EUROSENSORS 2014

BRESCIA, ITALY
September 7 - 10 2014

The 28th European Conference on Solid-State Transducers

EUROSENSORS 2014

Organized by
University of Brescia and
National Research Council

GUIDEBOOK

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

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Welcome to EUROSENSORS 2014

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.

The conference series was initiated by the first meeting in Cambridge (1987), followed by the conferences in Enschede (1988), Montreux (1989), Karlsruhe (1990), Rome (1991), San Sebastian (1992), Budapest (1993), Toulouse (1994), Stockholm (1995), Leuven (1996), Warsaw (1997), Southampton (1998), The Hague (1999), Copenhagen (2000), Munich (2001), Prague (2002), Guimaraes (2003), Roma (2004), Barcelona (2005), Gothenburg (2006), Lyon (2007), Dresden (2008), Lausanne (2009), Linz (2010), Athens (2011), Kraków (2012), and Barcelona (2013).

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!

Prof. Giorgio Sberveglieri
General Conference Chair

Prof. Vittorio Ferrari
Program Chair

Organization

CONFERENCE CHAIRS

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- Riccardo Milan
- Gabriele Pellegrinelli
- 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
ST Microelectronics,
Cornaredo (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

COST Action TD1105: Overview of Sensor-Systems for Air-Quality Monitoring

Michele Penza
Chair of COST Action 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

Social Events

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 S
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 C
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

Social Events

CONFERENCE BANQUET B
Antica Cascina San Zago
Viale dei Colli 13 - Salò
Tuesday, September 9, 2014
19.30 - 23.30

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

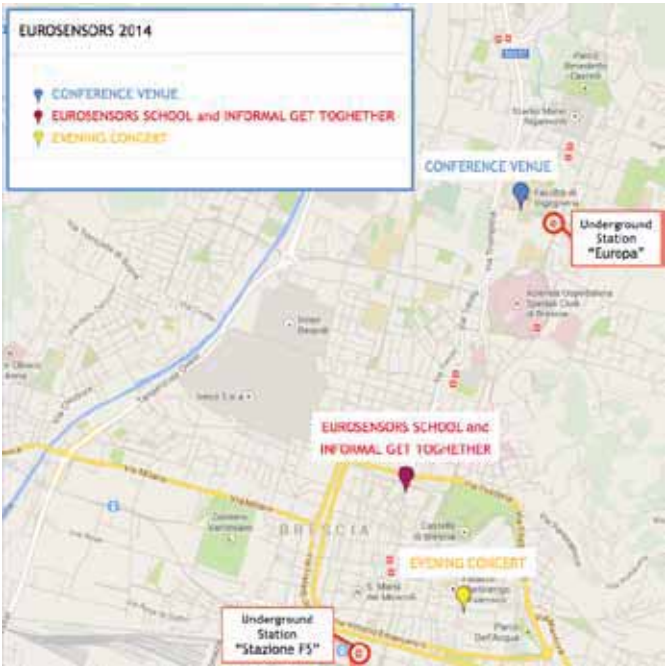
Transportation to Salò (about 45 minutes from the Conference Venue) and return has been arranged by bus.

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.

SOCIAL EVENT VENUE MAPS



CONFERENCE VENUE

UNIVERSITY OF BRESCIA
ENGINEERING CAMPUS
Via Branze 38
25123 Brescia - Italy

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 Wednesday10.

WIFI
Wi-Fi internet connection is availbale throughout the venue upon request. Please refer to the 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
ANDROID APP ON Google play	App Store	Windows Phone	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 occurr.

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:

Piazza 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 Julia 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.

