EUROSENSORS 2014 Conference will be hosted in the modern facilities of the Engineering Campus at the University of Brescia. The Università degli Studi di Brescia was officially established in 1982 with three Schools: Medicine and Surgery, Engineering, Economics and Business. The completion of the creation phase lasted nearly two decades, and actually the first university courses in Brescia were offered back in the 1960s. The venue is located in a pleasant residential area easy to reach from the city center and offers adequate spaces to comfortably host all the participants, including fully equipped rooms for plenary and oral sessions, complemented by wide indoor and outdoor exhibition areas for poster sessions, expositions of sponsor companies, informal discussions and networking.

How to reach Brescia

By plane

**Bergamo - Orio al Serio airport (BGY)**
Reach Brescia by shuttle bus
This is the cheapest and easiest way to get from Bergamo - Orio al Serio Airport directly to Brescia railway station.
Reach Brescia by train
Use the public bus service ATB to get to Bergamo railway station. Then you can take a train from Bergamo to Brescia, in about one hour you will be at Brescia railway station.

**Milan - Linate airport (LIN)**
Reach Brescia by train
From Milan - Linate airport, you can reach Milan Central railway station ("Stazione Milano Centrale") by taxi, a 10 min ride, or by bus. You can then take a train to Brescia and get to Brescia railway station (travel time about 50 min).

**Milan - Malpensa airport (MXP)**
Reach Brescia by train
Milan - Malpensa airport is well connected to Milan Central railway station ("Stazione Milano Centrale") by either the "Malpensa Express" train or the "Malpensa Shuttle" bus. You can then take a train to Brescia and get to Brescia railway station (travel time about 50 min).

**Verona - Villafranca airport (VRN)**
Reach Brescia by train
Verona - Villafranca airport is well connected to Verona Porta Nuova railway station ("Stazione Verona Porta Nuova") by shuttle bus. From Verona Porta Nuova railway station you can take a train to Brescia railway station (travel time about 45 min).
Access to Conference Venue

By train

Brescia is one of the major train stops along the railway backbone connecting Turin to Venice, via Milan, Bergamo and Verona. The railway company is TrenItalia. There is only one railway station (“Stazione FS”) in Brescia.

By car

Brescia is located along the highway (“Autostrada”) A4 Milan-Venice (“Milano - Venezia”). We suggest to take the “Brescia-Ovest” exit as it is the most convenient to reach the conference venue.

Directions from airports:

- From Milan – Linate airport drive towards Milan (“Milano”) and then take the highway A4 towards Venice (“Venezia”).
- From Milan – Malpensa airport take the highway A8 towards Milan (“Milano”) and then join the highway A4 towards Venice (“Venezia”).
- From Bergamo - Orio al Serio airport take the highway A4 towards Venice (“Venezia”).
- From Verona - Villafranca airport take the highway A4 towards Milan (“Milano”).

How to reach the Conference Venue

By underground (metro)

From Brescia railway station “Stazione FS” underground station or from anywhere in the city center take the Northbound line (end-of-line station “Prealpino”) and get off at “Europa” underground station. The University of Brescia, Engineering Campus is just 200 m away along Via Branze and is the white building on the right.

By car

Highway A4 Milano - Venezia
Exit: Brescia Ovest.
From Brescia Ovest exit, follow signs to Stadium (“Stadio”) or Hospital (“Ospedale”), which are both located in the north of the town. When the Hospital has been reached and is visible on the right, follow along Via Triumplina and turn right in Via Branze. The Engineering building is the white one on the left.

Highway A21 Piacenza - Brescia
Exit: Brescia Centro.
From Brescia Centro exit, follow signs to Stadium (“Stadio”) or Hospital (“Ospedale”), which are both located in the north of the town. When the Hospital has been reached and is visible on the left, in Piazzale Spedali Civili, follow along Viale Europa and turn left in Via Branze. The Engineering building is the white one on the right.
REGISTRATION DESK
On Sunday, September 7, 2014, the Registration Desk will be open at the San Faustino Cloister, Via San Faustino 74/b, Brescia, for all Eurosensors School participants and people attending the Welcome Reception.

Opening hours:
Sunday 16.00 - 20.00

During the Conference, the Registration and Information Desk will be located in the hall of the Conference Venue, Via Branze 38, Brescia.

Opening hours:
Monday and Tuesday 08.00-18.30
Wednesday 08.00-16.00

OFFICIAL LANGUAGE
The official language of the conference is English and will be used for all presentations and printed material.

BADGES
All attendees must wear their name badges at all times to have access to all conference sessions, exhibits and receptions. Please make sure to bring your badge and Concert and/or Conference Banquet invitation card with you to attend the social events. Attendance may be refused to the participants devoid of the registration documents.

LEFT-LUGGAGE DESK
An unattended left-luggage desk will be available from Monday 8 to Wednesday 10.

WIFI
Wi-Fi internet connection is available throughout the venue upon request. Please refer to the Information Desk.

SMARTPHONE APP
EUROSENSORS 2014 Mobile App is available to access the conference program.
The EUROSENSORS 2014 Mobile App provides:
- Access to up-to-date conference agenda (online program).
- Conference key information (venue, maps, sponsors etc.).
- Agenda planning feature which allows to plan customised program.

Mobile App can be downloaded for:
- Android
- iOS
- Windows Phone
- Amazon Kindle Fire

After downloading the Conference4me app, launch the app and search for EUROSENSORS 2014 conference and tap on it to download. The entire program will be downloaded into phone/mobile device.

Please note:
- Once downloaded, the program can be accessed even in the absence of wi-fi or data connection.
- Wi-fi or data connection is only required to check for program updates.
USEFUL PHONE NUMBERS AND LINKS
Ambulance: 118
Police: 113
Fire Brigade: 115
Taxi: 030.35111
Railway tickets: www.trenitalia.com

ELECTRICITY
Electricity in Italy is 220 V, 50 Hz alternating current (AC). Italian sockets are designed to accept round pins.

CLIMATE
The weather in September is mild, warm and sunny for most part of the day and the temperature ranges from 18 to 27. Occasional rain showers may occur.
About Brescia

Brescia is Lombardy’s second biggest city, a university town with a modern business satellite - Brescia Due - it is prosperous and lively. Located between two of Italy’s most famous lakes, Lake Garda and Lake Iseo, Brescia is often overlooked by visitors who bypass the city itself and head straight to the undeniably beautiful lakes. A great pity, as Brescia has one of the most beautiful historic centres in the region, and some of the best Roman and Lombard remains in northern Italy such as:

**Plaza della Loggia** - The city’s prettiest square was built in the 15th century. Torre dell’Orologio or the clock tower, was modelled on the campanile in Venice’s Piazza San Marco. Porta Bruciata, in one corner, is a medieval tower and gate.

**Cathedrals** - The two cathedrals are found on Piazza Paolo VI. The Rotonda is a old 12th century cathedral. Inside you can see Roman remains and the apse of an 8th century basilica. The new cathedral is late Baroque style and took over 200 years to complete.

**Via dei Musei** - The old Roman road is lined with Roman ruins including the Roman forum, a theater and a temple built in 73AD.

**Monasteries** - Monastery of Santa Juliana was founded in 753 and has three churches. It now houses the city museum with artifacts from prehistory to the 20th century. San Pietro in Lamosa was founded in the 11th century and is Romanesque in style.

**Piazza della Vittoria** - This large square was built in 1932 in what was once a medieval center. On one side of the square is a 60 meter tall tower. The Mille Miglia historic car race starts from Piazza della Vittoria and on the third Sunday of the month there’s an antiques market.

**Castle** - The medieval castle complex on the hill includes towers, ramparts, gardens, courtyards, drawbridges and several underground tunnels. It houses the Ancient Arms Museum, Risorgimento Museum, and a model railway exhibit. From the highest point there are good views of the city below. Brescia is also well known for the annual Mille Miglia historic car race held in spring, which starts and ends in the city.
**Underground Map**

The newly built underground line will easily get you to the city center (4 stops to Piazza Vittoria) and link most hotels to the venue and satellite events locations. The city bus service is also well organized.
About Brescia

**RESTAURANTS** (we recommend reservation)

1. **Trattoria Caprese**  
Piazza della Loggia 11/I  
Phone: +39 030 293018 - e-mail: brescia@trattoriacaprese.it

2. **Pizzeria Trattoria La Nuova Piedigrotta**  
Via Mazzini, 36  
Phone: +39 030 3776317

3. **Pizzeria Le Arcate**  
Piazza Del Mercato, 27  
Phone: +39 030 49147

4. **Yoshi Restaurant**  
Via Fratelli Lechi, 10 – Largo Torrelunga  
Phone: +39 030 3776604

5. **Zushi Restaurant**  
Viale Venezia, 40, 25100 Brescia  
Phone: +39 030 3757862 - e-mail: brescia@zuschi.eu

6. **Trattoria Mezzeria Di Comelli Maria & C. Snc**  
Via Trieste, 66, 25121 Brescia  
Phone: +39 030 40306

7. **L’Osteria al Bianchi**  
via Gasparo da Salò 32,  
Phone: +39 030 292328 - e-mail: info@osteriaalbianchi.it

8. **Trattoria Gasparo**  
via Gasparo da Salò, 24, 25122 Brescia (BS)  
Phone: +39 030 2400226 - e-mail: info@trattoriagasparo.it

9. **Locanda Dei Guasconi**  
Via Cesare Beccaria, 11G, 25121 Brescia  
Phone: +39 030 377 1605

10. **Carmen town**  
Via Fratelli Bandiera, 3  
Phone: +39 030 6376332 - e-mail: info@carmentown.it

11. **Mentelocale**  
Via Porta Pile, 3  
Phone: +39 030 45705

12. **I Macc de le Ure**  
Piazza Paolo VI, 6, 25121 Brescia  
Phone: +39 030 291552

13. **Il frate**  
Via dei musei, 25  
Phone: +39 030 3770550 - e-mail: info@alfrate.com
Forty years of experience and in depth know-how, in addition to an organisation strongly oriented towards customer needs and constant technological innovation, have enabled Gefran to become a leader in the sector of automation and systems components for industrial process control.

Gefran is synonymous with quality and expertise in the design and manufacture of sensors, automation and drives, thanks to its constant attention to market trends and continuous professional training of its technical personnel.

Through collaboration with qualified Research Centres and European universities, as well as investments in R&D, Gefran Group strives towards constant technological development of its products and services in order to anticipate market trends.

With its wide range of highly technology products, Gefran is able to offer a one stop shop, providing the ideal solution to applications such as plastic, metal, mobile hydraulic, electrical furnaces, hoist and crane, lift. Gefran provides expert advice, synergy and partnership with its customers too.

Gefran Group is based in Italy, has approximately 900 employees worldwide, operates directly in 17 countries and has 8 manufacturing plants. With a network of over 70 authorised distributors the company is able to count on a global sales network.

Gefran Spa has been listed on the Milan Stock Exchange since 1998 and on the ‘Star’ Segment for High Requirement Shares since 2002.

100,000 references one for every need

SENSORS - A wide range of precision measurement devices for process variables: temperature, force, pressure, and position. The primary element is made in a cleanroom, protected against all interference and equipped with cutting-edge instruments.

AUTOMATION - A complete line of products for indicating and controlling process variables. Automation platforms, controllers and indicators, solid state power units and power controllers, continuously advancing to satisfy customer demands for process optimization and energy efficiency of plants and systems. Gefran also designs and builds complete electrical panels for machine automation – especially for plastic processing machines. A special division works with a variety of machine manufacturers to develop turnkey solutions for their specific needs.

MOTION CONTROL - An entire line of electric drives that control the speed of AC and DC motors, inverters and converters. Designed and produced with latest-generation technologies in Gefran’s ultra-modern Drive and Motion Control Unit at Gerenzano (Varese). Gefran also provides dedicated solutions to satisfy the specific needs of every customer.
The technical program consists of 402 contributions, 145 oral presentations and 257 posters.

**LECTURE PRESENTATIONS**

The duration of a presentation slot is 15 minutes. Speakers will have 12 minutes for the presentation itself and 3 minutes for questions from the audience.

Plenary and Invited speakers will have slots of 45 and 30 minutes including questions, respectively.

A LCD projector and computer (Windows, MS PowerPoint & Adobe Acrobat Reader) will be available in every session room for presentations.

Preparation of Visuals:

**PLEASE NOTE THAT SPEAKERS MUST EITHER BRING A MEMORY STICK CONTAINING THEIR PRESENTATION FILE OR THEIR OWN LAPTOP COMPUTER WITH THE APPROPRIATE PRESENTATION SOFTWARE LOADED.**

Files can be uploaded to the local PCs in the lecture rooms during the breaks between the sessions. To avoid software compatibility problems, speakers are advised to EMBED ALL FONTS in their PowerPoint file AND bring a backup PDF-version of their presentation.

Speakers must arrive in their session room 15 minutes BEFORE the start of their session to report to the chair persons. An assistant from the local organization will also be available for technical assistance.

**General Considerations:**

- Limit the number of words per visual to no more than 20.
- Leave space, at least the height of a capital letter, between lines of text.
- All fonts, including that on graphs, should be 18 point or larger.
- Graphs and charts should have bold lines and symbols that contrast sharply with the background.
- Each lecture presentation (including plenary and invited) is identified by its own code which indicates the location and time of the presentation.

**POSTER PRESENTATIONS**

There will be a large number of posters presented during the conference. It is essential that posters are put up in the right assigned place so that they can be easily reached by the interested attendees.

The assigned placement of each poster will be marked on the panel where the poster will be presented with the number of the specific poster according to the session code reported in the conference program.

The posters must remain attached during the entire conference. Therefore, they should be put up on Monday morning and removed at the end of the conference.

The size of the panel space that is available to each poster is **120cm (high) x 90cm (wide)**.

The format of the poster panel is portrait (height > width). Size and format can not be modified. Authors are free to choose a single poster (or many smaller posters) that fit on the given panel size. Posters will be attached to the panel with adhesive tape which will already be available on the panel. If more tape is needed, the poster area assistant can be contacted.
GUIDE TO PAPER AND SESSION NUMBERING

Each conference paper (both posters, lectures, plenary and invited) in the technical program is assigned a unique number, which indicates when and where the paper presentation takes place.

Typical Session Number: A3L-B02
(A = first day (Monday), 3 = the time slot, L = Lecture session, A = ‘Sala CONSILIARE’ Hall).

The first character (a letter, i.e. A) indicates the day of the conference:
A = Monday
B = Tuesday
C = Wednesday

The second character (a number, i.e. 3) shows the session number of the day:
1 = early morning
2 = mid morning
3 = early afternoon
4 = mid afternoon

The third character (a letter, i.e. L) indicates the type of the presentation:
L = Lecture
P = Poster

The fourth character (a letter, i.e. B) shows the location of the paper presentation:
For oral presentations:
A = ‘Aula MAGNA’ Hall;
B = ‘Sala CONSILIARE’ Hall;
C = Room N1;
D = Room N2

For poster presentations
E, F, G, H, J, K, L: poster areas

The fifth character (a number, i.e. 02) indicates the paper numbering.
Satellite Events

EUROSENSORS SCHOOL

Sunday, September 7, 2014
University of Brescia, San Faustino Cloister
Via San Faustino 74/B, Brescia
09.15 - 18.00

Background

EUROSENSORS School addresses the fundamentals of sensor science technologies and discusses recent development/potential applications. The lectures are given at the graduate level and typically span from the scientific basic principles to the implementation in actual devices. They are intended for PhD students and young researchers in the field, researchers who have recently entered the interdisciplinary field of sensors and actuators, and for colleagues who want to brush up their fundamental knowledge in certain fields.

Schedule and Topics

09.15 - 09.30 Guido Faglia - University of Brescia
Eurosensors School Chair
Welcome and Presentation of the EUROSENSORS 2014 School

09.30 - 10.30 Amaldo D'Amico - University of Rome Tor Vergata, Italy
Lina (Pasqualina M.) Sarro - Delft University of Technology DIMES-ECTM, The Netherlands
Corrado Di Natale - University of Rome Tor Vergata, Italy
Eurosensors School Advisory Board
A Way to Follow for the Sensor Science Development

10.30 - 12.30 Fredrik Creemer - Delft University of Technology DIMES-ECTM, The Netherlands
Silicon-based Micro Mechanics: Applications, Technology and Device Principles
Topics
1. Applications:
   a. Why micromechanics? Why silicon?
   b. Examples of micromechanical devices
   c. Markets and trends
2. Technology:
   a. Basicsof micromechanics manufacturing
   b. Example flow charts
3. Device principles:
   a. Beams, resonators, and membranes
   b. Sensing mechanisms
   c. Actuation mechanisms

12.30 - 13.30 Lunch

13.30 - 15.30 Danick Briand - École Polytechnique Fédérale de Lausanne, Switzerland
Flexible and Printed Sensors and Sensing Systems
Topics
1. State of the art on flexible and printed sensors
2. Physical sensors
3. Chemical sensors
4. Biosensors and bioelectronics
5. Printing and large area manufacturing
6. Smart sensing systems and their integration

15.30 - 16.00 Coffee break
Satellite Events

16.00 - 18.00  Leandro Lorenzelli - FBK-CMM Center for Materials and Microsystems, Trento, Italy
Ravinder Dhiya - FBK-CMM Center for Materials and Microsystems, Trento, Italy & University of Glasgow, Electronics and Nanoscale Engineering, UK
Andrea Adami - FBK-CMM Center for Materials and Microsystems, Trento, Italy

**Microelectronic Technology from Solid State to Flexible Substrates: Tactile Sensors as a Case Study**

Topics
1. Stretchable devices and circuits for sensitive tactile sensors in smart skin applications.
2. Candidate transduction technologies for contact sensing: piezoelectric polymers, resistive, capacitive.
3. Transducers and on chip conditioning electronics.
GEFRAN LUNCH WORKSHOP

Monday, September 8, 2014
University of Brescia, Engineering Campus
‘Sala CONSILIARE’ Hall
13.00 - 14.00

Serving our customers with innovative technologies

Gefran is a global supplier of industrial automation and process control, technology and solutions. A significant business within the Gefran Group is the Sensor Division. Gefran sensors are capable of measuring variables such as pressure, position, temperature, and force, constantly assuring reliable and accurate measurements. In depth technological know-how as well as remarkable application versatility are distinctions elements of Gefran sensors, a company always willing to serve its customers with innovative and state of the art products, providing them with tailor-made solutions.
COST ACTION TD1105 OPEN SESSION NEW SENSING TECHNOLOGIES FOR AIR-QUALITY MONITORING

Wednesday, September 10, 2014
University of Brescia, Engineering Campus
Room N2
09.00 - 12.30

09:30 - 10:00 Michele Penza - ENEA, Brindisi, Italy
COSTAction Chair
COST Action TD1105: European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability. Overview of Sensor-Systems for Air Quality Monitoring

10:00 - 10:30 Michel Gerboles and Laurent Spinelle - JRC, EC DG ENV, Institute for Environment and Sustainability, Ispra, Italy
Performance Analysis of Low-Cost Gas Sensors for Air Quality Control

10:30 - 11:00 Coffee Break

11:00 - 11:20 Anita Lloyd Spetz - Linkoping University, Linkoping, Sweden
Action Vice-Chair
Gas and Particle Sensors for Air Quality Monitoring

11:20 - 11:40 Juan Ramon Morante - IREC, Barcelona, Spain
Action WG1 Leader
Nanostructured Metal Oxides Low-Cost Gas Sensors: Trends and Challenges

11:40 - 12:00 Andreas Schuetze - Saarland University, Saarbrucken, Germany
Action WG2 Leader
Highly Sensitive and Selective VOC Detection for Indoor Air Quality Applications

12:00 - 12:20 Julian W. Gardner - University of Warwick, Coventry, UK
Action MC Substitute
Smart Sensors in Mobile Phones for Environmental Monitoring Applications

12:20 - 12:30 Closure of COST Action TD1105 EuNetAir Open Session: Discussion and Inputs from Audience
EURO SENSOR S 2015, the XXIX edition of the conference series, will be held in Freiburg, Germany, from September 6 to 9, 2015.