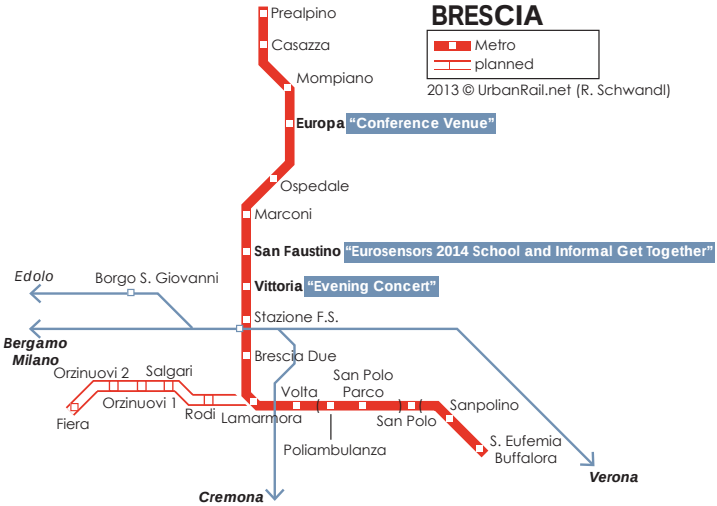
Piazza della Vittoria - This large square was built in 1932 in what was once a medieval center. On one side of the square is a 60 meter tall tower. The Mille Miglia historic car race starts from Piazza della Vittoria and on the third Sunday of the month there's an antiques market.

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.

About Brescia

Underground Map

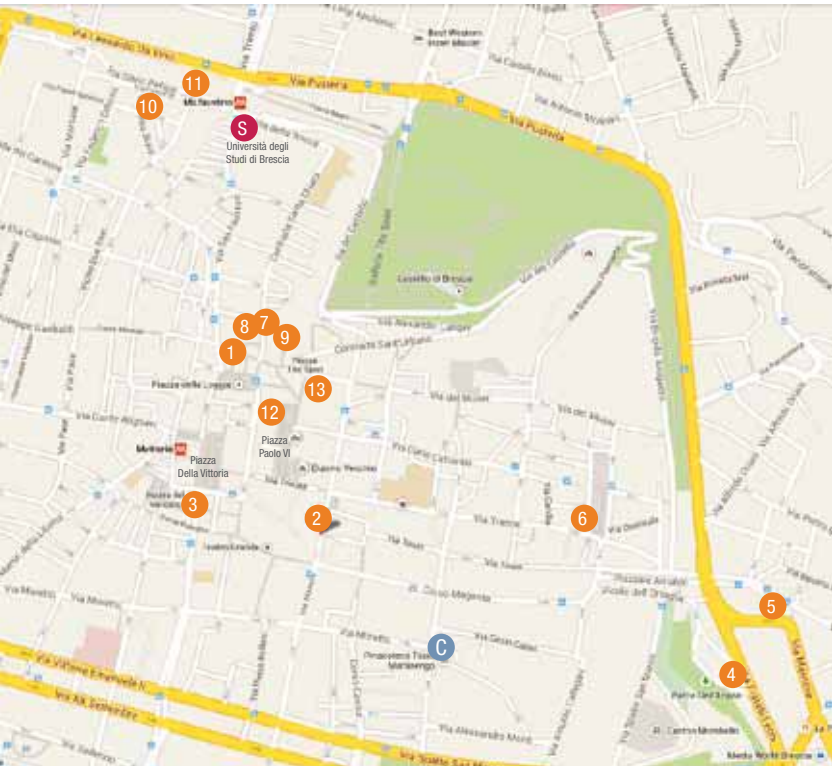
The newly built underground line will easily get you to the city center (4 stops to Piazza Vittoria) and link most hotels to the venue and satellite events locations. The city bus service is also well organized.