Web-site: www.eurosensors2015.org
# Program at a Glance

**Sunday, September 7, 2014**  
University of Brescia, San Faustino Cloister  
Via San Faustino 74/B, Brescia

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|               | A3L-C Microsystems for Bio- and Medical Sensors  
|               | A3L-D MicroFluidic and MicroAnalytical Devices and Systems  
| 16.00 - 16.30 | Coffee break                   |
| 16.30 - 18.30 | Poster sessions I              |
| 19.30         | Evening Concert                 |
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Time:  Monday, September 8, 2014, 09:30 - 11:00
Place:  'Aula MAGNA' Hall
Chair(s):  Giorgio Sberveglieri, University of Brescia, Brescia (Italy)
          Christofer Hierold, ETH Zürich, Zürich (Switzerland)

09:30  Plenary Talk
A11-A01  Fiber-Optic Lossy Mode Resonance Sensors
Francisco J. Arregui, Ignacio Del Villar, Jesus M. Corres,
Javier Goicoechea, Carlos R. Zamarreño, Cesar Elsoua, Miguel
Hernaez, Pedro J. Rivero, Abian B. Socorro, Aitor Urrutia,
Pedro Sanchez, Pablo Zubiate, Diego Lopez, Nerea De Acha,
Ignacio R. Matias
Universidad Publica de Navarra, Spain

10:15  Plenary Talk
A11-A04  Selective Chemosensing and Diagnostic Breathalyzer
Pelagia-Irene Gouma1, S. Sood1, M. Stanacevic2, S. Simon3
1Dept. Mat. Sci. Eng., State University of New York at Stony
   Brook, United States; 2Dept. El. Eng., State University of New
   York at Stony Brook, United States; 3Dept. Biochem., State
   University of New York at Stony Brook, United States
**A2L-A**  
**Plenary II**  
**Time:** Monday, September 8, 2014, 11:30 - 13:00  
**Place:** 'Aula MAGNA' Hall  
**Chair(s):** Vittorio Ferrari, *University of Brescia, Brescia (Italy)*  
Istvan Barsony, *Hungarian Academy of Sciences, Budapest (Hungary)*

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<td>Fredrik Creemer</td>
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## A3L-A  Metal Oxides for Chemical Sensing I

**Time:** Monday, September 8, 2014, 14:30 - 16:00  
**Place:** 'Aula MAGNA' Hall  
**Chair(s):** Maximilian Fleischer, Siemens AG, Munich (Germany)  
Elisabetta Comini, University of Brescia, Brescia (Italy)

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|        |         | Udo Weimar  
**University of Tübingen, Germany** |

### A3L-A01 15:00

**P-Type CuO Nanowires and Thin Film for Highly Sensitive Kelvin Probe Gas Sensing Applications**
Muhammad Ehsan Mazhar, Guido Faglia, Elisabetta Comini, Camilla Baratto, Dario Zappa, Raj Kumar, Giorgio Sberveglieri  
SENSOR Laboratory, Italy

### A3L-A03 15:15

**Influence of Conduction Mechanism Changes on the Sensor Performance of SMOX Based Gas Sensors**
Julia Rebholz, Udo Weimar, Nicolae Barsan  
University of Tübingen, Germany

### A3L-A04 15:30

**New Process Technologies for the Deposition of Semiconducting Metal Oxide nanoparticles for Sensing**
Jens Kemmler, Sven Schöpf, Lutz Mädler, Nicolae Barsan, Udo Weimar  
1Foundation Institute of Materials Science (IWT), Germany; 2Institute for Physical and Theoretical Chemistry, Germany

### A3L-A05 15:45

**Chemical Sensors Based on a High-K Perovskite Oxide of Barium Strontium Titanate**
Christina Huck, Arshak Poghosssian, Matthias Bäcker, Steffen Reisert, Jürgen Schubert, Willi Zander, Vardges Begoyan, Vahe Buniatyans, Michael Schöning
1FH Aachen, Campus Jülich, Institute of Nano- and Biotechnologies, Germany; 2Forschungszentrum Jülich GmbH, Peter Grünberg Institute, Germany; 3State Engineering University of Armenia, Department of Microelectronics and Biomedical Devices, Armenia
A3L-B  Acoustic Sensors
Time:  Monday, September 8, 2014, 14:30 - 16:00
Place:  'Sala CONSILIARE' Hall
Chair(s):  Bernhard Jakoby, Johannes Kepler University Linz, Linz (Austria)
          Philippe Robert, CEA-LETI/MINATEC, Grenoble (France)

14:30
A3L-B01  Multicantilever Oscillator
Francese Torres, Arantxa Uranga, Núria Bamiol
Universitat Autònoma de Barcelona, Spain

14:45
A3L-B02  Symmetric Plate Resonators for Viscosity and Density Measurement
Ali Abdallah, Erwin Reichel, Martin Heinisch, Stefan Clara,
Bernhard Jakoby
JKU, Austria

15:00  Invited Talk
A3L-B03  Phononic Crystals and Metamaterials - Promising New Sensor Platforms
Ralf Lucklum
Otto-von-Guericke-University Magdeburg, Germany

15:30
A3L-B05  Poling Effect to Piezoelectric Diaphragm-Type Ultrasonic Microsensors and Sensitivity Enhancement Through Buckling Profile Control
Kaoru Yamashita, Hikaru Tanaka, Minotu Noda
Kyoto Institute of Technology, Japan

15:45
A3L-B06  Development of a 6×6 Element Air-Coupled Multiple Moving Membrane Capacitive Micromachined Ultrasonic Transducer Array, M3-CMUT, for High Resolution Detection Applications
Tahereh Arezoo Emadi, Douglas Buchanan
University of Manitoba, Canada
A3L-C  Microsystems for Bio- and Medical Sensors
Time: Monday, September 8, 2014, 14:30 - 16:00
Place: Room N1
Chair(s): Robert Puers, KU Leuven, Leuven (Belgium)
         Jan Dziuban, Wroclaw University of Technology, Wroclaw (Poland)

14:30

A3L-C01  Development of High Frequency Microfluidic Biosensors for Intracellular Analysis
Claire Dalmay, Jonathan Leroy, Arnaud Pothier, Pierre Blondy
XLIM UMR CNRS 7252 / Limoges University, France

A3L-C02  Multi-Spot, Label-Free Detection of Biomarkers in Complex Media by Reflectionless Surfaces
Matteo Salina1, Fabio Giavazzi2, Erica Cecarello3, Francesco Damini4,
Marcella Chiari1, Marina Ciuffo2, Gian Paolo Accotto2, Marco Buscaglia1
1ICRM-CNR, Italy; 2IPSP-CNR, Italy; 3Proxentia S.r.l., Italy;
4Università degli Studi di Milano, Italy

15:00

A3L-C03  Photoresist-Based Microfluidic Cell Sorter for Photodynamic Urine Diagnosis
Yoshikazu Hirai1, Daisuke Takagi1, Satoshi Anai2, Yoshitomo Chihara2,
Toshiyuki Tsuchiya1, Kiyohide Fujimoto2, Yoshihiko Hirao2, Osamu Tabata1
1Kyoto University, Japan; 2Nara Medical University, Japan

A3L-C04  Wireless Tear Glucose Sensor
Andreas Hennig1, Jan Lauko2, Anton Grabmaier3, Chris Wilson4
1Fraunhofer IMS, Germany; 2NovioSense BV, Netherlands

15:30  Invited Talk

A3L-C05  Novel Multichannel Fluorescence Detection for Lab-on-a-Chip Applications with Quantum Rods Fluorochromes
Rafal Walczak1, Katja Werner2, Jan Niehaus2
1Wroclaw University of Technology, Poland; 2CAN GmbH, Germany
A3L-D  MicroFluidic and MicroAnalytical Devices and Systems
Time: Monday, September 8, 2014, 14:30 - 16:00
Place: Room N2
Chair(s): Michael Vellekoop, University of Bremen, Bremen (Germany)
Christophe Pijolat, National Graduate School of Engineering, St-Etienne (France)

14:30
A3L-D01  Realization of a Planar Water-Gated Field Effect Transistor (WG-FET) Using 16-nm-Thick Single Crystalline Si Film
Ozan Ertop, Bedri Gurkan Sonmez, Senol Muthu
Bogazici University, Turkey

14:45
A3L-D02  A Polymer microdevice for Tensiometry of Insoluble Components
Pieter Gijsenbergh, Martina Pepicelli, Chris Wirth, Jan Vermant, Robert Puers
1KU Leuven CIT-SMaRT, Belgium; 2KU Leuven ESAT-MICAS, Belgium

15:00
A3L-D03  MEMS-Based Porous Silicon preconcentrators Filled with carbo pack for Explosives Detection
Malick Camara, Franck James, Philippe Breuil, Christophe Pijolat, Danick Briand, Nico de Rooij
1École Nationale Supérieure des Mines de Saint-Etienne (ENSM-SE), France; 2École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

15:15
A3L-D04  A Novel Design and Fabrication of Multichannel Microfluidic Impedance Spectroscopy Sensor for Intensive Electromagnetic Environment Application
Marc-Peter Schmidt, Aleksandr Oseev, Christian Engel, Andreas Brose, Alexander Aman, Soeren Hirsch
Institute of Micro and Sensor Systems (IMOS), Germany

15:30
A3L-D05  Integration of Single Cell Traps, Chemical Gradient Generator and photosensors in a Microfluidic Platform for the Study of Alpha-synuclein Toxicity in Yeast
João Tiago Fernandes, Sandra Tenreiro, Catarina Pedrosa, Andreia Gameiro, Virginia Chu, Tiago Outeiro, João Pedro Conde
1IMM, Portugal; 2INESC-MN, Portugal; 3University Medical Center Göttingen, Germany

15:45
A3L-D06  Real-Time in-situ Lactate Monitoring in 3D Multi-Cellular Spheroid Cultures by Using Enzyme-Based Biosensors in Hanging Drop Networks
Olivier Frey, Patrick Misun, Jörg Rothe, Andreas Hierlemann
ETH Zurich, Switzerland
A4P-E  **Materials and Technology**

**Time:** Monday, September 8, 2014, 16:30 - 18:30

**Place:** Poster Area

**Chair(s):** Paddy French, Delft University of Technology, Delft (The Netherlands)
Ulrich Schmid, Vienna University of Technology, Vienna (Austria)

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### A4P-E01 Low-stress and long-term stable a-SiNx:H films deposited by ICP-PECVD

Dávid Dergez, Achim Bittner, Johannes Schalko, Ulrich Schmid

*Vienna University of Technology, Austria*

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### A4P-E02 Thermal Conductivity Measurements with Galvanic Metallization Lines on Porosified LTCC Applying the 3-Omega Technique

Frank Steinhäußer, Gabriela Sandulache, Walter Fahrner, Wolfgang Hansal, Achim Bittner, Ulrich Schmid

*1Happy Plating GmbH, Austria;*  *2Vienna University of Technology, Austria*

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### A4P-E03 Investigations on Work Functions of gasochromic Color Dyes As Gate Materials for FET Based Gas Sensors

Carolin Peter, Dominik Zimmermann, Daniel Knop, Sven Rademacher, Ina Schumacher, Ingo Freund, Jürgen Wöllenstein

*1Fraunhofer IPM, Germany;*  *2Micronas GmbH, Germany*

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### A4P-E04 Circular Patterned Test Structures for Precise Determination of Piezoelectric Thin Film Constants: Application to ScxAl1-xN

Patrick Mayrhofer, Holger Euchner, Achim Bittner, Ulrich Schmid

*TU Vienna, Austria*

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### A4P-E05 Impact of Patterning Technique on the Long Term Stability of Ag Thin Films

Achim Bittner, Franz Prewein, Ulrich Schmid

*Vienna University of Technology, Austria*

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### A4P-E06 Electrical and Structural Characterization of Sn-DLC Thin Films for Piezoresistive Sensors

Gabriela Leal, Guilherme Wellington Alves Cardoso, Argemiro Soares Da Silva Sobrinho, Marcos Massi

*1Federal University of São Paulo, Brazil;*  *2Technological Institute of Aeronautics, Brazil*

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### A4P-E07 Microwave Sensor for Mechanical Stress Measurement Based on Ferroelectric graphene nanosheet Composites

Alexander Aman, Soeren Majcherek, Marc-Peter Schmidt, Soeren Hirsch

*Otto-von-Guericke-University, Magdeburg, Germany*
A4P-E08  Effect of Reactive Gas Flow Ratio on IC-PECVD Deposited a-SiC:H Thin Films
Tobias Frischmuth1, Michael Schneider1, Thomas Grille1, Ulrich Schmid1
1Infineon Technologies Austria, Austria; 2Vienna University of Technology, Austria

A4P-E09  Humidity Sensing Properties of Screen-Printed Carbon-Black and Fe(II) Spin Crossover Compound Hybrid Films
Eduard Llobet1, Robert Barberà-Brunet1, Céline Etrillard1, Jean-François Létard1, Hélène Debédia2
1CNRS, ICMCB Bordeaux, France; 2Université de Bordeaux, IMS, France; 3URV Tarragona, Spain

A4P-E10  TiAlN Thin Films As High Temperature Strain Gauges
Christof Zarfl, Peter Schmid, Ulrich Schmid, Gellert Balogh
Vienna University of Technology, Austria

A4P-E11  Photo-Activation of Cadmium Sulfide Films for Gas Sensing
Alessio Giberti1, Andrea Gaiardo2, Vincenzo Guidi2, Cesare Malagù2
1MIST E-R, Italy; 2University of Ferrara, Italy

A4P-E12  Conductive Fabric Responding to Extremely Small Temperature Changes
Elena Laukhina1, Vladimir Laukhin2, Victor Lebedev3, Concepcion Rovira3, Jaume Veciana3
1CIBER de Bioingenieria, Biomateriales y Nanomedicina (CIBER-BBN), Spain; 2Institució Catalana de Recerca i Estudis Avançats (ICREA), Spain; 3Institut de Ciencia de Materiales de Barcelona (ICMAB-CSIC), Spain

A4P-E13  Electrical, Optical and Sensing Properties of Photo-Activated ZnO Thin Films
Barbara Fabbrì1, Andrea Gaiardo1, Alessio Giberti1, Vincenzo Guidi1, Cesare Malagù1, Alessandro Martucci2, Marco Sturaro2
1University of Ferrara, Italy; 2University of Padova, Italy

A4P-E14  Room Temperature Gas Multisensor System Based on a Novel Polymer Nanocomposite Material
Mikhail Yablokov1, Alexey Vasiliev1, Andrey Varfolomeev2, Sergey Zavyalov2
1Enikolopov Institute of Synthetic Polymer Materials, Russia; 2Karpov Institute of Physical Chemistry, Russia; 3NRC Kurchatov Institute, Russia

A4P-E15  In-Line Ultrasonic Melt Flow Measurement of Polypropylene with Different Fillers
Veronika Putz1, Ivana Burzic1, Bernhard Zagar1, Jürgen Miethlinger1
1JKU, Austria; 2LCM GmbH, Austria
A4P-E16  High Carbon-High Porous SiOC Glasses for Room Temperature No2 Sensing
Aylin Karakuscu1, Andrea Ponzoni2, Dawit Ayana1, Gian Domenico Soraru1, Giorgio Sberveglieri1
1Department of Industrial Engineering, University of Trento, Trento, Italy; 2Department of Information Engineering, Sensor Lab, CNR-INO and University of Brescia, Brescia, Italy

A4P-E17  Flexible Force Sensor Based on C-Axis Oriented Aluminum Nitride
Vincenzo Mariano Mastronardi, Francesco Guido, Simona Petroni, Massimo De Vittorio
Istituto Italiano di Tecnologia, Italy

A4P-E18  Twofold SiOx Films Deposited by HFCVD: its Optical, Compositional and Electrical Properties
Diana E. Vazquez Valerdi, José Alberto Luna Lopez, Godofredo Garcia Salgado, Jesus Carrillo Lopez, Alfredo Benitez Lara, Nestor D. Espinosa Torres
BUAP, Mexico

A4P-E19  Gauge Factor of Titanium/Platinum Thin Films Up to 350°C
Peter Schmid, Christof Zarfl, Gellert Balogh, Ulrich Schmid
TU Wien, Austria

A4P-E20  Two-Phase Titania Nanotubes for Gas Sensing
Vardan Galstyan1, E. Comini1, C. Baratto1, M. Ferroni1, N. Poli1, G. Faglia1, E. Bontempi2, M. Brisotto2, G. Sberveglieri1
1SENSOR Lab, University of Brescia and CNR INO, Italy; 2INSTM and Chem. for Tech. Lab., University of Brescia, Italy of Brescia and CNR INO, Italy

A4P-E21  Thick-Film Load-Sensing Bridges " Effect of Temperature and Mechanical Boundary Conditions
Thomas Maeder, Caroline Jacq, Peter Ryser
EPFL, Switzerland

A4P-E22  Thickness Effect on the Solvent Sensing Parameters of Carbon Black-Polymer Composites
Enrique Viguera Santiago1, Susana Hernandez Lopez2, Claudia Hernandez Escobar1, Armando Zaragoza Contreras1, Jose Rurik Farias3
1Centro de Investigacion en Materiales Avanzados, Mexico; 2Universidad Autonoma del Ciudad Juarez, Mexico; 3universidad Autonoma del Estado de Mexico, Mexico
A4P-F  Chemical Sensors and Microsystems
Time: Monday, September 8, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Ralf Moos, University of Bayreuth, Bayreuth (Germany)
Maria Teresa Gomes, University of Aveiro, Aveiro (Portugal)

A4P-F01 Electrolyte Insulator Semiconductor Structure for Pb+ Detecting
Rodrigo Reigota César1, Angélica Denardi de Barros1, Rafaela Oliveira Do Nascimento2, Oswaldo Luiz Alves3, Ioshiaki Doi1, José Alexandre Diniz3, Jacobus Willibrordus Swart4
1Center for Semiconductors Components (CCS-UNICAMP), Brazil; 2Laboratory of Solid State Chemistry (LQES- UNICAMP, Brazil; 3Laboratory of Solid State Chemistry (LQES-UNICAMP), Brazil; 4School of Electrical and Computer Engineering (FEEC-UNICAMP), Brazil.

A4P-F02 Electrochemical Multi-Sensors Device Coupled with Heuristic or Meta-Heuristic Selection Algorithms for Single-Cultivar Olive Oil Classification
António Peres1, Ana Veloso2, José Pereira1, Luís Dias1
1CIMO-ESA-IPB, Portugal; 2IPC-ISEC, Portugal; 3LSRE-ESA- IPB, Portugal

A4P-F03 Localized Surface Plasmon Resonance Sensor Based on Hetero-Core Structured Fiber Optic
Atsushi Seki, Kiyaki Yoshikawa, Kazuhiro Watanabe
Soka University, Japan

A4P-F04 Micro-pellistor with Integrated Porous Alumina Catalyst Support
Ferenc Biró2, Andrea Edit Pap3, István Bársony4, Csaba Dicső1
1MTA TTK MFA, Hungary; 2MTA TTK MFA / Uni. Veszprém, Hungary

A4P-F05 Enhanced Metrological Performances of Organic Electronic Ammonia Sensors Using Electro Spinning Techniques
Sentia Goursaud, Arnaud Agu, Jean-Luc Wojkiewicz, Nathalie Redon, Lahcen Khouchaf
Ecole des Mines-Douai, France

A4P-F06 Improvement of Explosive Detection by Fluorescence Sensor Using a Heating Device
Damien Rembelski, Geoffrey Gregis, Christelle Barthe, Céline Frenois
CEA Le Ripault, France

A4P-F07 Electrolyte Uptake Kinetics in Doped and undoped Sol- Gel Films Using a High Resolution EQCM Oscillator Sensor
Loreto Rodriguez-Pardo, Carmen Perez, Ana Cao-Paz, Jose Farina, Xose Ramón Novoa
University of Vigo, Spain

A4P-F08 Effect of High Pressure in Starch Viscoelastic Properties Studied with an Acoustic Wave Sensor
Maria Teresa Gomes, Marurol Santos, Jorge Saraiva
University of Aveiro, Portugal
A4P-F09  Screen Printed Potentiometric Chloride Sensors
Andrew Cranny, Nick Harris, Neil White
University of Southampton, United Kingdom

A4P-F10  Ambient Temperature Carbon Nanotube Ammonia Sensor on CMOS Platform
S. Santra\textsuperscript{1}, A. K. Sinha\textsuperscript{1}, S.K. Ray\textsuperscript{1}, S.Z. Ali\textsuperscript{1}, F. Udrea\textsuperscript{1}, J.W. Gardner\textsuperscript{2}, P.K. Guha\textsuperscript{2}
\textsuperscript{1}Cambridge CMOS Sensors Ltd, United Kingdom; \textsuperscript{2}Indian Institute of Technology, India, India; \textsuperscript{3}Indian Institute of Technology, Kharagpur, India, India; \textsuperscript{4}University of Cambridge, United Kingdom; \textsuperscript{5}University of Warwick, United Kingdom

A4P-F11  Periodically Structured Lamé Resonators As High Sensitivity Resonant Mass Sensors
Luca Luschi, Francesco Pieri
Università di Pisa, Italy

A4P-F12  Graphene-Based Schottky Device Detecting NH\textsubscript{3} at Ppm Level in Environmental Conditions
Tiziana Polichetti\textsuperscript{1}, Filiberto Ricciardella\textsuperscript{2}, Filippo Fedi\textsuperscript{1}, Maria Lucia Miglietta\textsuperscript{2}, Riccardo Miscioscia\textsuperscript{2}, Ettore Massera\textsuperscript{2}, Girolamo Di Francia\textsuperscript{2}, Maria Arcangela Niger\textsuperscript{3}, Giuliana Faggio\textsuperscript{1}
\textsuperscript{1}CNR, Italy; \textsuperscript{2}ENEA, Italy; \textsuperscript{3}University of Reggio Calabria, Italy