About Brescia

RESTAURANTS (we recommend reservation)

- **Trattoria Caprese**
  Piazza della Loggia 11/I
  Phone: +39 030 293018 - e-mail: brescia@trattoriacaprese.it
- **Pizzeria Trattoria La Nuova Piedigrotta**
  Via Mazzini, 36
  Phone: +39 030 3776317
- **Pizzeria Le Arcate**
  Piazza Del Mercato, 27
  Phone: +39 030 49147
- **Yoshi Restaurant**
  Via Fratelli Lechi, 10 – Largo Torrelunga
  Phone: +39 030 3776604
- **Zushi Restaurant**
  Viale Venezia, 40. 25100 Brescia
  Phone: +39 030 3757862 - e-mail: brescia@zuschi.eu
- **Trattoria Mezzeria Di Comelli Maria & C. Snc**
  Via Trieste, 66, 25121 Brescia
  Phone: +39 030 40306
- **L'Osteria al Bianchi**
  via Gasparo da Salò 32,
  Phone: +39 030 292328 - e-mail info@osteriaalbianchi.it
- **Trattoria Gasparo**
  via Gasparo da Salò, 24, 25122 Brescia (BS)
  Phone: +39 030 2400226 - e mail: info@trattoriagasparo.it
- **Locanda Dei Guasconi**
  Via Cesare Beccaria, 11G, 25121 Brescia
  Phone: +39 030 377 1605
- **Carmen town**
  Via Fratelli Bandiera, 3
  Phone: +39 030 6376332 - e-mail: info@carmentown.it
- **Mentelocale**
  Via Porta Pile, 3
  Phone: +39 030 45705
- **I Macc de le Ure**
  Piazza Paolo VI, 6, 25121 Brescia
  Phone: +39 030 291552
- **Il frate**
  Via dei musei, 25
  Phone: +39 030 3770550 - e-mail: info@alfrate.com



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GEFRAN. You know we are there

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.

Sponsor and Exhibitors

www.ama-science.org

www.awsensors.com

www.comsol.com

www.elsevier.com

www.itmems.it

www.mcl.at

www.mdpi.com

Presentation Guidelines

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 inidctes 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, letures, plenary adn 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.

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 *Arnaldo 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. Basics of 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

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

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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*
COST Action 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***

Next EUROSENSORS Conference

EUROSENSORS 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

EUROSENSORS 2014

BRESCIA, ITALY
September 7 - 10 2014

The 28th European Conference on Solid-State Transducers

EUROSENSORS 2014

TECHNICAL PROGRAM

www.eurosensors2014.eu

Program at a Glance

Sunday, September 7, 2014

University of Brescia, San Faustino Cloister
Via San Faustino 74/B, Brescia

09.15 - 18.00	**EUROSENSORS School**
16.00 - 20.00	*Registration*
18.00 - 21.00	**Informal Get Together**

Monday, September 8, 2014

University of Brescia, Engineering Campus
Via Branze 38, Brescia

	'Aula MAGNA' Hall	'Sala CONSILIARE' Hall	Room N1	Room N2
08.00 - 18.30	*Registration*			
08.30 - 09.30	Opening Ceremony			
09.30 - 11.00	A1L-A Plenary I			
11.00 - 11.30	*Coffee break*			
11.30 - 13.00	A2L-A Plenary II			
13.00 - 14.00		Lunch Workshop GEFRAN		
13.00 - 14.30	*Lunch*			
14.30 - 16.00	A3L-A Metal Oxides for Chemical Sensing I	A3L-B Acoustic Sensors	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**			

Tuesday, September 9, 2014

University of Brescia, Engineering Campus
Via Branze 38, Brescia

	'Aula MAGNA' Hall	'Sala CONSILIARE' Hall	Room N1	Room N2
08.00 - 18.30	*Registration*			
09.00 - 10.30	B1L-A Gas Sensor Technology and Optimization	B1L-B Theory and Modeling	B1L-C Biosensors and Biomedical Devices	B1L-D Wireless and RF Sensor Applications
10.30 - 11.00	*Coffee break*			
11.00 - 12.30	B2L-A Nanowires and Nanotubes for Chemical Sensing	B2L-B Physical Sensors	B2L-C Detection Methods in Biosensors	B2L-D Energy Harvesting
12.30 - 14.00	*Lunch*			
14.00 - 16.00	B3L-A Metal Oxides for Chemical Sensing II	B3L-B MEMS-Based Physical Sensors	B3L-C Signal and Data Processing for Chemical Sensing	B3L-D Micro- and Nano-Fabrication for Sensors and Actuators
16.00 - 16.30	*Coffee break*			
16.30 - 18.30	**Poster sessions II**			
19.30	**Conference Banquet**			

Wednesday, September 10, 2014

University of Brescia, Engineering Campus
Via Branze 38, Brescia

	'Aula MAGNA' Hall	'Sala CONSILIARE' Hall	Room N1	Room N2
08.00 - 16.00	*Registration*			
09.00 - 10.30	C1L-A Chemical Sensor Development and Applications	C1L-B Sensor Systems and Applications	C1L-C Mechanical Micro-devices	COST Action TD1105 Open Session
10.30 - 11.00	*Coffee break*			
11.00 - 12.30	C2L-A Materials and Technology	C2L-B Piezoelectric Technologies for MicroPower Generation	C2L-C Optical MEMS and Optical Sensors	COST Action TD1105 Open Session
12.30 - 14.00	*Lunch*			
14.00 - 15.00	C3L-A New Technologies in Sensors and Systems	C3L-B Sensor Electronics and Signal Processing	C3L-C Actuators, Micromechanisms and Micromachines	
15.00 - 15.30	*Coffee break*			
15.30 - 16.00	Closing Ceremony			

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Monday, September 8, 2014

Tuesday, September 9, 2014

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A1L-A Plenary I

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*

A1L-A01 Fiber-Optic Lossy Mode Resonance Sensors

Francisco J. Arregui, Ignacio Del Villar, Jesus M. Corres, Javier Goicoechea, Carlos R. Zamarreño, Cesar Elosua, 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*

A1L-A04 Selective Chemosensing and Diagnostic Breathalyzer

Pelagia-Irene Gouma[1], S. Sood[1], M. Stanacevic[2], S. Simon[3]
[1]Dept. Mat. Sci. Eng., State University of New York at Stony Brook, United States; [2]Dept. El. Eng., State University of New York at Stony Brook, United States; [3]Dept. 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)*

11:30 *Plenary Talk*
A2L-A01 **MEMS Technology Impact on Daily Life**
Bruno Murari
ST Microelectronics, Italy

12:15 *Plenary Talk*
A2L-A04 **Nanoreactors for Atomic-Scale Microscopy**
Fredrik Creemer
Delft University of Technology, Netherlands

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)*

14:30 *Invited Talk*

A3L-A01 Overview of P-Type Semiconducting Metal Oxides (SMOX) for Gas Sensings
Udo Weimar
University of Tübingen, Germany

15:00

A3L-A03 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

15:15

A3L-A04 Influence of Conduction Mechanism Changes on the Sensor Performance of SMOX Based Gas Sensors
Julia Rebholz, Udo Weimar, Nicolae Barsan
University of Tübingen, Germany

15:30

A3L-A05 New Process Technologies for the Deposition of Semiconducting Metal Oxide nanoparticles for Sensing
Jens Kemmler[2], Sven Schopf[1], Lutz Mädler[1], Nicolae Barsan[2], Udo Weimar[2]
[1]Foundation Institute of Materials Science (IWT), Germany; [2]Institute for Physical and Theoretical Chemistry, Germany

15:45

A3L-A06 Chemical Sensors Based on a High-K Perovskite Oxide of Barium Strontium Titanate
Christina Huck[1], Arshak Poghossian[1], Matthias Bäcker[1], Steffen Reisert[1], Jürgen Schubert[2], Willi Zander[2], Vardges Begoyan[3], Vahe Buniatyan[3], Michael Schöning[1]
[1]FH Aachen, Campus Jülich, Institute of Nano- and Biotechnologies, Germany; [2]Forschungszentrum Jülich GmbH, Peter Grünberg Institute, Germany; [3]State 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**
Francesc Torres, Arantxa Uranga, Núria Barniol
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, *Wrocław University of Technology, Wrocław (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