A4P-F13  Molecular Imprinting on the Nanoscale "Rapid Detection of Ag Nanoparticles by QCM sensors"
Peter Lieberzeit, Christoph Jungmann, Leo Schranzhofer, Munawar Hussain, Gerald Birnbaumer
University of Vienna, Dept. of Analytical Chem., Austria

A4P-F14  Raman Spectroscopy for Distinguishing the Composition of Table-Top Artificial Sweeteners
Anna Grazia Mignani\textsuperscript{1}, Leonardo Ciaccheri\textsuperscript{1}, Andrea Azelio Mencaglia\textsuperscript{1}, Tom Verschooten\textsuperscript{2}, Heidi Ottevaere\textsuperscript{2}, Hugo Thienpont\textsuperscript{2}
\textsuperscript{1}CNR Istituto di Fisica Applicata, Italy; \textsuperscript{2}Vrije Universiteit Brussel, Brussels Photonics Team, Belgium

A4P-F15  Determination of the Soot Mass by Conductometric Soot Sensors
Gunter Hagen, Andreas Müller, Markus Feulner, Andreas Schott, Christian Zöllner, Dieter Brüggemann, Ralf Moos
University of Bayreuth, Germany

A4P-F16  Nano-Textured POF Surfaces to Enhance the Sensitivity of Low Concentration HF Sensors
Maen Ishtaiwi\textsuperscript{1}, Sabrina Grassini\textsuperscript{1}, Marco Parvis\textsuperscript{1}, Alberto Vallan\textsuperscript{1}, Giovanna Saviano\textsuperscript{2}
\textsuperscript{1}Politecnico di Torino, Italy; \textsuperscript{2}Università di Roma La Sapienza, Italy
A4P-F17 Tailoring and Characterization of Porous Hierarchical Nanostructured P Type Thin Film of Cu-Al-Oxide for the Detection of Pollutant Gases
Raj Kumar1, Camilla Baratto2, Guido Foglia2, Giorgio Sbervegli2, Katarina Vojislavljev1, Barbara Malic1
1Electronic Ceramics Department, Jozef Stefan Institute
Jamova, Ljubljana, Slovenia; 2SENSOR Lab and CNR-INO, University of Brescia, Italy

A4P-F18 Biofilm Oxygen Profiling Using an Array of Microelectrodes on a Microfabricated Needle
Ana Moya1, Xavier Guimerà1, Francisco Javier Del Campo1, Elisabet Prats-Alfonso1, Antonio David Dorado1, Mireia Baeza2, Rosa Villa2, David Gabriel1, Xavier Gamisans2, Gemma Gabriel1
1Dept. of Chemical Engineering (UAB), Spain; 2Dept. of Chemistry (UAB), Spain; 3EMRN (UPC), Spain; 4IMB-CNM (CSIC), Spain

A4P-F19 The GaN/SiC Heterostructure-Based Hydrogen SAW Sensor Operating in GHz Range
Ivan Ryger2, Gabriel Vanko2, Tibor Lalinsky2, Pavol Nemea3, Anna Benčúrová3, Martin Tomáška4, štefan Haščík2
1FEI STU, Slovakia; 2ITE SAS, Slovakia; 3Inst. of Informatics SAS, Slovakia

A4P-F20 Liquid metal/metal oxide reference electrodes for potentiometric oxygen sensor operating in liquid lead bismuth eutectic in a wide temperature range
Gabriele Manfredi1, Jun Lim1, Joris Van Den Bosch1, Claudine Buess-Herman1
1SCK•CEN, Belgium; 2SCK•CEN/ULB, Belgium; 3ULB, Belgium

A4P-F21 A Tunable Palladium-Based Capacitive MEMS Hydrogen Sensor Performing High Dynamics, High Selectivity and Ultra-Low Power Sensing
Thomas Walewyns, David Spirito, Laurent A. Francis
Université catholique de Louvain, Belgium

A4P-F22 Monolithic CMOS ISFET with Built-in Gold Reference Electrode and Readout Circuit with Frequency-Adjustable Pulse Output in Bio Detection
Hsin-Hao Liao1, Ruey-Lue Wang2, Ying-Zong Jung1, Hann-Huei Tsai1, Chi Yu2, Wey-De Wu2
1CIC, Taiwan; 2NKNU, Taiwan

A4P-F23 Flexible Polyimide Platform Based on the Integration of Potentiometric Multi-Sensor for Biomedical Applications
Ana Moya1, Nadia Zine2, Xavier Illa1, Elisabet Prats-Alfonso4, Gemma Gabriel1, Abdelhamid Errachid2, Rosa Villa1
1IMB-CNM (CSIC), Spain; 2ISA- Université Lyon, France

A4P-F24 Oil Analysis by Fast DSC
Isis van Wetten2, Sander van Herwaarden2, Rene Splinter2, Saskia van Ruth1
1RIKILT/Wageningen University, Netherlands; 2Xensor Integration, Netherlands
A4P-F25  A New Potentiometric Sensors for Determination of Sodium Alkylsulfates
Natalia Makarova, Elena Kulapina
Saratov State University, Russia

A4P-F26  A DDS-Based Multi-Harmonic Frequency Meter for QCM Sensor Applications
Francesco Bertocci, Ada Fort, Marco Mugnaini, Luay Shahin, Santina Rocchi, Valerio Vignoli
University of Siena, Italy
A4P-G  Biological Sensors and Biomedical Devices and Systems
Time: Monday, September 8, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Gerald Urban, University of Freiburg, Freiburg (Germany); Francisco J. Arregui, Public University of Navarre, Pamplona (Spain)

A4P-G01  Bioconjugation of Heavy Metal-Binding Proteins on Surface: an Optical and Gravimetric Characterization
Jane Politi, Alessandro Calio³, Principia Dardano, Mario Iodice, Ilaria Rea, Luca De Stefano
IMM-NA CNR, Italy

A4P-G02  Duplicate Analysis of Cortisol for Stress Check Using QCM with a Self-suction Flow System
Takeshi Ito¹, Nobuyoshi Aoki¹, Wakako Shinobu¹, Koji Suzuki²
¹Kanagawa Industrial Technology Center, Japan; ²Keio University, Japan; ³NDK Co., Ltd., Japan

A4P-G03  Glucose Biosensor Based on the Hexacyanoferrate 11-Mercaptoundecil-N,N",N""-trimethylammonium/6-(Ferrocenyl)hexanethiol
Thaisa Baldo, Patricia Seraphim, Homero Gomes, Marcos F.S. Teixeira
Sao Paulo State University (UNESP), Brazil

A4P-G04  Designing Efficient Localized Surface Plasmon Resonance-Based Sensing Platforms for Direct Detection of Hydrogen Sulfide
Meisam Omidi, Gh. Amoabediny, F. Yazdian
University of Tehran, Iran

A4P-G05  Assessment of Burn Depths on Organs by Microwave
Matthieu Brusson¹, Jérome Rossignol¹, Stéphane Binczek¹, Gabriel Laurent¹, Brice de Fonseca¹
¹GERM Dpt Nanosciences, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France; ²LEREST Laboratoire Interdisciplinaire Carnot de Bourgogne, UMR CNRS 6298, France; ³Leresto Electronique Informatique et Image UMR

A4P-G06  A New Low Power Instrument for Impedance Measurements in Biomedicine Based on FFT, Application to Interleukin-10 Protein Detection
Francisco Palacio¹, Joan Daniel Prades¹, Manel Lopez¹, José María Gómez¹, Abdelhamid Errachid¹
¹Univ. Barcelona, Spain; ²Univ. Lyon 1, France

A4P-G07  Development of an Electrochemical Aptsensor for the Detection of Human Osteopontin
Sofia Meirinho¹, Luis Dias¹, Antonio Peres³, Ligia Rodrigues¹
¹CEB-University of Minho, Portugal; ²CIMO-IPB, Portugal; ³LSRE-IPB, Portugal
A4P-G08 Chemical Sensors for Prostate Cancer Detection
Marco Santonico¹, Giorgio Pennazza¹, Anastasios D. Asimakopoulos², Dario Del Fabbro², Roberto Miano², Rosamaria Capuano³, Enrico Finazzi²
¹University Campus Bio-Medico of Rome, Italy; ²University of Rome Tor Vergata, Italy

A4P-G09 Programmable Current Source for Implantable Neural Stimulation Systems
Jonas Pistor, Nils Heidmann, Janpeter Hößmann, Steffen Paul
University of Bremen, Germany

A4P-G10 Proof of Principle of a Novel Impedance Microbiology (IM) Method Based on Bacteriophages functionalised Paramagnetic Nano-Beads
Alessia Mortari¹, Marco Nicolò², Andrea Adami¹, Salvatore Gugliemino³, Leandro Lorenzelli¹
¹Fondazione Bruno Kessler, Italy; ²Messina University, Italy

A4P-G11 Monitoring of Bacterial Growth and Rapid Evaluation of Antibiotic Susceptibility by Headspace Gas Analysis
Kerstin Wiesner, Marta Jaremek, Roland Pohle, Oliver von Sicard, Evamarie Stuetz
Siemens AG, Germany

A4P-G12 Plasma Enhanced Hydrophobicity of parylene-C Surfaces for a Blood Contacting Pressure Sensor
Luigi Brancato, Grim Keulemans, Pieter Gijsenbergh, Robert Puer
ESAT-MICAS, KULeuven, Belgium

A4P-G13 A CMOS Based Polysilicon Nanowire Biosensor Platform for Different Biological Targets
Hsin-Huang Lin¹, I-Shun Wang¹, Pei-Wen Yen¹, Hua Cheng¹, Hann-Huei Tsai², Hsin-Hao Liao², Shih-Jen Lu³, Fu-Chiang Chou³, Chih-Ting Lin¹
¹Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan; ²Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan; ³Graduate Institute of Electronics Engineering, National Taiwan

A4P-G14 Miniaturized and Low-Power Blood Pressure Telemetry System with RFID Interface
Michele Caldara², Benedetta Nodari², Valerio Re², Barbara Bonandrinì¹
¹Mario Negri Institute, Italy; ²University of Bergamo, Italy

A4P-G15 Wireless Instrumented Crutches for Force and Tilt Monitoring in Lower Limb Rehabilitation
Mauro Serpelloni², Emilio Sardini¹, Matteo Lancini², Simone Pasinetti²
¹University of Brescia, Italy; ²University of Brescia, Italy
A4P-G16 Wireless Tissue Palpation: Characterization of the Probe Head to Improve Detection of Tumors in Soft Tissue
Marco Beccani, Christian Di Natali, Nathan Hall, Claire Benjamin, Charreau Bell, Pietro Valdastri
vanderbilt university, United States

A4P-G17 Real-Time Measurement of Single bacterium’s Refractive Index Using Optofluidic Immersion Refractometry
Patricia Yang Liu1, Lip Ket Chin2, Wei Ser2, Teck Choon Ayi1, Peng Huat Yap1, Tarik Bourouina3, Leprince-Wang Yamin1
1DSO National Laboratories, Singapore; 2Nanyang Technological University, Singapore; 3Universite Paris-Est, France

A4P-G18 Biosensing of Molecular Behavior of Liposome and Target Protein, and Their Interaction by Dielectric Dispersion Analysis for 100-1000 MHz Range
Tomoki Yoshikawa, Keisuke Takada, Ziyang Zhang, Kaoru Yamashita, Minoru Noda
Kyoto Institute of Technology, Japan

A4P-G19 Impedance Spectroscopy for Silica Nanoparticle Detection in Caco-2 Cells
Stefan Clara1, Mohammad Reza Lornejad-Schäfer1, Christine Schäfer1, Bernhard Jakoby2, Wolfgang Hilber2
1BioMed, Austria; 2JKU, Austria

A4P-G20 Cell Clinic, CMOS Chip Measuring Capacitance As Indication of Cell Adhesion Applied in Evaluating the Cytotoxicity of Nanomaterials
Niina Halonen1, Timir Datta-Chaudhuri1, Annti Hassinen4, Somashekar Bangalore Prakash1, Peter Möller2, Pamela Abshire1, Elisabeth Smela2, Sakari Kellokumpu3, Anita Lloyd Spetz2
1Intel Corporation, United States; 2Linköping University, Sweden; 3University of Maryland, United States; 4University of Oulu, Finland

A4P-G21 Quartz Tuning Fork As in-situ Sensor of Bacterial biofilm
Tomasz Piasecki1, Grzegorz Gula1, Karol Waszczuk2, Zuzanna Drulis-Kawa1, Teodor Gotszalk2
1University of Wroclaw, Institute of Genetics and Microbiology, Poland; 2Wroclaw University of Technology, Faculty of Microsystem Electronics and Photonics, Poland

A4P-G22 On-Chip Monitoring of Ph Change in Agar-Gels During Fungi Growth by Integrating Impedance and Colorimetric Principles
Poornachandra Papireddy Vinayaka1, Sander Van Den Driesche1, Steffen Janssen1, Mathias Frodl1, Roland Blank1, Filippo Cipriani1, Walter Lang1, Michael Vellekoop1
1IMSAS/University of Bremen, Germany; 2microFAB Service GmbH, Germany
A4P-G23  A Fully Integrated Electrochemical Biomems Fabrication Process for Cytokine Detection: Application for Heart Failure
Abdoullatif Barakat1, Michael Lee1, Nadia Zine1, Maria Giovanna Trivella1, Miguel Zabalay1, Joan Bausells2, Monique Sigaud1, Nicole Jaffreziic-Renault1, Abdelhamid Errachid1
1Centro Nacional de Microelectrónica. Spain; 2Centro Nacional de Microelectrónica, Spain; 3Consiglio Nazionale Ricerche, Italy; 4Université de Lyon1, France

A4P-G24  A Novel Polyimide "Platinum " SU-8 Microelectrode Array for Various Electrophysiological Applications
Gergely Márton1, Gábor Orbán1, Gergő Kiss2, Anita Pongrácz2, István Ulbert1
1Comparative Psychophysiology Dept., Institute of Cognitive Neuroscience and Psychology, RCNS-HAS, Hungary; 2Dept. of Microtechnology, Research Institute for Technical Physics and Materials Science, RCNS-HAS, Hungary

A4P-G25  The Study of the Inductive Coil to the Acoustic Performance of Electromagnetic Microspeakers
Chloé Weber1, Yung-Chang Chen2, Yu-Ting Cheng2
1EPFL, Switzerland; 2NCTU, Taiwan

A4P-G26  Nanostructured Shape Memory Alloy for Vascular Devices
Kyoungwan Song1, Yongsuk Nam1, Taegyoo Min2
1Kyunghee University, Korea, South; 2S&H Corporation, Korea, South

A4P-G27  Interferometric Near-Field Microwave Microscopy Platform for Electromagnetic Micro-Analysis
Kamel Haddadi, Jaouad Marzouk, Sijia Gu, Steve Arscott, Gilles Dambrine, Tuami Lasri
IEMN, France

A4P-G28  Optical Monitoring of Therapeutic Drugs with a Novel Fluorescence-Based POCT Device
Simone Berneschi1, Romeo Bernini2, Chiara Berrettoni1, Ambra Giannetti1, Immacolata Grimaldi2, Gianluca Persichetti2, Genni Testa2, Sara Tombelli1, Cosimo Tronci1, Francesco Baldini1
1IFAC-CNR, Italy; 2IREA-CNR, Italy
A4P-H  Theory, Modelling, Design and Simulation
Time:  Monday, September 8, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  David Elata, Technion - Israel Institute of Technology, Haifa (Israel)
          Vincenzo Guidi, University of Ferrara, Ferrara (Italy)

A4P-H01  Design and Electromagnetic Optimization of a Respiration Harvester
Utku Goreke1, Kivanc Azgin1, Mustafa Beyaz1
1Antalya International University, Turkey; 2Middle East Technical University, Turkey

A4P-H02  An Electrochemical Oxygen Pump Model - a Tool for Sensor Optimisation
Cristian Diaconu1, Keith Pratt1, Mihai Gologanu2, Cazimir Bostan2, Martin Willett1
1City Technology Ltd, United Kingdom; 2Honeywell, Romania

A4P-H03  Multiple-Level Digital Loudspeaker Array
Sangchae Monkronthong, Neil White, Nick Harris
University of Southampton, United Kingdom

A4P-H04  FEM Modeling of Multilayer Piezo-Magnetic Structure Based Surface Acoustic Wave Devices for Magnetic Sensor
Meriem Elhosni1, Omar Elmazria2, Abdelkrim Talbi1, Keltouma Ait Aissa2, Laurent Bouvoit2, Frederic Sarrey2
1EMN, France; 2Institut Jean Lamour, France

A4P-H05  FEM-Based Modeling of the Temperature Distribution Influence on Melting Process in Ceramic Differential Micro-Calorimeter
Jaroslaw Kita, Annica Brandenburg, Ralf Moos
Dept. of Functional Materials, University of Bayreuth, Germany

A4P-H06  Novel Design Concepts for Piezoelectrically Driven Ohmic Switches
Fabian Stoppel, Thomas Lisec, Bernhard Wagner
Fraunhofer Institute for Silicon Technology, Germany

A4P-H07  Vibration Energy Generators for Low-Frequency Spectral Excitations
Bianca Leistritz1, Michael Katzschmann1, Hannes Toepfer2
1Institut für Mikroelektronik- und Mechatronik-Systeme gemeinnützige GmbH, Germany; 2Technische Universität Ilmenau, Germany

A4P-H08  Neural Modeling of Relative Humidity on IP2C Vibrating Transducer
Viviana De Luca1, Ehsan Hosseini-Asl2, Salvatore Graziani1, Jacek M. Zura2
1Dipartimento di Ingegneria Elettrica Elettronica ed Informatica (DIEEI), Università di Catania, Italy; 2Electrical and Computer Engineering Department, University of Louisville, United States
A4P-H09  Design and Simulation of the Comb MWCNT Temperature Sensor for textronics  
Jacek Golebiowski1, Sylwia Walczak2, Szymon Milcarz1  
1Department of Semiconductor and Optoelectronics Devices, Lodz University of Technology, Polad, 2Research and Innovation Center Pro-Akademia, Lodz, Poland, Poland

A4P-H10  Lumped Circuit Model for Gyro Sensors Incorporating Coriolis and Centrifugal Force  
Eric Starke, Uwe Marschner  
Technische Universität Dresden, Germany

A4P-H11  Electric Modeling of Charged Particles Trajectories in the Drift Tube of Ion Mobility Spectrometer for Hazardous Industrial Chemicals Detection  
Nikolay Samotaev, Vecheslav Pershenkov, Vladimir Belyakov, Valeriy Vasilyev, Anatoliy Golovin, Igor Ivanov, Evgeniy Malkin, Evgeniy Gromov  
National Research Nuclear University MEPhI, Russia

A4P-H12  Optimization of Passive Air Damping of MOEMS Vibration Sensors  
Andreas Kainz2, Wilfried Hortschitz1, Michael Stifter1, Johannes Schalko2, Franz Keplinger1  
1Danube University Krems, Austria; 2Vienna University of Technology, Austria

A4P-H13  Telemetric Model for Passive Resistive Sensors in Biomedical Applications  
Mauro Serpelloni, Emilio Sardini, Michele Bona  
University of Brescia, Italy

A4P-H14  Investigation of a Micromachined Electric Field Mill Using Dielectric Shutter  
Yu Zhou, Cyrus Shafai  
University of Manitoba, Canada

A4P-H15  Micromachined Electric Field Mill Employing a Vertical Moving Shutter  
Tao Chen, Cyrus Shafai, Athula Rajapakse, Byoungyoul Park  
University of Manitoba, Canada

A4P-H16  Device Simulation of the Light-Addressable Potentiometric Sensor with a Novel Photoexcitation Method for a Higher Spatial Resolution  
Yuanyuan Guo1, Kosuke Seki2, Ko-Ichiro Miyamoto2, Torsten Wagner1, Michael Schönig1, Tatsuo Yoshinobu2  
1Aachen University of Applied Sciences, Germany; 2Tokyo University, Japan

A4P-H17  Resonant Frequency and Phase Noise of Nanoelectromechanical Oscillators Based on Two-Dimensional Crystal Resonators  
Zoran Djuric2, Ivana Jokic1, Katarina Radulovic1  
1ICTM – Institute of Microelectronic Technologies, University of Belgrade, Serbia; 2ITN – Institute of Technical Sciences of SASA and Serbian Academy of Sciences and Arts, Serbia
A4P-H18 Systematic Investigation of Fluidic Damping in Mechanical Resonators with Dimensions Ranging from Micro to Nano-Scale
Johannes Manz, Gerhard Wachutka, Gabriele Schrag
Munich University of Technology, Germany

A4P-H19 Enhancement of the Quality Factor of AlN Contour Mode Resonators by Acoustic Reflection: Numerical Design and Experimental Investigation
Massimiliano Cremonesi, Attilio Frangi, Cristian Cassella, Gianluca Piazza
1Carnegie Mellon University, United States; 2Politecnico di Milano, Italy

A4P-H20 Optimization of Acoustic Sensor Using Finite Element and Design of Experiment
Rubaiyet Haque, Christophe Loussert, Michelle Sergent, Xavier Boddart, Patrick Benaben
1Centre Microélectronique de Provence, Ecole des Mines de Saint-Etienne, Gardanne, France; 2TAGSYS RFID, La Ciotat, France; 3Université Paul Cézanne Aix-Marseille III, France

A4P-H21 Modeling and Experimental Investigation of Resonant Viscosity and Mass Density Sensors Considering Their Cross-Sensitivity to Temperature
Martin Heinisch, Erwin Reichel, Isabelle Dufour, Bernhard Jakoby
1JKU, Austria; 2Université Bordeaux 1, France

A4P-H22 A 3D FEM Model for Heat Transfer Mechanisms in Membrane Based Thermal Conductivity Sensors Developed Using SOI CMOS MEMS Technology
Sohab Sarfraz, Vasant Kumar, Florin Udrea, Zeeshan Ali
1Cambridge CMOS Sensors Ltd., United Kingdom; 2University of Cambridge, United Kingdom; 3University of Cambridge, Cambridge CMOS Sensors Ltd., United Kingdom

A4P-H23 Perforated Plates of Inertial Sensors - Modeling by Effective Material Properties
Steffen Michael, Astrid Frank, Gisbert Hölzer, Gunar Lorenz
1Coventor, France; 2IMMS gGmbH, Germany; 3X-FAB AG, Germany
A4P-J MicroFluidic and MicroAnalytical Devices and Systems

Time: Monday, September 8, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Michael Vellekoop, University of Bremen, Bremen (Germany) Joao Pedro Conde, University of Lisbon, Lisboa (Portugal)

A4P-J01 In-situ Surface Modification of Microfluidic Channels by Integrated Plasma Source
Tamás Kárpáti, Eszter Holezer, János Ferencz, Andrea Edit Pap, Péter Fürüs
Institute of Technical Physics and Materials Science, RCNS, HAS, Hungary

A4P-J02 Piezoelectric micro-pump with PZT thin film for low consumption microfluidic devices
Pierre-Henri Cazorla, Olivier Fuchs, Martine Cochet, Sandrine Maubert, Gwenaël Le-Rhum, Philippe Robert, Yves Fouillet, Emmanuel Defay
CEA-Leti, France

A4P-J03 Effects of micropatterning and Surface Modification of Microfluidic Channels on Capillary Water Transport
Eszter Holezer, Péter Fürüs
MEMS Lab, Research Centre for Natural Sciences – HAS, Hungary

A4P-J04 A Disposable Microfluidic Chip for Rapid and Sensitive Detection of Plasma Biomarkers
Helene Zirath¹, Johannes Peham¹, Guntram Schnetz¹, Lukas Brandhoff², Andreas Spittler³, Herbert Wiesinger-Mayr¹, Michael Vellekoop¹, Heinz Redl³
¹Austrian Institute of Technology, Austria; ²Biegler GmbH, Austria; ³Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Austria; ⁴Medical University of Vienna, Austria; ⁵University of Bremen, Germany

A4P-J05 Development of a MEMS preconcentrator for MicroGas Chromatography Analyses
Frank James
Ecole Nationale Supérieure des Mines de Saint-Etienne, France

A4P-J06 A Microfluidic Sensor Dedicated to Microwave Dielectric Spectroscopy of Liquids Medium and Flowing Colloidal Suspension
Landoulsi Alaeddine, Leroy Jonathan, Dalmay Claire, Pothier Arnaud, Bessaoudou Annie, Blondy Pierre
XLIM, France

A4P-J07 A scalable, minimal contact device for the characterization of elastomer membrane deformation
Paul Scanlan, Steven Hammer, Wenhiao Shu, Robert Reuben
Heriot Watt University, United Kingdom

A4P-J08 Toxicity Sensing by Using Chemotactic Reaction of Microbial Cells Confined in Microfluidic Chip
Kazunari Ozasa², Jeeseo Lee¹, Simon Song¹, Mizuo Maeda²
¹Hanyang University, Korea, South; ²RIKEN, Japan
A4P-J09  Chromatographic Air Analyser Microsystem for the Selective and Sensitive Detection of Explosive-Related Compounds
Jean-Baptiste Sanchez\textsuperscript{1}, Yehya Mohsen\textsuperscript{1}, Houda Lahlou\textsuperscript{1}, Franck Berger\textsuperscript{2}, Igor Bezverkhyy\textsuperscript{2}, Guy Weber\textsuperscript{2}, Jean-Pierre Bellat\textsuperscript{2}
\textsuperscript{1}Centre Gabriel Lippmann, Luxembourg; \textsuperscript{2}ICB, France; \textsuperscript{3}LCE, France
A4P-K  Sensor Systems and Applications and WSN I
Time:  Monday, September 8, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  Udo Weimar, University of Tübingen, Tübingen (Germany)
          Michele Penza, ENEA, Brindisi (Italy)

A4P-K01  Wireless Sensor Node with Ultrasensitive Film Sensors for Emergency Applications
Andrey Somov1, Victor Lebedev3, Alexander Baranov1, Elena Laukhina1, Vladimir Laukhin1, Roberto Passerone2, C Rovira3, J Veciana1
1MATT-Russian State Technological University, Russia;
2CREATE-NET, Italy; 3Institut de Ciencia de Materials de Barcelona, Spain; 4University of Trento, Italy

A4P-K02  Wireless Sensor Network for Environmental Monitoring with 3G Connectivity
Thomas Posnicek, Karlheinz Kellner, Martin Brandl
Danube University Krems, Austria

A4P-K03  Air-Based Multi-Hop Sensor Network for the Localization of Persons
Enrico Köppe1, Daniel Augustin2, Matthias Bartholmai1
1BAM, Germany; 2FOG GmbH, Germany

A4P-K04  Combined Molecularly Imprinted Polymer and Surface Plasmon Resonance Transduction in Plastic Optical Fiber for Monitoring Oil-Filled Power Transformers
Nunzio Cennamo6, Letizia De Maria1, Girolamo D’Agostino1, Maria Pesavento3, Luigi Zeni2
1RSE, Italy; 2Second University of Naples, Italy; 3University of Pavia, Italy

A4P-K05  Detection of "9-Tetrahydrocannabinol, Methamphetamine and Amphetamine in Air at Low ppb Level Using a Field Asymmetric Ion Mobility Spectrometry Microchip Sensor
Yehya Mohsen, Nasser Gharbi, Audrey Lenouvel, Cédric Guignard
Public Research Centre - Gabriel Lippmann, Luxembourg

A4P-K06  Design, Fabrication and Characterization of SAW Pressure Sensors for Extreme Operation Conditions
Felipe Della Lucia, Paulo Zambrozi, Felipe Frazatto, Maria Piazzetta, Angelo Gobbi
CNPEM, Brazil

A4P-K07  A Low Complexity Data Driven Model of Environmental Discharge Dynamics for Wireless Sensor Network Applications
Huma Zia, Nick Harris, Geoff Merrett
University of Southampton, United Kingdom

A4P-K08  Field Trials of Screen-Printed Chloride Sensors for Environmental Sensing "Fluvarium Tests"
Nick Harris1, Andy Cranny1, Mark Rivers2
1University of Southampton, United Kingdom; 2University of Western Australia, Australia
A4P-K09  Perceptive Sportswear System with Auditory Feedback Based on Hetero-Core Optical Fiber for Running Motion
Yuya Koyama, Kazuhiro Watanabe
SOKA University, Japan

A4P-K10  Detection of Pollutants in Water Samples with a Wireless Hand-Held E-Nose
Jesús Lozano\textsuperscript{2}, José Pedro Santos\textsuperscript{1}, José Ignacio Suárez\textsuperscript{2}, Patricia Arroyo\textsuperscript{2}, José Luis Herrera\textsuperscript{2}, Antonio Martín\textsuperscript{2}
\textsuperscript{1}Spanish Council on Scientific Research, Spain; \textsuperscript{2}University of Extremadura, Spain

A4P-K11  Improvement of an Antenna Sensor for Occupant Detection in Passenger Transportation
Marcus Groining, Hermann Sterner
Carinthia University of Applied Sciences, Austria

A4P-K12  Wireless Sensor Network Based on a chemocapacitive Sensor Array for the Real-Time Monitoring of Industrial Pollutants
Petros Oikonomou\textsuperscript{2}, Athanasios Botsialas\textsuperscript{2}, Antonis Olziersky\textsuperscript{2}, Ioannis Stratakos\textsuperscript{3}, Dimitris Dimas\textsuperscript{3}, George Sotiropoulos\textsuperscript{4}, Dimitrios Goustouridis\textsuperscript{4}, Ioannis Rapitis\textsuperscript{4}, Merope Sanopoulou\textsuperscript{4}
\textsuperscript{1}Alfa Beta Roto S.A., Greece; \textsuperscript{2}Institute of Nanoscience and Nanotechnology, NCSR 'Demokritos', Greece; \textsuperscript{3}Prisma Electronics S.A., Greece; \textsuperscript{4}Theta Metrisis S.A., Greece

A4P-K13  Ion-Selective Electrodes Based on organoboron Compounds As Neurotransmitter Receptors
Martyna Jańczyk, Krzysztof Borys, Andrzej sporzyński, Wojciech Wróblewski
Warsaw University of Technology, Poland

A4P-K14  Classification of Different Roasting Processes by MOX Nanowire
Veronica Sberveglieri\textsuperscript{2}, Estefanía Nunez Carmona\textsuperscript{1}, Dario Zappa\textsuperscript{1}, Elisabetta Comini\textsuperscript{1}, Andrea Pulvirenti\textsuperscript{4}
\textsuperscript{1}CNR - IBF - Palermo, Italy; \textsuperscript{2}CNR - INO sensor LAB - Brescia, Italy; \textsuperscript{3}University of Brescia, Italy; \textsuperscript{4}University of Modena and Reggio Emilia, Italy

A4P-K15  Animals Dedicated, MEMS Sensors Based Mechatronic Movement Assessment System
Pawel Knapkiewicz\textsuperscript{2}, Wojciech Kosek\textsuperscript{2}, Piotr Jozwiak\textsuperscript{1}, Jan Dziuban\textsuperscript{1}, Jerzej Jaskowski\textsuperscript{1}
\textsuperscript{1}University of Life Sciences in Poznan, Poland; \textsuperscript{2}Wroclaw University of Technology, Poland

A4P-K16  Electrochemical Sensor Arrays for the Analysis of Wine Production
Anna Kutyła-Olesiuk, Urszula E. Wawrzyniak, Martyna Jańczyk, Wojciech Wróblewski
Faculty of Chemistry, Warsaw University of Technology, Poland
**A4P-K17**  Candida milleri Detected by Electronic Nose in Tomato Sauce
Veronica Sberveglieri\(^2\), Matteo Falasconi\(^2\), Emanuela Gobbi\(^2\), Estefania Nunez Carmona\(^1\), Giulia Zambotti\(^2\), Andrea Pulvirenti\(^2\)
\(^1\)CNR IBF Palermo, Italy; \(^2\)CNR-INO Sensor Lab Brescia, Italy

**A4P-K18**  Influence of Gas Sampling on MOS Response in Real Measurement Conditions
Andrzej Szczurek, Monika Maciejewska, Mateusz Zelek
Wroclaw University of Technology, Poland

**A4P-K19**  Emission Profile of Multi-Membrane CMUT for in-Air Object Localization
Alessandro Caspani\(^1\), Nicola Errico\(^1\), Federico Giacci\(^1\), Giacomo Langfelder\(^1\), Antonio Longoni\(^1\), Panu Koppinen\(^2\), Jaakko Saarilahti\(^3\)
\(^1\)Politecnico di Milano, Italy; \(^2\)VTT, Finland

**A4P-K20**  Detection of Colorectal Cancer Biomarkers in the Presence of Interfering Gases
Giulia Zonta, Barbara Fabbri, Alessio Giberti, Vincenzo Guidi, Nicolò Landini, Cesare Malagù
University of Ferrara, Italy
B1L-A Gas Sensor Technology and Optimization
Time: Tuesday, September 9, 2014, 09:00 - 10:30
Place: 'Aula MAGNA' Hall
Chair(s): Corrado Di Natale, University of Rome Tor Vergata, Rome (Italy)
Ralf Moos, University of Bayreuth, Bayreuth (Germany)

09:00 B1L-A01 Polymer-Based VOC Sensor Module for Wireless Sensor Network System
Naoki Shiraishi\(^1\), Mutsumi Kimura\(^1\), Hironao Okada\(^1\), Yasuhisa Ando\(^4\)
\(^1\)National Institute of Advanced Industrial Science and Technology (AIST), Japan; \(^2\)NMEMS Technology Research Organization, Japan; \(^3\)Shinshu University, Japan; \(^4\)Tokyo University of Agriculture and Technology, Japan

09:15 B1L-A02 Discrimination and Quantification of Volatile Organic Compounds in the ppb-Range with Gas Sensitive SiC-Field Effect Transistors
Christian Bur\(^1\), Manuel Bastuck\(^2\), Donatella Puglisi\(^1\), Andreas Schütze\(^3\), Anita Lloyd Spetz\(^4\), Mike Andersson\(^1\)
\(^1\)Linköping University, Sweden; \(^2\)Saarland University, Germany; \(^3\)Saarland University, Germany

09:30 B1L-A03 Drift correction in a porphyrin-coated ZnO nanorods gas sensor
Corrado Di Natale, Gabriele Magna, Alice Babi, Eugenio Martinelli, Roberto Paolese
University of Rome Tor Vergata, Italy

09:45 B1L-A04 Enhancement of the Spatial Resolution of the Chemical Imaging Sensor by a Hybrid Fiber-Optic Illumination
Ko-Ichiyo Miyamoto\(^2\), Kosuke Seki\(^2\), Yuanyuan Guo\(^3\), Torsten Wagner\(^1\), Michael Schoening\(^1\), Tatsuo Yoshinobu\(^2\)
\(^1\)Aachen University of Applied Sciences, Germany; \(^2\)Tohoku univ., Japan

10:00 B1L-A05 Thermoelectric Hydrocarbon Sensor in Thick-Film Technology for on-Board-Diagnostics of a Diesel Oxidation Catalyst
Sven Wiegärtner\(^2\), Gunter Hagen\(^2\), Jaroslaw Kita\(^2\), Daniela Schönauer-Kamin\(^2\), Willibald Reitmeier\(^1\), Markus Hien\(^1\), Phillipe Grass\(^1\), Ralf Moos\(^2\)
\(^1\)Continental Automotive GmbH, Germany; \(^2\)Universität Bayreuth, Germany
10:15

B1L-A06  Detection of NO by Pulsed Polarization Technique Using Pt Interdigital Electrodes on Yttria-Stabilized Zirconia
Sabine Fischer\textsuperscript{2}, Roland Pohle\textsuperscript{1}, Erhard Magori\textsuperscript{1}, Maximilian Fleischer\textsuperscript{1}, Ralf Moos\textsuperscript{2}
\textsuperscript{1}Siemens AG, Germany; \textsuperscript{2}University of Bayreuth, Germany
B1L-B  Theory and Modeling
Time:  Tuesday, September 9, 2014, 09:00 - 10:30
Place:  Sala CONSIILIARE Hall
Chair(s):  David Elata, Technion - Israel Institute of Technology, Haifa (Israel)
          Bernhard Jakoby, Johannes Kepler University Linz, Linz (Austria)

09:00  B1L-B01  Are Folded-Beam Suspensions Really Linear?
Shai Shmulevich, Aharon Joffe, Inbar Hotzen, David Elata
Technion - Israel Institute of Technology, Israel

09:15  B1L-B02  3D Multiphysics Modelling of an SOI CMOS MEMS
Thermal Wall Shear Stress Sensor
Claudio Falco\textsuperscript{3}, Andrea de Luca\textsuperscript{2}, Sohab Sarfraz\textsuperscript{1}, Ibraheem
Hanhef\textsuperscript{2}, John Coull\textsuperscript{1}, Zeehan Ali\textsuperscript{1}, Florin Udrea\textsuperscript{1}
\textsuperscript{1}Cambridge CMOS Sensors ltd, United Kingdom; \textsuperscript{2}Institute of
Avionics & Aeronautics Air University, Pakistan; \textsuperscript{3}University of
Cambridge, United Kingdom

09:30  B1L-B03  Frequency Domain Based Measurement Method for
the Thermal Parameters of a Thin-Film Diaphragm
Embedded in a MEMS Multi-Parameter Wind Sensor
Roman Beigelbeck\textsuperscript{1}, Diego Reyes-Romero\textsuperscript{1}, Samir Cerimovic\textsuperscript{1},
Franz Kohl\textsuperscript{1}, Thomas Voglhuber-Brunnmaier\textsuperscript{1}, Bernhard
Jakoby\textsuperscript{2}, Gerald Urban\textsuperscript{1}
\textsuperscript{1}Danube University Krems, Austria; \textsuperscript{2}Johannes Kepler
University Linz, Austria; \textsuperscript{3}University of Freiburg, Germany

09:45  B1L-B04  System-Level Modeling of Silicon Microphones
Including Distributed Effects
Thomas Kuenzig\textsuperscript{2}, Gabriele Schrag\textsuperscript{2}, Mohsin Nawaz\textsuperscript{2}, Matthias
Herrmann\textsuperscript{1}, Alfons Dehe\textsuperscript{1}, Gerhard Wachutka\textsuperscript{2}
\textsuperscript{1}Infineon Technologies AG, Germany; \textsuperscript{2}Munich University of
Technology, Germany

10:00  B1L-B05  A Differential Resonant Micro Accelerometer for Out-of-Plane Measurements
Alessandro Caspani\textsuperscript{1}, Claudia Comi\textsuperscript{1}, Alberto Corigliano\textsuperscript{1},
Giacomo Langfelder\textsuperscript{1}, Valentina Zega\textsuperscript{1}, Sarah Zerbini\textsuperscript{1}
\textsuperscript{1}Politecnico di Milano, Italy; \textsuperscript{2}STMicroelectronics, Italy

10:15  B1L-B06  Validity of Describing Resonant Viscosity and Mass Density Sensors by Linear 2nd Order Resonators
Martin Heinisch\textsuperscript{1}, Thomas Voglhuber-Brunnmaier\textsuperscript{1}, Isabelle
Dufour\textsuperscript{2}, Bernhard Jakoby\textsuperscript{1}
\textsuperscript{1}JKU, Austria; \textsuperscript{2}Université Bordeaux 1, France
**B11-C**  
**Biosensors and Biomedical Devices**  
**Time:** Tuesday, September 9, 2014, 09:00 - 10:30  
**Place:** Room N1  
**Chair(s):**  
Gerald Urban, *University of Freiburg, Freiburg (Germany)*  
Leandro Lorenzelli, *Bruno Kessler Foundation, Trento (Italy)*

09:00
**B11-C01**  
**Silicon-Based Multi-Nanowire Biosensor with High-K Dielectric and Stacked Oxide Sensing Membrane for Cardiac Troponin I Detection**  
Shih-Hsiang Shen¹, Hua Cheng², Tung-Yi Kao¹, Miin-Jang Chen¹, Chih-Ting Lin³  
¹Department of Materials Science and Engineering, National Taiwan University, Taiwan; ²Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan; ³Graduate Institute of Electronics Engineering, National Taiwan  

09:15
**B11-C02**  
**Improvement of Infrared Detectors for Tissue Oximetry Using Black Silicon Nanostructures**  
Soren Dahl Petersen, Rasmus Schmidt Davidsen, Lucia Rosario Alcalá, Michael Stenbæk Schmidt, Anja Boisen, Ole Hansen, Erik Vilain Thomsen  
DTU Nanotech, Denmark

09:30
**B11-C03**  
**A Scalable Actuator for the Dynamic Palpation of Soft Tissue for Use in the Assessment of Prostate Tissue Quality**  
Paul Scanlan², Steven Hammer², Daniel Good², Will Shu², Robert Reuben², Simon Phipps¹, Grant Stewart¹, Alan McNeill¹  
¹Edinburgh Western General Hospital, United Kingdom; ²Heriot Watt University, United Kingdom; ³University of Edinburgh, United Kingdom

09:45
**B11-C04**  
**Measurement of Prostate Specific Antigen Using Self-Sensing Nanomechanical Membrane**  
Meisam Omidi⁵, Mohammadmehdi Choolai⁵, F. Asjodi⁵, F. Haghirisadat⁵, F. Yazdian⁵  
⁵Applied scientific university of perspolis, sport nutrition branch, Tehran, Iran, Iran; ⁶university of tehran, Iran

10:00
**B11-C05**  
**Chemical Sensor Approach to Volatile Phenotyping of Respiratory Diseases**  
Giorgio Pennazza¹, Marco Santonico¹, Domenica Chiurco¹, Simone Scarlata¹, Chiara Vernile¹, Simone Grasso², Raffaele Antonelli Incalzi¹, Arnaldo D’Amico²  
¹University Campus Bio-Medico of Rome, Italy; ²University of Rome Tor Vergata, Italy
10:15

**B1L-C06 Design and Modelling of a Portable Breath Analyser for Metabolic Rate Measurement**

Timothy Vincent\(^2\), Adrian Wilson\(^1\), John Hattersley\(^1\), Mike Chappell\(^2\), Julian Gardner\(^2\)

\(^1\)UHCW NHS Trust, United Kingdom; \(^2\)Warwick University, United Kingdom
TUESDAY, SEPTEMBER 9, 2014

B1L-D  Wireless and RF Sensor Applications
Time:  Tuesday, September 9, 2014, 09:00 - 10:30
Place:  Room N2
Chair(s):  Grigoris Kaltsas, Technological Educational Institution of Athens, Athens (Greece)
          Michele Penza, ENEA, Brindisi (Italy)

  09:00 Invited Talk
B1L-D01  Wireless Sensor Networking in the Internet of Things and Cloud Computing Era
         Alessandra Flammini, Emiliano Sisinni
         University of Brescia, Italy

  09:30
B1L-D03  Development and Evaluation of a WSN for Real-Time Structural Health Monitoring and Testing
         Alessandro Depari, Paolo Ferrari, Alessandra Flammini,
         Stefano Rinaldi, Mattia Rizzi, Emiliano Sisinni
         University of Brescia, Italy

  09:45 Resonant Piezo-Layer (RPL) Sensors with Contactless Interrogation for Food Monitoring from Outside Sealed Packages
         Marco Ferrari, Marco Baù, Vittorio Ferrari
         University of Brescia, Italy

  10:00
B1L-D05  A Wireless Passive Humidity Threshold Monitoring Solution Based on a Permanent Resistance Change
         Sebastian Sauer, Wolf-Joachim Fischer
         TU Dresden, Germany

  10:15 Miniaturized Microcantilever-Based RF Microwave Probes Using MEMS Technologies
         Jaouad Marzouk, Steve Arscott, Kamel Haddadi, Tuami Lasri,
         Christophe Boyaval, Sylvie Lepilliet, Gilles Dambrine
         IEMN, France
**B2L-A** Nanowires and Nanotubes for Chemical Sensing  
**Time:** Tuesday, September 9, 2014, 11:00 - 12:30  
**Place:** 'Aula MAGNA’ Hall  
**Chair(s):** Eduard Llobet, *Rovira i Virgili University, Tarragona (Spain)* 
*Andreas Hierlemann, ETH Zürich, Basel (Switzerland)*  

11:00  

**B2L-A01** Tungsten Oxide Nanowires Chemical Sensors  
Dario Zappa, Angela Bertuna, Elisabetta Comini, Marco Molinari, Nicola Poli, Giorgio Sberveglieri  
SENSOR Lab, *University of Brescia & CNR-INO, Italy*  

11:15  

**B2L-A02** Gas Sensing Properties of Metal-Decorated Tungsten Oxide Nanowires Directly Grown Onto Flexible Polymeric Hotplates  
Fatima Ezahra Annanouch1, Malick Camara1, Jose Luis Ramirez2, Danick Briand1, Eduard Llobet1  
1EPFL-IMT SAMLAB, Switzerland; 2Universitat Rovira i Virgili, Spain  

11:30  

**B2L-A03** Suppression of Cross-Sensitivity to Humidity in Pristine, Suspended Single-Walled Nanotube No2 Sensors  
Kiran Chikkadi, Matthias Muoth, Niklas Beckmann, Cosmin Roman, Christofer Hierold  
*ETH Zurich, Switzerland*  

11:45  

**B2L-A04** Use of a CNT-coated piezoelectric cantilever with double transduction as a gas sensor for benzene detection at room temperature  
Pierrick Clément1, Claude Luca1, Hélène Debèda1, Eduard Llobet2  
1Institut du Matériaux au Système, France; 2Universitat Rovira i Virgili, Spain  

12:00  

**B2L-A05** CNT Wiring for Signal Amplification in Electrochemical magnetosensors  
Zorione Herrasti1, Fernando Martínez1, Eva Baldrich1  
1IK4-Ikerlan, Spain; Vall d’Hebron Institut de Recerca (VHIR), Spain  

12:15  

**B2L-A06** Environmental Monitoring of Low-ppb Ammonia Concentrations Based on Single-Wall Carbon Nanotube chemiresistor Gas Sensors: Detection Limits, Response Dynamics, and Moisture Effects  
Federica Rigoni1, Silvia Tognolini1, Patrizia Borghetti1, Giovanni Drera1, Stefania Pagliara1, Andrea Goldoni2, Luigi Sangalletti1  
1Centro de Fisica de Materiales (CSIC/UPV-EHU) – Materials Physics Center, Spain; 2Elettra Sincrotrone Trieste S.C.p.A., Italy; 3Interdisciplinary Laboratory for Advanced Materials Physics and Dipartimento di Matematica e Fisica, Italy
B2L-B  Physical Sensors
Time:  Tuesday, September 9, 2014, 11:00 - 12:30
Place:  'Sala CONSILIARE’ Hall
Chair(s): Paddy French, Delft University of Technology, Delft (The Netherlands)
         Ralf Lucklum, Otto-von-Guericke University Magdeburg, Magdeburg (Germany)

11:00  B2L-B01  SOI-Based, High Reliable Pressure Sensor with Floating Concept for High Temperature Applications
Andrea Giuliani¹, Lionello Drera¹, Domenico Arancio¹,
Biswaijit Mukhopadhyay², Ha-Duong Ngo²
¹Gefran SpA, Italy;
²Technical University of Berlin, Germany

11:15  B2L-B02  Resistive Sensors with Smart Textiles for Wearable Technology: from Fabrication Processes to Integration with Electronics
Lorenzo Capineri
Università di Firenze, Italy

11:30  B2L-B03  Characterization of Linear-Mode Avalanche Photodiodes in Standard CMOS
Eva Vilella, Anna Vilà, Francisco Palacio, Manel López, Angel Diéguez
University of Barcelona, Spain

11:45  B2L-B04  Ultra-Low Offset Vertical Hall Sensor in CMOS Technology
Christian Sander², Maria-Cristina Vecchi¹, Martin Cornils¹,
Oliver Paul²
¹Micronas, Germany; ²University of Freiburg, Germany

12:00  B2L-B05  Low Voltage Acoustic Particle Velocity Sensor with Integrated Low Noise Chopper Pre-Amplifier
Massimo Piotto², Federico Butti¹, Alessia Di Pancrazio¹, Paolo Bruschi¹
¹Dipartimento di Ingegneria dell’Informazione, University of Pisa, Italy; ²IEHT - Pisa, CNR, Italy; ³Marvell Semiconductor, Italy

12:15  B2L-B06  Silicon Nanowire Based Thermal Conductivity Detector
Jérémie Ruelan, Julien Arcamone, Marc Gely, Laurent Duraffourg
CEA-LETI MINATEC CAMPUS, France
B2L-C  Detection Methods in Biosensors
Time: Tuesday, September 9, 2014, 11:00 - 12:30
Place: Room N1
Chair(s): Joao Pedro Conde, University of Lisbon, Lisbon (Portugal)
Antonio Arnaú, Polytechnic University of Valencia, Valencia (Spain)

11:00 Invited Talk

B2L-C01  Bio-Inspired Explosive Sensors and Specific Signatures
Denis Spitzer\textsuperscript{1}, Karine Bonnot\textsuperscript{1}, Laurent Schlur\textsuperscript{1}, Nelly Piazzon\textsuperscript{1,2}, David Doblas\textsuperscript{1,2}, Dimitri Ivanov\textsuperscript{2}, Thomas Cottineau\textsuperscript{1}, Valérie Keller\textsuperscript{1}
\textsuperscript{1}Laboratoire des Nanomatériaux pour les Systèmes Sous Sollicitations Extrêmes, ISL-CNRS-UdS, France; \textsuperscript{2}Institut de Science des Matériaux de Mulhouse, CNRS-UHA, France; \textsuperscript{3}Institut de Chimie et Procédés pour l’Energie, l’Environnement et la Santé, CNRS-UdS, France

11:30 B2L-C03  DNA Intercalation-Based Amperometric Biosensor for Chlorpromazine Detection
Joanna Jankowska-Sliwinska, Marek Dawgul, Dorota Pijanowska
Nałęcz Institute of Biocybernetics and Biomedical Engineering, Poland

11:45 B2L-C04  Complex Nanostructures Based on Oligonucleotide Optical Switches and nanoparticles for Intracellular mRNA Sensing and Silencing
Barbara Adinolfi\textsuperscript{1}, Sara Carpi\textsuperscript{1}, Ambra Giannetti\textsuperscript{3}, Paola Nieri\textsuperscript{2}, Mario Pellegrino\textsuperscript{1}, Giovanna Sotgiu\textsuperscript{4}, Sara Tombelli\textsuperscript{5}, Cosimo Trono\textsuperscript{5}, Greta Varchi\textsuperscript{5}, Francesca Baldini\textsuperscript{5}
\textsuperscript{1}Dip.Ricerca Trasazionale e delle Nuove Tecnologie in Medicina e Chirurgia, Univ. Pisa, Italy; \textsuperscript{2}Dipartimento di Farmacia, Università di Pisa, Italy; \textsuperscript{3}IFAC-CNR, Italy; \textsuperscript{4}ISOF-CNR, Italy

12:00 B2L-C05  Label-Free Detection of DNA Hybridization with Light-Addressable Potentiometric Sensors: Comparison of Various DNA-Immobilization Strategies
Thomas Brönder\textsuperscript{1}, Chunseng Wu\textsuperscript{1}, Arshak Poghossian\textsuperscript{1}, Frederik Werner\textsuperscript{1}, Michael Keusgen\textsuperscript{1}, Michael Schöning\textsuperscript{1}
\textsuperscript{1}FH Aachen, Germany; \textsuperscript{2}Philipps University Marburg, Germany; \textsuperscript{3}Zhejiang University, China

12:15 B2L-C06  Love Mode Surface Acoustic Wave and High Fundamental Frequency Quartz Crystal Microbalance Imnosensors for the Detection of Carbaryl Pesticide
José Vicente García Narbón\textsuperscript{1}, María Isabel Rocha Gasó\textsuperscript{1}, Carmen March Iborra\textsuperscript{1}, Pablo García Mollá\textsuperscript{1}, Laurent Francis\textsuperscript{1}, ángel Montoya Baides\textsuperscript{2}, Antonio Arnaú Vives\textsuperscript{2}, Yolanda Jiménez Jiménez\textsuperscript{2}
\textsuperscript{1}Advanced Wave Sensors S.L., Spain; \textsuperscript{2}Universitat Politècnica de València, Spain; \textsuperscript{3}Université catholique de Louvain, Belgium
11:00

**B2L-D01** Multi-Parameter Model Validation of an Energy Harvester Frequency Up-Conversion Mechanism Under Stochastic Excitation

Bryn Edwards, Kean Aw, Aiguo Hu

_The University of Auckland, New Zealand_

11:15

**B2L-D02** FR4 Based Bistable Electromagnetic Vibration Energy Harvester

Pranay Podder¹, Andreas Amann², Saibal Roy³

¹_Tyndall National Institute, Ireland; ²_University College Cork, Ireland_

11:30

**B2L-D03** An Electrically Tunable Low Frequency Electromagnetic Energy Harvester

Dhiman Mallick, Saibal Roy

_Tyndall National Institute, Ireland_

11:45

**B2L-D04** Energy Harvesting from Von Karman Vortices in Airflow for Autonomous Sensors

Marco Demori, Marco Ferrari, Vittorio Ferrari, Stefano Farisè, Pietro Poesio

_University of Brescia, Italy_

12:00

**B2L-D05** Modeling and Optimization of a Vortex Induced Vibration Fluid Kinetic Energy Harvester

Quan Wen², Robert Schulze¹, Detlef Billep², Thomas Otto², Thomas Gessner²

¹_Chemnitz University of Technology, Germany; ²_Fraunhofer Institute for Electronic Nano Systems, Germany_

12:15

**B2L-D06** Comparisons of Energy Sources for Autonomous in-Car Wireless Tags for Asset Tracking and Parking Applications

Dibin Zhu², Lelan Wang³, Julien Henaut¹, Steve Beeby²

¹_STERELA, France; ²_University of Southampton, United Kingdom_
B3L-A  Metal Oxides for Chemical Sensing II
Time: Tuesday, September 9, 2014, 14:00 - 16:00
Place: 'Aula MAGNA' Hall
Chair(s): Udo Weimar, University of Tübingen, Tübingen (Germany)
Pietro Siciliano, CNR (National Research Council), Lecce (Italy)

14:00
B3L-A01  Optimization of CMOS Integrated Nanocrystalline SnO2 Gas Sensor Devices with Bimetallic Nanoparticles
Giorgio Mutinati1, Elise Brunet1, Anton Kück1, Stephan Steinhauer1, Olena Yurchenko2, Elmar Laubender2, Gerald Urban2, Joerg Siegert2, Karl Rohracher3, Franz Schrank3, Martin Schrems3
1AIT Austrian Institute of Technology GmbH, Austria; 2Albert-Ludwigs-Universität Freiburg, Germany; 3ams AG, Austria; 4Materials Center Leoben Forschung GmbH, Austria

14:15
B3L-A02  Ultra-Sensitive H2S Sensors Based on Hydrothermal/Impregnation-Made Ru-functionalized Wo3 nanorods
Virunthachar Kruefu1, Anurat Wisitsornarat2, Sukon Phanichphant1
1Materials Science Research Center, Faculty of Science, Chiang Mai University, Thailand; 2National Electronics and Computer Technology Center, Thailand; 3Program in Materials Science, Faculty of Science, Maejo University, Thailand

14:30 Invited Talk
B3L-A03  Semiconductor Metal Oxides As Hydrogen Gas Sensors
Sukon Phanichphant
Chiang Mai University, Thailand

15:00
B3L-A05  Acetone Sensing with TiO2-Wo3 Nanocomposites: an Example of Response Enhancement by Inter-Oxide Cooperative Effects
Mauro Epifani1, Elisabetta Comini2, Raul Diaz3, Teresa Andreu4, Aziz Genc5, Jordi Arbiol6, Pietro Siciliano1, Guido Faglia2, Joan Ramon Morante7
1CNR-IMM, Italy; 2CNR-INO and Università di Brescia, Italy; 3ICMAB-CSIC, Spain; 4ICMAB-CSIC and ICREA, Spain; 5IMDEA Energia, Spain; 6IREC, Spain; 7IREC and Universidad de Barcelona, Spain

15:15
B3L-A06  Niobium Oxide Nanostructures for Chemical Sensing
Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sbervegli
Università di Brescia, Italy

15:30
B3L-A07  Fast Response Hydrogen Microsensor Based on Semiconductor Niobium-Oxide Nanostructures via Smart Anodizing of Al/Nb Metal Layers
Rosa Maria Vázquez1, Alexander Mozalev1, Eduard Llobet2
1Brno University of Technology, Czech Rep.; 2Universitat Rovira i Virgili, Spain
Correlations Phonon Spectrum-Sensitivity in Metal Oxide-Gas Sensors

Mihai Mihaila
Honeywell, Romania
**B3L-B**

**MEMS-Based Physical Sensors**

**Time:** Tuesday, September 9, 2014, 14:00 - 16:00

**Place:** 'Sala CONSILIARE' Hall

**Chair(s):** Franz Keplinger, *Vienna University of Technology, Vienna (Austria)*

Christos Tsamis, *National Center for Scientific Research Demokritos, Athens (Greece)*

**14:00**

**B3L-B01**

**Off-Resonance Operation of In-Plane Torsional MEMS Magnetometers**

Giacomo Laghi¹, Stefano Dellea¹, Giacomo Langfelder¹, Antonio Longoni¹, Paolo Minotti¹, Alessandro Tocchio², Sarah Zerbini³

¹Politecnico di Milano, Italy; ²STMicroelectronics, Italy

**14:15**

**B3L-B02**

**Characterization of MEMS Resonators via Feedthrough Demembedding of Pulsed-Mode Response**

Alexis Brenes², Jérôme Juillard¹, Alain Bonnoit¹, Filipe Vinci Dos Santos³

¹SSE Supélec, France; ²ThalesAvionics, France; ³ThalesChair, France

**14:30**

**B3L-B03**

**Investigation of the Effects of Hydrodynamic and Parasitic Electrostatic Forces on the Dynamics of a High Aspect Ratio MEMS Accelerometer**

Fabrizio Cerini¹, Marco Ferrari¹, Vittorio Ferrari¹, Alfio-Lip Russo², Mikel Azpeitia Urquia², Raffaele Ardito², Biagio De Masi¹, Attaallah Almasi², Davide Iannuzzi³, René Sedmik³

¹Politecnico di Milano, Italy; ²STMicroelectronics, Italy; ³University of Brescia, Italy; ⁴VUUniversityAmsterdam, Netherlands

**14:45**

**B3L-B04**

**Thermal Compensated Pull-in Voltage MEMS Inclinometers**

Filipe Serra Alves², Rosana Alves Dias², Jorge Cabral², João Gaspar², Luísa Alexandre Rocha²

²InternationalIberian Nanotechnology laboratory, Portugal; ²University of Minho, Portugal

**15:00**

**Invited Talk**

**B3L-B05**

**Soft Piezoelectric MEMS Technologies for Tactile Sensing and Energy Harvesting**

Massimo De Vittorio

*Università del Salento, Italy*

**15:30**

**B3L-B07**

**MOEMS Vibration Sensor for Advanced Low-Frequency Applications with pm Resolution**

Wilfried Hortschitz¹, Andreas Kainz², Franz Kohl¹, Michael Stifter³, Harald Steiner¹, Franz Keplinger², Thilo Sauter¹, Johannes Schalko²

¹CISS/DUK, Austria; ²TU-Vienna, Austria
15:45  
B3L-B08  
**SOI CMOS MEMS Infra-Red Thermal Source with Carbon Nanotubes Coating**

Andrea De Luca², Matthew Cole², Richard Hopper¹, Zeeshan Ali¹, Florin Udrea², Julian Gardner³, William Milne²  
¹Cambridge CMOS Sensors Ltd, United Kingdom; ²University of Cambridge, United Kingdom; ³University of Warwick, United Kingdom
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
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<tbody>
<tr>
<td>14:00</td>
<td>Continuous Prediction in chemoresistive Gas Sensors Using Reservoir Computing</td>
<td>Sadique Sheik¹, Santiago Marco¹, Ramon Huerta², Jordi Fonollosa²</td>
<td>IBEC, Spain; UCSD, United States</td>
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<tr>
<td>14:15</td>
<td>Thermally Pulsed Metal Oxide Gas Sensor Combined with a Colorimetric Gas Sensor for the Selective Detection of Trace Gases</td>
<td>Sven Rademacher¹, Carolin Peter¹, Katrin Schmitt¹, Jürgen Wollenstein²</td>
<td>Fraunhofer IPM, Germany; IMTEK - University of Freiburg, Germany</td>
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<tr>
<td>14:30</td>
<td>Robustness to Sensor Damage of a Highly Redundant Gas Sensor Array</td>
<td>Luis Fernandez, Agustin Gutierrez, Santiago Marco</td>
<td>IBEC, Spain</td>
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<tr>
<td>14:45</td>
<td>Automatic Fault Identification and on-Line Unsupervised Calibration of Replaced Sensors by Means of Cooperative Classifiers</td>
<td>Eugenio Martinelli¹, Gabriele Magna¹, Alexander Vergara², Corrado Di Natale³</td>
<td>Dept. Electronic Engineering, University of Rome Tor Vergata, Italy; Material Measurement Lab., National Institute of Standards Technology, Gaithersburg, USA, Mexico</td>
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<tr>
<td>15:00</td>
<td>Combining Real Time Classifiers for Fast and Reliable Electronic Nose Response Analysis for Aerospace NDTs</td>
<td>Saverio De Vito, Maria Salvato, Ettore Massera, Mara Miglietta, Antonio Buonanno, Grazia Fattoruso, Girolamo Di Francia</td>
<td>ENEA, Italy</td>
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<td>15:15</td>
<td>Description and Characterisation of a Large Array of Sensors Mimicking an Artificial Olfactory Epithelium</td>
<td>Mara Bernabei, Simone Pantalei, Krishna Persaud</td>
<td>The University of Manchester, United Kingdom</td>
</tr>
</tbody>
</table>
15:30  Invited Talk
B3L-C07  Trends in Near Infrared Spectroscopy and Multivariate Data Analysis from an Industrial Perspective
Kerstin Wiesner, Karen Fuchs, Alexander Michael Gigler, Remigiusz Pastusiak
Siemens AG, Germany
B3L-D  Micro- and Nano-Fabrication for Sensors and Actuators
Time: Tuesday, September 9, 2014, 14:00 - 16:00
Place: Room N2
Chair(s): Lina Sarro, Delft University of Technology, Delft (The Netherlands)
Jan Dziuban, Wroclaw University of Technology, Wroclaw (Poland)

14:00 Invited Talk
B3L-D01 Membrane Platforms for Sensors
István Bársyony, Csaba Dicsó, Peter Fürjes, F. Riesz, Z. Hajnal, G. Battistig
Hungarian Academy of Sciences, Hungary

14:30 B3L-D03 Integrated Investigation Approach for Determining Mechanical Properties of Poly-Silicon Membranes
John Brueckner1, Alfons Dehë2, Ellen Auerswald1, Rainer Dudek1, Sven Rzepka1, Bernd Michel1
1Fraunhofer ENAS, Germany; 2Infineon Technologies AG, Germany

14:45 B3L-D04 Residual Stress in Capacitive Micromachined Ultrasonic Transducers Fabricated with Anodic Bonding Using SOI Wafer
Vincent Walter, Gilles Bourbon, Patrice Le Moal Femto-ST, France

15:00 B3L-D05 A Method of Fabricating Vacuum Packages with Vertical Feedthroughs in a Wafer Level Anodic Bonding Process
Mustafa Mert Torunbalci1, Said Emre Alper1, Tayfun Akin2
1METU-MEMS Research and Applications Center, Turkey; 2METU-MEMS Research and Applications Center/METU, Department of Electrical and Electronics Eng., Turkey

15:15 B3L-D06 Miniature Integrated High-Vacuum MEMS
Tomasz Grzebyk2, Anna Görecka-Drzazga2, Jan Dziuban2, Tatjana Dankovic1, Alan Feinerman1, Heinz Busta1
1University of Illinois, United States; 2Wroclaw University of Technology, Poland

15:30 B3L-D07 The Use of Polymeric Technologies for Functional 3D microdevices
Cátiia Silva2, Jong Noh1, António Pontes2, João Gaspar1, Luis Rocha2
1International Iberian Nanotechnology Laboratory, Portugal; 2Universidade do Minho, Portugal
15:45

**B3L-D08** Sers Enhancement and Field Confinement in Nanosensors Based on Self-Organized Gold Nanowires Produced by Ion-Beam Sputtering

Barbara Fazio¹, Cristiano D’Andrea¹, Antonino Foti¹, Elena Messina¹, Pietro Giuseppe Gucciardi¹, Marina Giordano², Christian Martella¹, Daniele Chiappe², Andrea Toma², Francesco Buatier de Mongeot², Francesco Tantussi², Priya Vasanthakumar³, Maria Allegrini³

¹CNR IPCF, Italy; ²UniGE, Italy; ³UniPI, Italy
B4P-E  Micro- and Nano-Fabrication for Sensors and Actuators

Time:  Tuesday, September 9, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  Christophe Pijolat, National Graduate School of Engineering, St-Etienne (France)
          Leandro Lorenzelli, Bruno Kessler Foundation, Trento (Italy)

B4P-E01  Direct Laser Patterning of a Gas Sensor on Flexible Substrate
Mónica Acuauatla¹, Sandrine Bernardini¹, Laurent Gallais², Marc Bendahan¹
¹Aix – Marseille University, CNRS, IM2NP – UMR 7334, France; ²Aix-Marseille Université, Centrale Marseille, CNRS, Institute Fresnel-UMR 7249, France

B4P-E02  Processing of Nanoscale Gaps for Boron-Doped Nanocrystalline Diamond Based MEMS
Dimitre Iankov², Verena Zuerbig², Wilfried Pletschen¹, Christian Giese¹, Robert Iannucci¹, Oliver Ambacher¹, Vadim Lebedev¹
¹Fraunhofer Institute for Applied Solid State Physics IAF, Germany; ²Fraunhofer Institute for Applied Solid State Physics IAF and IMTEK, University of Freiburg, Germany

B4P-E03  Shape Controlled ZnO Nanostructures for Gas Sensing Applications
Justyna Jońca¹, Andrey Ryzhikov¹, Myrtil Kahn¹, Katia Fajerweg¹, Bruno Chaudret¹, Audrey Chapelle¹, Philippe Menini¹, Pierre Fau¹
¹Laboratoire de Chimie de Coordination, France; ²Laboratoire de Physique et de Chimie des Nano-objets, France;
³Laboratoire d’Analyse et d’Architecture des Systèmes, France

B4P-E04  Polysilicon Nanowires FET As Highly-Sensitive Ph-Sensor: Modeling and Measurements
Anne-Claire Salaun, Laurent Pichon, Gertrude Wenga
Université de Rennes 1, France

B4P-E05  Electronic Sensor for Ph Measurements in nanoliters
Ismail Bouhadda, Olivier De Sagazan, France Le Bihan
IETR, France

B4P-E06  A Through-Hole Array on Optical Fibers Fabricated by 1-Khz/400-nm Femtosecond Laser Pulses for an in-Line/pico-Litter Spectrometer Design
Kenji Goya, Toshiaki Itoh, Atsushi Seki, Kazuhiro Watanabe
Soka University, Japan

B4P-E07  A Novel SnO2 Sensor and its Selectivity Improvement with Catalytic Filters
Justyna Jońca¹, Andrey Ryzhikov¹, Katia Fajerweg¹, Myrtil Kahn¹, Bruno Chaudret¹, Audrey Chapelle¹, Philippe Menini³, Pierre Fau¹
¹Laboratoire de Chimie de Coordination, France; ²Laboratoire de Physique et de Chimie des Nano-objets, France;
³Laboratoire d’Analyse et d’Architecture des Systèmes, France
B4P-E08 Fully Integrated Lambda Sensor Based on Micromachined Platforms and Ytoria Stabilized Zirconia Thin Membranes for Oxygen Measurement
Alex Morata1, Iñigo Garbayo2, Dolors Pla2, Marc Salleras1, Neus Sabaté1, Albert Tarancón1, Joan Ramón Morante2
1Institut de Microeletronica de Barcelona, CSIC, Bellatera 08139 SPAIN, Spain; 2Institut de Recerca en Energia de Catalunya (IREC), Spain

B4P-E09 Carbon Nanotubes As Base Material for Fabrication of Gap Waveguide Components
Muhammad Amin Saleem1, Sofia Rahiminejad1, Vincent Desmaris2, Peter Enoksson1
1Chalmers University of Technology, Sweden; 2Smoltek AB, Sweden

B4P-E10 Design and Fabrication of an Acoustic Micromixer for Biological Media Activation
Rabah Zeggari1, Jean François Manceau1, Ece Aybeke3, Réda Yahiaoua1, Eric Lesniewska1, Wilfrid Boireau2
1Femto-st, France; 2Femto-st, CLIPP, France; 3ICB, CLIPP, France

B4P-E11 Microshaping of Aluminum-Based Neural Microelectrode Arrays Using Chemical Wet-Etching
Beatriz Goncalves, Alexandre Peixoto, José Rodrigues, Alexandre Silva, José Correia
University of Minho, Portugal

B4P-E12 NEMS Switches Monolithically Fabricated on CMOS Mim Capacitors
Jose Luis Muñoz Gamarra, Arantxa Uranga, Nuria Barniol Beumala
, Spain

B4P-E13 Screen Printed Free-Standing Resonator with Piezoelectric Excitation and Detection on Flexible Substrate
Dibin Zhu, Ahmed Almusallam, Russel Torah, Kai Yang, Steve Beeby, John Tudor
University of Southampton, United Kingdom

B4P-E14 Comparison of Ammonia Sensing Characteristics of Individual SnO2 Nanowire and SnO2 Sol-Gel Nanocomposite
Alexey Shaposhnik1, Stanislav Ryabytsev4, Feng Shao1, Francisco Hernández Ramirez1, Juan Ramón Morante1, Alexey Zviagin2, Elena Sizask3, Dmitry Shaposhnik2
1Catalonia Institute for Energy Research, Spain; 2University Rovira i Virgili, Spain; 3Voronezh State Agrarian University, Russia; 4Voronezh State University, Russia

B4P-E15 Electromagnetically Actuated Microcantilever for Chemical and Biochemical Sensing in Static Mode
Daniel Kopiec2, Wojciech Majstrzyk3, Piotr Paletko2, Piotr Kunicki2, Andrzej Sierakowski1, Teodor Gotszalk1
1Institute of Electron Technology, Poland; 2Wroclaw University of Technology, Poland
B4P-E16 Improvement of the Thermal Resistance of Thin Film Heaters on Glass Substrate for Lab-on-Chip Applications
Andrea Scorzonì¹, Michele Tavernelli¹, Písana Placidi², Paolo Valigi³, Stefano Zampolli³, Domenico Caputo², Giulia Petrucci², Augusto Nasetti²
¹CNR-IMM Bologna, Italy; ²Sapienza University of Rome, Italy; ³University of Perugia, Italy

B4P-E17 CNT-Ni-Pd Nanocomposite Films for Optical Gas Sensor
Elżbieta Czerwosz⁴, Wojtek Wlodarski¹
¹RMIT Univ., Australia; ²Tele&RadioResearch Inst., Poland

B4P-E18 Micro-Newton Detection by Using Spring-Paper Force Sensor
Amir Yadegari, Meisam Omidi, Mohammadehdi Choolai, F. Haghiralsadat, F. Yazdyan
University of Tehran, Iran

B4P-E19 Neural Cell Response to Nanostructured Biosensor Surfaces
Zsófia Bérces², ágoston Horváth², Attila Jády¹, Anita Pongrácz², Emília Madarász¹, Zoltán Fekete²
¹Institute of Experimental Medicine, HAS, Hungary; ²Research Center for Natural Sciences, HAS, Hungary

B4P-E20 Design and Development of a 3-Axis Micro Gyroscope with Vibratory Ring Springs
Yeohwa Jeon², Heejun Kwon², Hyeoncheol Kim², Sungwook Kim¹
¹TTI Inc., Korea, South; ²Ulsan university, Korea, South

B4P-E21 Fabrication of sub-micro silicon waveguide with vertical sidewall and reduced roughness for low loss applications
Aron Michael, Peng Wang, Chee Yee Kwok
UNSWA, Australia

B4P-E22 High-Sensitivity Indoor-Air-Quality Sensor Through Localized Growth of ZnO Nanostructures
Jurgi Gonzalez de Chavarri, Irene Castro Hurtado, Gemma Garcia Mandayo, Enrique Castaño
Ceit, Spain

B4P-E23 Luminescent Optical Fiber Oxygen Sensor Following Layer-by-Layer Method
César ElOsua, Nerea de Acha, Diego Lopez-Torres, Ignacio Matías Maestro, Francisco Javier Arregui
Universidad Pública de Navarra, Spain

B4P-E24 Study of the Fabrication Process for a Dual Mass Tuning Fork Gyro
Francesco Santoni, Ennio Giovine, Guido Torrioli, Fabio Chiarello, Maria Gabriella Castellano
IFN-CNR, Italy
B4P-F  Gas Sensors
Time: Tuesday, September 9, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Andreas Hielemann, ETH Zürich, Basel (Switzerland)
  Danick Briand, EPFL, Lausanne (Switzerland)

B4P-F01  Infrared Sensor for Monitoring of LEL of Flammable Gases and Vapors of Flammable Liquids
Andrey Makeenkov¹, Igor Lapitskiy², Oleg Kanischev², Andrey Somov¹
¹CREATE-NET, Italy; ²FSUE SPA ANALITPRIBOR, Russia

B4P-F02  Graphene-Coated Rayleigh SAW Resonators for NO2 Detection
Sanju Thomas², Marina Cole¹, Andrea de Luca¹, Felice Torissi¹, Andrea Ferrari¹, Florin Udrea¹, Julian Gardner²
¹Cambridge University, United Kingdom; ²Warwick University, United Kingdom

B4P-F03  Ammonia Sensors Based on Suspended Silicon Nanowires
Laurent Pichon, Anne Claire Salaün, Gertrude Wenga, Regis Rogel, Emmanuel Jacques
IETR, France

B4P-F04  A New Approach to Self-Monitoring of Amperometric Oxygen Sensors
Manuel Bastuck, Andreas Schütze, Tilman Sauerwald
Saarland University, Germany

B4P-F05  Effect of Hexagonal Wo3 Morphology on NH3 Sensing
Máté Takács¹, Csaba Dúcso², Zoltán Lábadi², Andrea Edit Pap²
¹Institute of Hungarian Academy of Sciences and Budapest University of Technology and Economics, Hungary; ²Institute of Technical Physics and Materials Science, Hungarian Academy of Sciences, Hungary

B4P-F06  Hydrogen-Induced Dipoles and Sensing Priniciples of Pt-Ti-O Gate Si-MISFET Hydrogen Gas Sensors
Kotaro Takeyasu, Katsuyuki Fukutani
The University of Tokyo, Japan

B4P-F07  VOcs Detection by Microwave Transduction Using Zeolites As Sensitive Material
Brice de Fonseca², Jérôme Rossignol², Igor Bezverkhyy¹, Jean Pierre Bellat¹, Didier Stuerga², Pierre Pribetich²
¹ASP Dpt. OMR, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France; ²GERM Dpt. Nanosciences, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France

B4P-F08  Copper Oxide Nanowires for Surface Ionization Based Gas Sensor
Cristina Cerqui², Andrea Ponzoni¹, Dario Zappa², Elisabetta Comini², Giorgio Sberveglieri²
¹CNR, Italy; ²University of Brescia, Italy
B4P-F09  Electrode Spacing Effect on LPCVD Monolayer Graphene for Ammonia and Acetone Gas Sensors
Tsung-Cheng Chen¹, Wei-Tse Lin¹, Tzu-Hao Hung¹, Hui-Ling Liu¹, Chin-Pao Cheng², Chun-Hu Cheng², Chung-Hung Chen², Kuan-I Ho¹, Meng-Chin Su¹, Ming-Yang Shih¹, Chia-Ming Yang¹, Chao-Sung Lai¹
¹Chang Gung University, Taiwan; ²National Taiwan Normal University, Taiwan

B4P-F10  Development and Application of a Fast Solid-State Potentiometric CO2-Sensor in Thick-Film Technology
Sven Wiegärtner³, Jaroslav Kita³, Gunter Hagen³, Christa Schmaus³, André Kießig³, Eckard Glaser³, Armin Bolz³, Ralf Moos³
³Cor Science GmbH & Co. KG, Germany; ²Siegert electronic GmbH, Germany; ³University Bayreuth, Germany

B4P-F11  Nanostructured Mixed Phase Vanadium Oxide Thin Films As Highly Sensitive Ammonia Sensor Material
Joni Huotari², Robert Bjorklund², Jyrki Lappalainen², Anita Lloyd Spetz¹
¹Linköping University, Sweden; ²University of Oulu, Finland

B4P-F12  The Gas Sensing Properties of Porphyrins-Coated Laterally Grown ZnO nanorods
Corrado Di Natalé², Yuvaraj Sivalingam², Gabriele Magna², Luca Businaro¹, Annamaria Gerardino¹, Roberto Paolesse², Alexandre Catini², Giuseppe Pomarico², Francesco Basoli²
¹CNR, Italy; ²University of Rome Tor Vergata, Italy

B4P-F13  Fully Printed Electrochemical No2 Sensor
Petr Kuberský², Tomáš Syrový¹, Aleš Hamáček², Stanislav Nešpůrek², Lucie Syrová¹
¹University of Pardubice, Czech Rep.; ²University of West Bohemia, Czech Rep.

B4P-F14  CO2 Gas Sensor Based on Mis Structure with LaF3 Layer
Andrey Varfolomeev², Alexey Vasiliev², Nikolay Zaretskiy², Werner Moritz¹
¹Humboldt University of Berlin, Germany; ²NRC Kurchatov Institute, Russia

B4P-F15  Acetone and Ethanol Selective Detection by a Single MOX-Sensor
Alexey Shaposhnik³, Alexey Zviagin³, Elena Sizask³, Stanislav Ryabtsev⁴, Alexey Vasiliev⁴, Dmitriy Shaposhnik²
¹NRC Kurchatov institute, Russia; ²University Rovira i Virgili, Spain; ³Voronezh State Agrarian University, Russia; ⁴Voronezh State University, Russia

B4P-F16  Optimum Condition for Identification of Alcoholic Gases by Transient Response of Semiconductor Gas Sensor
Akira Fujimoto
Wakayama National College of Technology, Japan
B4P-F17  Array of Chromium Doped Nanostructured TiO2 Metal Oxide Gas Sensors
Patryk Gwizdz1, Marta Radecka1, Katarzyna Zakrzewska1
AGH University of Science and Technology, Poland

B4P-F18  Fast Surface Potential Response to Gas in Air at the Room Temperature
Sarunas Vaskelis, Virginijus Bukauskas, Audruziez Mironas, Arunas Setkus
Center for Physical Sciences and Technology, Lithuania

B4P-F19  NOx Sensing Properties of Barium Titanate Thin Films
Savita Sharma1, Anjali Sharma2, Monika Tomar2, Nitin K. Puri1, Vinay Gupta2
1Delhi Technological University, India; 2University of Delhi, India

B4P-F20  Mg-MOF74 and Co-MOF74 As Sensing Layers for CO2 Detection
Olena Yurchenko2, Venkateswarlu Pentyala2, Polina Davydovskaya1, Roland Pohle1, Gerald Urban2
1Siemens AG, Germany; 2University of Freiburg, Germany

B4P-F21  Efficient Detection of So2 Gas Using SnO2 Based Sensor Loaded with Metal Oxide Catalysts
Punit Tyagi, Anjali Sharma, Monika Tomar, Vinay Gupta
University of Delhi, India

B4P-F22  Effect of Ga-Doping and UV Radiation on High Performance CO Sensing of ZnO Nano-Powders
Ramzi Dahr3, Mohktar Hjiri2, Lassada El Mir1, Anna Bonavita3, Salvatore Gianluca Leonardi1, Giovanni Neri3
1Al Imam Mohammad Ibn Saud Islamic University (IMSU), Saudi Arabia; 2University of Gabes, Tunisia; 3University of Messina, Italy

B4P-F23  Development of Gas Sensors on Microstrip Disk Resonators
Davide Aloisio, Nicola Donato
University of Messina, Italy

B4P-F24  Microstructural, Electrical and Hydrogen Sensing Properties of F-SnO2 nanoparticles
Nicola Pinna1, S. Mariotti1, Gianvito Caputo1, S.G. Leonardi2, Mariangela Latino2, N. Donato3, S. Trocino2, G. Neri2
1Humboldt Universität zu Berlin, Germany; 2University of Messina, Italy

B4P-F25  Gas Sensing Study of ZnO Nanowire heterostructured with NiO for Detection of Pollutant Gases
Camilla Baratto, Raj Kumar, Elisabetta Comini, Guido Faglia, Giorgio Sberveglieri
SENSOR Lab, CNR-INO and University of Brescia, Italy
B4P-F26  An Artificial Olfactory System (AOS) for Detection of Highly Toxic Gases in Air Based on YCoO3
Tommaso Addabbo, Francesco Bertocci, Ada Fort, Miguel Gregorkiewitz, Marco Mugnaini, Luay Shahin, Roberto Spinicci, Rocchi Santina, Valerio Vignoli
University of Siena, Italy
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<th>Session</th>
<th>Title</th>
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<td>B4P-G</td>
<td>Physical Sensors and Microsystems</td>
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<td>Time: Tuesday, September 9, 2014, 16:30 - 18:30</td>
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<td>Chair(s): Philippe Robert, <em>CEA-LETI/MINATEC, Grenoble (France)</em> Franz Keplinger, <em>Vienna University of Technology, Vienna (Austria)</em></td>
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<td>B4P-G01</td>
<td>High Pressure Sensor with PZT Transducer in LTCC Package</td>
<td>Arkadiusz Dabrowski, Leszek Golonka</td>
<td><em>Wrocław University of Technology, Poland</em></td>
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<td>B4P-G02</td>
<td>CMOS Image Sensor with Tunable Dynamic Range for Catheter Based endoluminal Applications</td>
<td>Monica Vatteroni, Carmela Cavallotti, Michele Silvestri, Hieu T. Tran, Arianna Menciassi</td>
<td><em>Scuola Superiore Sant'Anna, Italy</em></td>
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<td>B4P-G03</td>
<td>3-D Silicon Hall Device with Subsequent Magnetic-Field Components Measurement</td>
<td>Siya Lozanova, Svetoslav Noykov, Avgust Ivanov, Georgi Velichkov, Chavdar Roumenin</td>
<td><em>Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria</em></td>
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<td>B4P-G04</td>
<td>A Novel Orthogonally Activated Double-Hall Device</td>
<td>Siya Lozanova, Svetoslav Noykov, Avgust Ivanov, Georgi Velichkov, Chavdar Roumenin</td>
<td><em>Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria</em></td>
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<td>B4P-G05</td>
<td>A Novel Coupling of Three-Contact Parallel-Field Hall Devices for Offset Compensation</td>
<td>Siya Lozanova, Svetoslav Noykov, Avgust Ivanov, Georgi Velichkov, Chavdar Roumenin</td>
<td><em>Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria</em></td>
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<td>B4P-G06</td>
<td>Characterization of CMOS MEMS Capacitive Ultrasonic Sensors for Fast Photoacoustic Imaging</td>
<td>Chin-An Kuo, Michael Lu</td>
<td><em>NTHU, Taiwan</em></td>
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<td>B4P-G07</td>
<td>An Ionic Liquid Based Strain Sensor for Large Displacements</td>
<td>Grim Keulemans, Patrick Pelgrims, Marko Bakula, Frederik Ceyssens, Robert Puers</td>
<td><em>KU Leuven, Belgium</em></td>
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<td>B4P-G08</td>
<td>A CMOS-MEMS Thermopile with an Integrated Temperature Sensing Diode for Thermometry Applications</td>
<td>Richard Hopper¹, Zeeshan Ali¹, Foysol Chowdhury¹, Andrea De Luca², Florin Udrea³, Julian Gardner³, Sophie Boual³</td>
<td>¹<em>Cambridge CMOS Sensors, United Kingdom</em>; ²<em>University of Cambridge, United Kingdom</em>; ³<em>Warwick University, United Kingdom</em></td>
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B4P-G09 Terahertz Sensor for Integrated Image Detector
Volha Varlamava\textsuperscript{1}, Fabrizio Palma\textsuperscript{2}, Paolo Nenzi\textsuperscript{1}, Marco Balucani\textsuperscript{2}
\textsuperscript{1}ENA, Italy; \textsuperscript{2}Rome University, Italy

B4P-G10 Multi-Layer Pressure Sensor Designed for Pressure Ranges Up to 500 Bars: Polycrystalline Organic Molecular Metal Is at Play
Vladimir Laukhin\textsuperscript{1}, Elena Laukhina\textsuperscript{1}, Victor Lebedev\textsuperscript{1}, Concepcion Rovira\textsuperscript{3}, Jaume Veciana\textsuperscript{3}
\textsuperscript{1}CIBER de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Spain; \textsuperscript{2}Institut Català de Recerca i Estudis Avançats (ICREA), Spain; \textsuperscript{3}Institut de Ciencia de Materiales de Barcelona (ICMAB-CSIC), Spain

B4P-G11 Resonant Steel Tuning Forks for Precise Inline Viscosity and Mass Density Measurements in Harsh Environments
Martin Heinisch\textsuperscript{1}, Ali Abdallah\textsuperscript{1}, Isabelle Dufour\textsuperscript{2}, Bernhard Jakoby\textsuperscript{3}
\textsuperscript{1}JKU, Austria; \textsuperscript{2}Université Bordeaux 1, France

B4P-G12 A Spiral Spring Resonator for Mass Density and Viscosity Measurements
Martin Heinisch\textsuperscript{1}, Stefan Clara\textsuperscript{1}, Isabelle Dufour\textsuperscript{2}, Bernhard Jakoby\textsuperscript{3}
\textsuperscript{1}JKU, Austria; \textsuperscript{2}Université Bordeaux 1, France

B4P-G13 Low Temperature Co-Fired Ceramics Plasma Generator for Atmospheric Pressure Gas Spectroscopy
Jan Macioszczyk, Karol Malecha, Henryk Roguszczak, Sergiusz Patelka, Leszek Golonka
Wrocław University of Technology, Poland

B4P-G14 Aluminum Nitride SOI Lamb-Wave Resonators Towards Multi-Frequency, Multi-Sensitive Temperature Sensor Platform
Margarita Narducci\textsuperscript{1}, Marco Ferrari\textsuperscript{2}, Vittorio Ferrari\textsuperscript{2}, Humberto Campanella\textsuperscript{1}
\textsuperscript{1}ASTAR IME, Singapore; \textsuperscript{2}University of Brescia, Italy

B4P-G15 Contact Mode MEMS Position Sensors with Piezoresistive Detection
Vencislav Todorov\textsuperscript{2}, Galina Stavreva\textsuperscript{1}, Vladimir Stavrov\textsuperscript{1}
\textsuperscript{1}AMG Technology Ltd, Bulgaria; \textsuperscript{2}Techproject, Austria

B4P-G16 Micromechanical High-Doses Radiation Sensor with Bossed Membrane and Interferometry Optical Read-Out
Izabela Augustyniak\textsuperscript{1}, Katarzyna Sarelo\textsuperscript{1}, Paweł Knapkiewicz\textsuperscript{1}, Jan Dziuban\textsuperscript{1}, Emilie Debourg\textsuperscript{2}, Patrick Pons\textsuperscript{2}, Michal Olszacki\textsuperscript{1}
\textsuperscript{1}National Centre for Nuclear Research, Poland; \textsuperscript{2}The National Center for Scientific Research, LAAS, France; \textsuperscript{3}Wrocław University of Technology, Poland
B4P-G17 Fabrication of a Smart Suspension Structure of Micro Tactile Probing
Khalid Alblaihith
*The University of Nottingham, United Kingdom*

B4P-G18 A Selective, Miniaturized, Low-Cost Detection Element for a Photocoustic CO2 Sensor for Room Climate Monitoring
Jochen Huber¹, Alexander Ambs¹, Sven Rademacher¹, Jürgen Wöllenstein²
¹Fraunhofer IPM, Germany; ²IMTEK, University of Freiburg, Germany

B4P-G19 Ultraviolet Radiation Detection by Barium Titanate Thin Films Grown by Sol-Gel Hydrothermal Method
Savita Sharma¹, Monika Tomar⁷, Nitin K. Puri¹, Vinay Gupta²
¹Delhi Technological university, India; ²University of Delhi, India

B4P-G20 Electroplated multiring Core Planar Fluxgate
Mattia Butta, Michal Janosek, Pavel Ripka
*Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Rep.*

B4P-G21 Sensitivity of Long-Period Gratings Modified by Their Bending
Magdalena Szymanska³, Krzysztof Krogulski², Predrag Mikulic¹, Wojtek Bock³, Mateusz Smietana³
¹Université du Quebec en Outaouais, Canada; ²Warsaw University of Technology, Poland

B4P-G22 New Nanostructured Schottky Diode Gamma-Ray Radiation Sensor
Abdelhameed Sharaf, Asmaa Gamal, Mohamed Serry
*The American University in Cairo, Egypt*

B4P-G23 Design and Characterization of PiezoMUMPs Microsensors with Applications to Environmental Monitoring of Aromatic Compounds via Selective Supramolecular Receptors
Carlo Trigona, Antonino Algozino, Felice Maiorca, Bruno Andò, Salvatore Baglio
*University of Catania, Italy*

B4P-G24 Investigation of Polymer Thick-Film Piezoresistors for Medical Wrist Rehabilitation and Artificial Knee Load Sensors
Caroline Jacq, Thomas Maeder, Simon Emery, Matteo Simoncini, Eric Meurville, Peter Ryser
*EPFL, Switzerland*

B4P-G25 Concept Studies of Torsional Resonators for Viscosity and Mass Density Sensing Applications
Martin Heinisch¹, Alexander Niedermayer¹, Isabelle Dufour², Bernhard Jakoby¹
¹JKU, Austria; ²Université Bordeaux 1, France
B4P-G26  High Sensitive and Linear Pressure Sensor for Ultra-Low Pressure Measurement
Xian Huang, Dacheng Zhang
Peking University, China
B4P-H MicroPower Generation and Autonomous Microsystems

Time: Tuesday, September 9, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Christos Tsamis, National Center for Scientific Research Demokritos, Athens (Greece)
Tomasz Zawada, Meggitt Sensing Systems A/S, Kvistgaard (Denmark)

B4P-H01 Reliability Improvement of Vibration Energy Harvester with Shock Absorbing Structures
Takayuki Fujita2, Michael Renaud1, Martijn Goedbloed1, Christine de Nooijer1, Rene Elfrink1, Geert Altena1, Rob van Schaik1
1Holst Centre / imec, Netherlands; 2University of Hyogo, Japan

B4P-H02 Increasing Durability of Piezoelectric Impact Based Micro Wind Generator for Real Application
Hyun Jun Jung, Yooseob Song, Seong Kwang Hong Hong, Chan Ho Yang, Sung Joo Hwang, Tae Hyun Sung
Hanyang university, Korea, South

B4P-H03 Improving the Efficiency of PV Low-Power Processing Circuits by Selecting an Optimal Inductor Current of the DC/DC Converter
Ferran Reverter, Manel Gasulla
Universitat Politècnica de Catalunya, Spain

B4P-H04 Human Motion Spectrum-Based 2-DOF Energy Harvesting Device: Design Methodology and Experimental Validation
Mahmoud Elsharkawy, Nader Mansour, Ahmed Fath El-Bab, Samy Assal
Egypt-Japan University of Science and Technology, Egypt

B4P-H05 An Electrostatic MEMS Frequency Up-Converter for Efficient Energy Harvesting
Samer Houriy2, Denis Aubry1, Philippe Gaucher1, Elie Lefeuvre2
1ECP, France; 2IFL, France

B4P-H06 Autonomous Wireless Sensor with a Low Cost Teg for Application in Automobile Vehicles
Aléxis Costa, Diogo Costa, Joel Morgado, Hélder Santos, Carlos Ferreira
Instituto Politécnico de Leiria, Portugal

Gabriele Pellegrinelli, Marco Bäu, Fabrizio Cerini, Simone Dalola, Marco Ferrari, Vittorio Ferrari
University of Brescia, Italy
B4P-J  Sensor Electronics and Signal Processing
Time:  Tuesday, September 9, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  Grigoris Kaltsas, Technological Educational Institution of Athens, Athens (Greece)
          Giovanni Breglio, University of Naples 'Federico II', Naples, (Italy)

B4P-J01  Simple, Cost Effective and Network Compatible Readout for Capacitive and Resistive (Chemical) Sensors
Giuseppe A. M. Nastasi1, Antonino Scuderi2, Hanns-Erik Endres1, Waltraud Hell1, Karlheinz Bock1
1Fraunhofer Research Institute for Modular Solid State Technologies EMFT, Germany; 2Qualcomm, United States;
2STMicroelectronics, Italy

B4P-J02  A Modular Analog Front-End for the Recording of Neural Spikes and Local Field Potentials Within a Neural Measurement System
Nils Heidmann, Nico Hellwege, Jonas Pistor, Dagmar Peters-Drolshagen, Steffen Paul
Institute of Electrodynamics and Microelectronics, Germany

B4P-J03  A Real-Time Electronic System for Automated Impact Detection on Aircraft Structures Using Piezoelectric Transducers
Lorenzo Capineri1, Andrea Bulletti2, Marco Calzolai2, Daniele Francesconi1
1Thales Alenia Space Italia S.p.A, Italy; 2University of Florence, Italy

B4P-J04  All-Digital Linearity Enhancement Technique for Time-Domain Smart Temperature Sensors
Chun-Chi Chen, Chao-Lieh Chen, Yi Lin
National Kaohsiung First University of Science and Technology, Taiwan

B4P-J05  Microcontroller-Based Interface Circuit for Inductive Sensors
Zivko Kokolanski1, Josep Jordana2, Manel Gasulla2, Vladimir Dimcev1, Ferran Revertè2
1Ss. Cyril and Methodius State University, Macedonia; 2Universitat Politècnica de Catalunya, Spain

B4P-J06  Attitude-Independent 3-Axis Accelerometer Calibration Based on Adaptive Neural Network
Katarína Draganová, Miroslav Laššák, Dušan Praslička, Viktor Kán
Faculty of Aeronautics, Technical University of Košice, Slovakia
B4P-J07  Low-Frequency Measurements Using Piezoresistive Cantilever MEMS Devices "the Problem of Thermal Drift
Grzegorz Jozwiak1, Daniel Kopiec1, Teodor Gotszalk1, Piotr Grabiec2, Ivo W. Rangelov1
1Ilmenau University of Technology, Germany; 2Institute of Electron Technology, Poland; 3Wroclaw University of Technology, Poland

B4P-J08  Position Estimation of RFID Based Sensors Using Passive SAW Compressive Receivers
Martin Brandl, Karlheinz Kellner
Darmbe University Krems, Austria

B4P-J09  Arrays of Conformable Ultrasonic Lamb Wave Transducers for Structural Health Monitoring with Real-Time Electronics
Lorenzo Capineri1, Andrea Bullett2, Marco Calzolari2, Pietro Giannelli2, Daniele Francesconi1
1Thales Alenia Space Italia SpA, Italy; 2University of Florence, Italy

B4P-J10  Cross-Talk Characterization of Single-Photon Avalanche Diode (SPAD) Arrays in CMOS 150nm Technology
Hesong Xu1, Lucio Pancheri2, Leo Huf Campos Braga1, Gian-Fanco Dalla Betta2, David Stoppa1
1Fondazione Bruno Kessler, Italy; 2University of Trento, Italy

B4P-J11  A Low Power bioimpedance Module for Wearable Systems
Stefano Rossi, Marco Pessione, Luigi Della Torre
STMicroelectronics, Italy

B4P-J12  Development of a Novel Gas Sensing Algorithm Based on Impedance Spectroscopy
Fei Li1, Wojtek Wlodarski2, Uwe Marschner1, Sebastian Sauer3, Eric Stark1, Wolf-Joachim Fischer3
1Infineon AG, Germany; 2RMIT University, Australia; 3Technische Universitaet Dresden, Germany

B4P-J13  A Low Cost Multi-Sensor Strategy for Early Warning in Structural Monitoring Exploiting a Wavelet Multiresolution Paradigm
Bruno Andò, Salvatore Baglio, Antonio Pistorio
D.I.E.E.I. - University of Catania, Italy

B4P-J14  Trigger Circuits in Battery-Less Multi-Source Power Management Electronics for Piezoelectric Energy Harvesters
Davide Alghisi, Marco Ferrari, Vittorio Ferrari
University of Brescia, Italy
B4P-K  Sensor Systems and Applications and WSN II
Time:  Tuesday, September 9, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  Corrado Di Natale, University of Rome Tor Vergata, Rome (Italy)
Rafał Walczak, Wroclaw University of Technology, Wroclaw (Poland)

B4P-K01  WLAN-Enabled Sensor Nodes for Cloud-Based Machine Condition Monitoring
Paolo Bellagente, Chiara Maria De Dominicis, Alessandro Depari, Alessandra Flaminini, Stefano Rinaldi, Emiliano Sisinni, Angelo Vezzoli
University of Brescia, Italy

B4P-K02  Wi-Fi Wireless Digital Sensor Matrix for Environmental Gas Monitoring
Nikolay Samotaev1, Anastasia Ivanova1, Konstantin Oblov1, Sergey Soloviev2, Alexey Vasiliev2
1National Research Nuclear University MEPhI, Russia; 2NRC Kurchatov Institute, Russia

B4P-K03  Design of Wireless Sensor Nodes for Structural Health Monitoring Applications
Fabio Federici, Roberto Alesii, Andrea Colarieti, Marco Faccio, Fabio Graziosi, Vincenzo Gattulli, Francesco Potenza
University of L’Aquila, Italy

B4P-K04  Fast Identification of Microbiological Contamination in Vegetable Soup by Electronic Nose
Giulia Zambotti1, Veronica Sbervegli1, Emanuela Gobbi2, Matteo Falasconi3, Estefania Nunez2, Andrea Pulvirenti3
1University of Brescia & CNR INO, Italy; 2University of Brescia & CNR-INO, Italy; 3University of Modena and Reggio Emilia & CNR IBF, Italy; 4University of Modena and Reggio Emilia & CNR INO, Italy

B4P-K05  An Integrated Optical Measurement System for Water Quality Monitoring
Karlheinz Kellner, Martin Brandl
Danube University Krems, Austria

B4P-K06  Design, Fabrication and Characterization of a Tactile Display Based on AlN Transducers
François Bernard1, Marie Gorisse1, Fabrice Cassel1, Cédrick Chappaz2, Sandar Basrour3
1CEA LETI laboratory, France; 2STMicroelectronics, France; 3TIMA laboratory, France

B4P-K07  Enzymatically Catalyzed Degradation of Biodegradable Polymers Investigated by Means of a Semiconductor-Based Field-Effect Sensor
Sebastian Schusser1, Matthias Bäcker1, Maximilian Krischer1, Laura Wenzel1, Marcel Leinhol1, Arshak Poghosian1, Manfred Biselli1, Patrick Wagner2, Michael Schönig1
1FH Aachen, Institute of Nano- and Biotechnologies (INB), Germany; 2Hasselt University, Institute for Materials Research (IMO), Belgium
B4P-K08  Low Cost, Mobile Sensor System for Measurement of Carbon Dioxide in Permafrost Areas
Andre Eberhardt1, Louisa Scholz1, Sebastian Westermann2, Torsten Sachs3, Moritz Langer4, Jürgen Wöllenstein1, Stefan Palzer3
1Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany; 2Fraunhofer Institute for Physical Measurement Techniques, University of Freiburg, Germany; 3GFZ German Research Centre for Geosciences, Germany; 4University of Fr

B4P-K09  Detection of Smokeless Pyrolysis of Organic Materials by Metal Oxide Gas Sensor
Nikolay Samotaev1, Alexey Vasiliev2, Alexander Pislakov2, Andrey Sokolov2
1National Research Nuclear University MEPhI, Russia; 2RRC Kurchatov Institute, Russia

B4P-K10  Innovative IAQ Organic Sensor
Alessandro Zompanti1, Simone Grasso1, Marco Santonico1, Giorgio Pennazza1, Mariano Bizzarri1, Arnaldo D’Amico3
1University Campus Bio-Medico di Roma, Italy; 2University La Sapienza, Rome, Italy; 3University of Rome Tor Vergata, Italy

B4P-K11  An Investigation Into the Accuracy of Calculating Upper Body Joint Angles Using MARG Sensors
Evangelos Mazomenos, Dwaiyapan Biswas, Andrew Cranny, Nick Harris, Koushick Maharatna
University of Southampton, United Kingdom

B4P-K12  Sensor System for Dynamic Detection of the Concentration Gradient of Volatile Compounds in the Air
Piotr Batog2, Andrzej Wolczowski1
1Faculty of Electronics, Wroclaw University of Technology, Poland; 2Faculty of Environmental Engineering, Wroclaw University of Technology, Poland

B4P-K13  An Improved Ultrasound System for Biometric Recognition Based on Hand Geometry and Palmprint
Antonio Iula1, Gabriel Hine1, Alessandro Ramalii2, Francesco Guidi2
1University of Basilicata, Italy; 2University of Firenze, Italy

B4P-K14  Thermal Flow Sensor Based on Printed Circuit Board Technology for Ventilation and Air Conditioning Systems
Thomas Glatzl1, Harald Steiner1, Franz Kohl1, Franz Keplinger2, Thilo Sauter1
1Danube University Krems, Austria; 2Vienna University of Technology, Austria

B4P-K15  Fully RF Powered UHF-RFID Sensors Platform
Francesco Giuseppe Della Corte2, Corrado Felini2, Massimo Merenda1
1mediterranea university, Italy; 2mediterranea university of reggio c, Italy
**B4P-K16**  
**A Framework for Calibration of Barometric MEMS Pressure Sensors**  
Andreas Dickow, Gregor Feiertag  
*Munich University of Applied Sciences, Germany*

**B4P-K17**  
**DEMOCHEM: Integrated System for Mycotoxins Detection**  
Domenico Caputo², Giampiero de Cesare², Augusto Nascetti², Riccardo Scipinotti², Fabrizio Pavanello¹, Roberto Arrigoni¹  
¹*Automation srl, Italy; ²*Sapienza, University of Rome, Italy*

**B4P-K18**  
**E-Tongue for Ecological Monitoring Purposes: the Case of microcystins Detection**  
Larisa Lvova², Carla Guanais Branchini², Konstantinos Petropoulos², Laura Micheli², Giulia Volpe², Giuseppe Palleschi², Emanuela Viaggi², Roberta Congestri², Licia Guzzella¹, Fiorenzo Pozzoni¹, Corrado Di Natale², Roberto Paolesse²  
¹*CNR-IRSA, Brugherio, Italy; ²*“Tor Vergata” University, Italy*

**B4P-K19**  
**High Sensitivity Micro-Machined Piezoresistive Strain Sensor**  
David Caseiro, Sérgio Santos, Carlos Ferreira, Carlos Neves  
*Istituto Politecnico de Leiria, Portugal*

**B4P-K20**  
**Thermal Flow Measurements by a Flexible Sensor, Implemented on the External Surface of the Flow Channel**  
Anastasios Moschos, Anastasios Petropolou, Evangelos Zervas, Spyros Athinaios, Grigoris Kaltzas  
*TEI of Athens, Greece*

**B4P-K21**  
**Cost Action TD1105: Overview of Sensor-Systems for Air-Quality Monitoring**  
Michele Penza  
*ENEA, Italy*
B4P-L  Optical MEMS, Actuators and Packaging
Time:  Tuesday, September 9, 2014, 16:30 - 18:30
Place:  Poster Area
Chair(s):  Lina Sarro, Delft University of Technology, Delft (The Netherlands)
          Leszek Golonka, Wroclaw University of Technology, Wroclaw (Poland)

B4P-L01  Characterization of a New SMA Actuator
Alberto Borboni, Rodolfo Faglia
Università degli Studi di Brescia, Italy

B4P-L02  Thermal tuning of MEMS buckled membrane actuator stiffness
Robert Lake, Kyle Ziegler, Ronald Coutu Jr.
Air Force Institute of Technology, United States

B4P-L03  Full-Gap Tracking System for Parallel-Plate Electrostatic microactuators
Eurico Esteves Moreira², Filipe Serra Alves², Rosana Alves Dias², Jorge Cabral², João Gaspar¹, Luis Alexandre Rocha²
¹International Iberian Nanotechnology Laboratory, Portugal; ²University of Minho, Portugal

B4P-L04  Development of a Pneumatically Actuated Cantilever Based Micro-Tweezer
Ageel Alogla, Farid Amalou, Paul Scanlan, Wenmiao Shu, Robert Reuben
Heriot-Watt University, United Kingdom

B4P-L05  Interdigitated Piezoelectric Actuation Mechanism for Micro-Optics Application
Aron Michael, Chee Yee Kwok
UNSWA, Australia

B4P-L06  Parylene-C As High Performance Encapsulation Material for Implantable Sensors
Dani Zeniieh, Loic Ledernez, Gerald Urban
University of Freiburg, Germany

B4P-L07  Development of a Reliable Packaging for CMOS-Based Microelectrode Arrays by Using an Automated Setup
Alexander Stettler, Peter Buchmann, Jörg Rothe, Milos Radivojevic, Andreas Hierlemann
ETH Zurich, Switzerland

B4P-L08  A MEMS Filter Based on Ring Resonator with Electrothermal Actuation and Piezoelectric Sensing
Boris Svilićic², Enrico Mastropaolo¹, Rebecca Cheung¹
¹University of Edinburgh, Scottish Microelectronics Centre, United Kingdom; ²University of Rijeka, Faculty of Maritime Studies Rijeka, Croatia

B4P-L09  A Lossy Fabry-Perot Based Optical Filter for Natural Gas Analysis
N. Pelin Ayerden, Mohammadamir Ghaderi, Ger de Graaf, Reinoud F. Wolffenbuttel
TU Delft, Netherlands
B4P-L10  Optical Filter for Providing the Required Illumination to Enable Narrowband Imaging in Endoscopy
Manuel Silva¹, Jose Rodrigues², Maria Oliveira², Ana Fernandes³, Sergio Pereira³, Catarina Costa³, Mohammadamir Ghaderi⁴, Pelin Ayerden⁴, Luis Gonalves⁴, Ger de Graaf⁴, Reinoud Wolffensbuttel⁴, Jose Correia⁴
¹Delft University of Technology, Netherlands; ²University of Minho, Portugal

B4P-L11  Low Temperature Sub-Micron Gap Thin-Film Silicon Resonators on Glass Substrate
João Mouro, Alexandra Gualdino, Laura Teagno, Virginia Chu, João Conde
INESC-MN, Portugal
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<tr>
<td>09:00</td>
<td>Invited Talk</td>
<td>Gas Dependent Changes in the Electrical Behavior of Selective Metal-Oxide Layers</td>
<td>Janosch Kneer¹, André Eberhardt², Jürgen Wöllenstein¹, Stefan Palzer²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>¹Fraunhofer Institute for Physical Measurement Techniques, Germany; ²University of Freiburg - IMTEK, Germany</td>
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<tr>
<td>09:30</td>
<td></td>
<td>Miniature Multisensor Probe for Soil Nutrient Monitoring</td>
<td>Ulrike Lehmann, Alain Grisel</td>
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<td>09:45</td>
<td></td>
<td>Selective and Sensitive Detection of C3 Molecules with Cu-BTC Metal-Organic Framework by Means of Mass Sensitive and Work Function Based Read-Out</td>
<td>Polina Davydovskaya³, Annekathrin Ranft¹, Bettina V. Lotsch², Roland Pohle³</td>
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<td></td>
<td></td>
<td></td>
<td>¹Max Planck Institute for Solid State Research, Germany; ²Max Planck Institute for Solid State Research, Germany; ³Siemens AG, Germany</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td>Activated Carbon As a Pseudo-Reference Electrode for Potentiometric Sensing Inside Concrete</td>
<td>Yawar Abbas¹, Farhad Pargar², Wouter Olt grues¹, Albert van Den Berg¹</td>
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<td></td>
<td></td>
<td></td>
<td>¹BIOS-Lab on a Chip Group, MESApplus Institute of Nanotechnology, University of Twente, Netherlands; ²Delft University of Technology, Netherlands</td>
</tr>
<tr>
<td>10:15</td>
<td></td>
<td>Detection of Soluble Organic and Inorganic Compounds with an Array of Pure and Blended Optical Reporters</td>
<td>Corrado Di Natale², Carla Guanais Branchini², Francesca Dini², Ingemar Lundstrom¹, Roberto Paollesse²</td>
</tr>
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</table>
|            |                                    |                                                                      | ¹University of Linkoping, Sweden; ²University of Rome Tor Vergata, Italy
C1L-B  Sensor Systems and Applications
Time: Wednesday, September 10, 2014, 09:00 - 10:30
Place: ‘Sala CONSILIARE’ Hall
Chair(s): Pietro Siciliano, CNR (National Research Council), Lecce (Italy)
Rafał Walczak, Wroclaw University of Technology, Wroclaw (Poland)

09:00  C1L-B01  Gas Sensor System for the Determination of Methane in Water
Alexey Vasiliev1, Alexandr Pislakov1, Andrey Sokolov1, Nikolay Samotaev2, Wojciech Kujawski1, Anna Rozicka3, Vittorio Guarnieri1, Leandro Lorenzelli1
1Fondazione Bruno Kessler, Italy; 2National Research Nuclear University MEPhI, Russia; 3Nicolaus Copernicus University, Poland; 4NRC Kurchatov Institute, Russia

09:15  C1L-B02  Selective Detection of Hazardous Indoor VOCs Using Metal Oxide Gas Sensors
Martin Leidinger1, Tilman Sauerwald1, Thorsten Conrad1, Wolfhard Reimringer1, Gabriela Ventura2, Andreas Schütze3
13S - Sensors, Signal processing, Systems GmbH, Germany; 2IDMEC – Institute of Mechanical Engineering, Portugal; 3Saarland University / Lab for Measurement Technology, Germany

09:30  C1L-B03  Nanowire Technology for the Detection of Microorganism in Potable Water
Estefania Núñez Carmona1, Veronica Sberveglieri2, Elisabetta Comini2, Dario Zappa2, Andrea Pulvirenti2
1CNR-IBF, Italy; 2CNR-INO, Italy

09:45  C1L-B04  A MEMS Silicon-Based Piezoelectric AC Current Sensor
Oskar Zbigniew Olszewski1, Ruth Houlihan1, Rosemary O’keeffe1, Mike O’neill2, Alan Mathewson1, Finbarr Waldron2, Nathan Jackson3
1Analog Device, Ireland; 2Tyndall National Institute, UCC, Ireland

10:00  C1L-B05  An Optoelectrical, Standard-CMOS-Based Active Catheter Tracking System for MRI
Berk Camli1, Baykal Sarioglu1, Arda Deniz Yalcinkaya2
1Bilgi University, Istanbul, Turkey; 2Bogazici University, Istanbul, Turkey

10:15  C1L-B06  Monitoring of plantar pressure in gait based on hetero-core optical fiber sensor
Yudai Otsuka, Yuya Koyama, Kazuhiro Watanabe
Soka university, Japan
C1L-C  Mechanical Microdevices
Time:  Wednesday, September 10, 2014, 09:00 - 10:30
Place:  Room N1
Chair(s):  Robert Puers, KU Leuven, Leuven (Belgium)
          Ralf Lucklun, Otto-von-Guericke University Magdeburg, Magdeburg (Germany)

09:00  C1L-C01  Linearity of Piezoresistive Nano-Gauges for MEMS Sensors
Stefano Dellea, Nicola Aresi, Giacomo Langfelder, Antonio Longoni
Politecnico di Milano, Italy

09:15  C1L-C02  Sensor and Instrumentation for Cable Tension Quantification
Patrick Pelgrims, Michel De Cooman, Robert Puers
KU Leuven, Belgium

09:30  C1L-C03  Piezoresistive Polymer Accelerometer
Luis Martins, Cátia Silva, Bruno Mendes, Marco Azevedo, António Pontes, Luis Rocha
Universidade do Minho, Portugal

09:45  C1L-C04  An Ideal MEMS Parametric Resonator Using a Tapered Comb-Drive
Shai Shmulevich, Inbar Hotzen, David Elata
Technion - Israel Institute of Technology, Israel

10:00  C1L-C05  Selective Coating Deposition on High-Q Single-Crystal Silicon Resonators for the Investigation of Thermal Noise Statistical Properties
Antonio Lorenzo Borrielli¹, Michele Bonaldi³, Livia Conti², Gregory Pandraud¹, P.M. Lina Sarro³
¹Department of Microelectronics /ECTM/DIMES Technology Centre, Feldmannweg 17, 2628 CT Delft, P.O. Bo, Netherlands;
²INFN, Sezione di Padova, via Marzolo 8, I-35131 Padova, Italy, Italy; ³Institute of Materials for Electronics and Magnetism, Nanoscience

10:15  C1L-C06  MEMS Micro-Glassblowing Paradigm for Wafer-Level Fabrication of Fused Silica Wineglass Gyroscopes
Doruk Senkal, Mohammed Ahamed, Sina Askari, Andrei Shkel
University of California, Irvine, United States
C2L-A  Materials and Technology
Time:  Wednesday, September 10, 2014, 11:00 - 12:30
Place:  'Aula MAGNA' Hall
Chair(s):  Istvan Barsony, Hungarian Academy of Sciences, Budapest (Hungary)
          Ulrich Schmid, Vienna University of Technology, Vienna (Austria)

11:00  C2L-A01  Impact of C-Axis Orientation of Aluminium Nitride Thin Films on the Long-Term Stability and Mechanical Properties of Resonantly Excited MEMS Cantilevers
       Michael Schneider, Achim Bittner, Peter Schmid, Ulrich Schmid
       Vienna University of Technology, Austria

11:15  C2L-A02  Artificial Dielectric Layer Based on PECVD Silicon Carbide for Terahertz Sensing Applications
       Giuseppe Fiorentino¹, Waqas Syed², Aurele Adam², Andrea Neto³, Pasqualina Sarro¹
       ¹ECTM - TU Delft, Netherlands; ²TNW - TU Delft, Netherlands; ³TU - Delft, Netherlands

11:30  C2L-A03  High Quality Wafer-Scale CVD graphene on Molybdenum Thin Film for Sensing Application
       Yelena Grachova¹, Sten Vollebregt², Andrea Leonardo Lacaita¹, Pasqualina M. Sarro²
       ¹Politecnico di Milano, Italy; ²TU Delft, Netherlands; ³TU Delft, Politecnico di Milano, Italy

11:45  C2L-A04  Ceramic Alumina Substrates for High-Temperature Gas Sensors: Implications for Applicability
       Jaroslaw Kita, Franz Schubert, Frank Rettig, Andreas Engelbrecht, Andrea Gross, Ralf Moos
       Dept. of Functional Materials, University of Bayreuth, Germany

12:00  C2L-A05  Flexible Piezoelectric Transducer Based on electrospun PVDF Nanofibers for Sensing Applications
       Emiliano Zampetti, Andrea Bearzotti, Antonella Macagnano
       CNR - Institute of atmospheric pollution research, Italy

12:15  C2L-A06  Functional Electronic Screen-Printing - Electroluminescent Lamps on Fabric
       Marc de Vos, Russel Torah, Steve Beeby, John Tudor
       University of Southampton, United Kingdom
C2L-B  Piezoelectric Technologies for MicroPower Generation

Time:       Wednesday, September 10, 2014, 11:00 - 12:30
Place:      'Sala CONSILIARE' Hall
Chair(s):   Danick Briand, EPFL, Lausanne (Switzerland)
            Leszek Golonka, Wrocław University of Technology, Wrocław (Poland)

11:00 Invited Talk
C2L-B01 Flexible Piezoelectric Nanogenerators for Energy Autonomy

            Christos Tsamis
            Institute of Nanoscience and Nanotechnology, Greece

11:30  Frequency Up-Converting Vibration Energy Harvester with Multiple Impacting Beams for Enhanced Wideband Operation at Low Frequencies

            Rolanas Daukevicius², Danick Briand¹, Robert Lockhart¹,
            Andres Vásquez Quintero¹, Nico de Rooij¹, Rimvydas Gaidys²,
            Vytautas Ostasevicius²

¹École Polytechnique Fédérale de Lausanne, Switzerland;
²Kaunas University of Technology, Lithuania

11:45  Piezoelectric Transformers for Ultra-Low Voltage Energy Harvesting Applications

            Antonio Camarda, Aldo Romani, Marco Tartagni
            University of Bologna, Italy

12:00  Quasi-Synchronous Charge Extraction for Improved Energy Harvesting from Highly Coupled Piezoelectric Transducers

            Aldo Romani, Matteo Filippi
            University of Bologna, Italy

12:15  Ball-Impact Piezoelectric Converter for Multi-Degree-of-Freedom Energy Harvesting from Broadband Low-Frequency Vibrations in Autonomous Sensors

            Davide Alghisi, Simone Dalola, Marco Ferrari, Vittorio Ferrari
            University of Brescia, Italy
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<td>11:00</td>
<td><strong>C2L-C</strong> Optical MEMS and Optical Sensors</td>
<td>Francisco J. Arregui, <em>Public University of Navarre, Pamplona (Spain)</em></td>
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<td>Marco Sampietro, <em>Politecnico di Milano, Milan (Italy)</em></td>
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<td><strong>C2L-C01</strong> Surface-Micromachined Bragg Reflectors Based on Multiple Airgap/SiO2 Layers, for CMOS-Compatible Fabry-Perot Filters in the UV-Visible Spectral Range</td>
<td>Mohammadamir Ghaderi, Pelin Aayerden, Ger de Graaf, Reinoud Wolffensuttel</td>
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<td><em>TU Delft, Netherlands</em></td>
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<td>11:15</td>
<td><strong>C2L-C02</strong> Optrode for multimodal deep-brain infrared stimulation</td>
<td>Marcell Kiss, Péter Földeszy, Zoltán Fekete</td>
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<td><em>Institute for Technical Physics and Material Science, RCNS HAS, Hungary</em></td>
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<td>11:30</td>
<td><strong>C2L-C03</strong> Laser Light Module with Integrated MEMS Mirror for Autostereoscopic Outdoor Displays</td>
<td>Jörg Reitterer¹, Franz Fidler¹, Gerhard Schmid¹, Thomas Riel¹, Christian Hambeck¹, Ferdinand Saint Julien-Wallsee¹, Walter Leeb², Ulrich Schmid²</td>
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<td>¹<em>TriLite Technologies GmbH, Austria; ²Vienna University of Technology, Austria</em></td>
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<tr>
<td>11:45</td>
<td><strong>C2L-C04</strong> Impedance-Based Transparent Monitoring of Light for Local Control of Integrated Photonic Circuits</td>
<td>Marco Carminati, Stefano Grillanda, Pietro Ciccarella, Francesco Morichetti, Giovanni Bellotti, Davide Bianchi, Giorgio Ferrari, Andrea Melloni, Marco Sampietro</td>
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<td><em>Politecnico di Milano, Italy</em></td>
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<td>12:00</td>
<td><strong>C2L-C05</strong> Distinctive Optofluidic Parallel Waveguides</td>
<td>Lip Ket Chin, Yi Yang, Lei Lei, Ai Qun Liu</td>
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<td><em>Nanyang Technological University, Singapore</em></td>
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<td>12:15</td>
<td><strong>C2L-C06</strong> Design and Fabrication of a Tunable Two-Fluid Micro-Lens Device with a Large Deflection Polymer Actuator</td>
<td>Florenta Costache, Christian Schirrmann, Kirstin Bornhorst, Boscij Pawlik, Andreas Rieck, Harald Schenk</td>
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<td><em>Fraunhofer Institute for Photonic Microsystems, Germany</em></td>
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**C3L-A**  
**New Technologies in Sensors and Systems**  
**Time:** Wednesday, September 10, 2014, 14:00 - 15:00  
**Place:** 'Aula MAGNA' Hall  
**Chair(s):** Eduard Lloret, *Rovira i Virgili University, Tarragona (Spain)*  
Vincenzo Guidi, *University of Ferrara, Ferrara (Italy)*  

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**14:00**  
**C3L-A01**  
**Design and Fabrication of a 29 µH Bondwire Micro-Transformer with LTCC Magnetic Core on Silicon for Energy Harvesting Applications**  
Enrico Macrelli\(^1\), Aldo Romani\(^1\), Ningning Wang\(^2\), Saibal Roy\(^2\), Michael Hayes\(^3\), Rudi Paolo Paganelli\(^1\), Marco Tartagni\(^1\)  
\(^1\)National Research Council, Italy; \(^2\)Tyndall National Institute, Ireland; \(^3\)University of Bologna, Italy  

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**14:15**  
**C3L-A02**  
**Stress-Unsusceptible Pressure Sensors Embedded in Fiber Composite**  
Martin Schwerter\(^1\), Christian Behr\(^2\), Monika Leester-Schädel\(^2\), Peter Wierach\(^1\), Michael Sinapius\(^2\), Stephanus Büttgenbach\(^2\), Andreas Dietzel\(^2\)  
\(^1\)DLR, Germany; \(^2\)TU Braunschweig, Germany  

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**14:30**  
**C3L-A03**  
**Water Based PVA Sacrificial Material for Low Temperature MEMS Fabrication and Applications on E-Textiles**  
Kai Yang, Russel Torah, Yang Wei, Steve Beeby, John Tudor  
*University of Southampton, United Kingdom*  

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**14:45**  
**C3L-A04**  
**Energy Harvesting from Piezoelectric Textile Fibers**  
Erik Nilsson\(^1\), Loreto Mateu\(^1\), Peter Spies\(^1\), Bengt Hagström\(^2\)  
\(^1\)Fraunhofer IIS, Germany; \(^2\)Swerea IVF, Sweden
**C3L-B  Sensor Electronics and Signal Processing**

**Time:** Wednesday, September 10, 2014, 14:00 - 15:00  
**Place:** Sala CONSILIARE Hall  
**Chair(s):** Giovanni Breglio, University of Naples 'Federico II', Naples, (Italy)  
Marco Ferrari, University of Brescia, Brescia (Italy)

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**14:00 C3L-B01  A Novel Architecture for Differential Resonant Sensing**  
Jérôme Juillard¹, Alain Bonnoit¹, Nuria Barniol², Arantxa Uranga², Gabriel Vidal-Alvarez²  
¹SUPELEC, France; ²UAB, Spain

---

**14:15 C3L-B02  Multi-Channel Very-Low-Noise Current Acquisition System with on-Board Voltage Supply for Sensor Biasing and Readout**  
Augusto Nascetti¹, Germano Colonia¹, Domenico Caputo¹, Michele Tavernelli², Pisana Placidi², Andrea Scorzonì², Giampiero de Cesare¹  
¹Sapienza University of Rome, Italy; ²University of Perugia, Italy

---

**14:30 C3L-B03  Optimal Parameter Estimation Method for Different Types of Resonant Liquid Sensors**  
Thomas Voglhuber-Brunnmaier¹, Martin Heinisch¹, Alexander O. Niedermayer¹, Ali Abdallah¹, Roman Beigelbeck², Bernhard Jakoby¹  
¹Johannes Kepler University Linz, Austria; ²Vienna University of Technology, Austria

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**14:45 C3L-B04  Advances in Signal Acquisition and Signal Processing of Coriolis Flow Meters**  
Jürgen Ruoff³, Wolfgang Gauchel¹, Heinz Kück²  
³Festo AG & Co. KG, Germany; ²Institute of Microintegration, University of Stuttgart, Germany
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<td><strong>C3L-C01</strong> Selective Stiffening for Producing Motion Conversion Mechanisms</td>
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<td>14:15</td>
<td><strong>C3L-C02</strong> High Frequency 1D Piezoelectric Resonant MICROSCANNERS with Large Displacements</td>
</tr>
<tr>
<td>14:30</td>
<td><strong>C3L-C03</strong> Piezoelectrically Actuated Linear Resonators on Ring-Shaped Suspensions for Application in MEMS Phase-Sensitive Gyroscope</td>
</tr>
<tr>
<td>14:45</td>
<td><strong>C3L-C04</strong> Strain-Enhanced Nanocomposites of Electrostrictive Polymers and High-K Nanofillers for Micro-Actuation Applications</td>
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