14:45
A3L-C02 Multi-Spot, Label-Free Detection of Biomarkers in Complex Media by Reflectionless Surfaces
Matteo Salina[3], Fabio Giavazzi[4], Erica Ceccarello[4], Francesco Damin[1], Marcella Chiari[1], Marina Ciuffo[2], Gian Paolo Accotto[2], Marco Buscaglia[4]
[1]ICRM-CNR, Italy; [2]IPSP-CNR, Italy; [3]Proxentia S.r.l., Italy; [4]Università degli Studi di Milano, Italy

15:00
A3L-C03 Photoresist-Based Microfluidic Cell Sorter for Photodynamic Urine Diagnosis
Yoshikazu Hirai[1], Daisuke Takagi[1], Satoshi Anai[2], Yoshitomo Chihara[2], Toshiyuki Tsuchiya[1], Kiyohide Fujimoto[2], Yoshihiko Hirao[2], Osamu Tabata[1]
[1]Kyoto University, Japan; [2]Nara Medical University, Japan

15:15
A3L-C04 Wireless Tear Glucose Sensor
Andreas Hennig[1], Jan Lauko[2], Anton Grabmaier[1], Chris Wilson[2]
[1]Fraunhofer IMS, Germany; [2]NovioSense BV, Netherlands

15:30 *Invited Talk*
A3L-C05 Novel Multichannel Fluorescence Detection for Lab-on-a-Chip Applications with Quantum Rods Fluorochromes
Rafał Walczak[1], Katja Werner[2], Jan Niehaus[2]
[1]Wrocław University of Technology, Poland; [2]CAN 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 Mutlu
Bogazici University, Turkey

14:45

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

15:00

A3L-D03 MEMS-Based Porous Silicon preconcentrators Filled with carbopack for Explosives Detection
Malick Camara[1], Franck James[1], Philippe Breuil[1], Christophe Pijolat[1], Danick Briand[2], Nico de Rooij[2]
[1]Ecole Nationale Supérieure des Mines de Saint-Etienne (ENSM-SE), France; [2]Ecole 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[2], Sandra Tenreiro[1], Catarina Pedrosa[2], Andreia Gameiro[2], Virginia Chu[2], Tiago Outeiro[3], João Pedro Conde[2]
[1]IMM, Portugal; [2]INESC-MN, Portugal; [3]University 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)*

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

A4P-E02 Thermal Conductivity Measurements with Galvanic Metallization Lines on Porosified LTCC Applying the 3-Omega Technique
Frank Steinhäußer[2], Gabriela Sandulache[1], Walter Fahrner[2], Wolfgang Hansal[1], Achim Bittner[2], Ulrich Schmid[2]
[1]Happy Plating GmbH, Austria; [2]Vienna University of Technology, Austria

A4P-E03 Investigations on Work Functions of gasochromic Color Dyes As Gate Materials for FET Based Gas Sensors
Carolin Peter[1], Dominik Zimmermann[2], Daniel Knop[1], Sven Rademacher[1], Ina Schumacher[1], Ingo Freund[2], Jürgen Wöllenstein[1]
[1]Fraunhofer IPM, Germany; [2]Micronas GmbH, Germany

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

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

A4P-E06 Electrical and Structural Characterization of Sn-DLC Thin Films for Piezoresistive Sensors
Gabriela Leal[1], Guilherme Wellinghton Alves Cardoso[1], Argemiro Soares Da Silva Sobrinho[2], Marcos Massi[1]
[1]Federal University of São Paulo, Brazil; [2]Technological Institute of Aeronautics, Brazil

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 Frischmuth[2], Michael Schneider[2], Thomas Grille[1], Ulrich Schmid[2]
[1]Infineon Technologies Austria, Austria; [2]Vienna University of Technology, Austria

A4P-E09 **Humidity Sensing Properties of Screen-Printed Carbon-Black and Fe(II) Spin Crossover Compound Hybrid Films**

Eduard Llobet[3], Robert Barberà-Brunet[3], Céline Etrillard[1], Jean-François Létard[1], Hélène Debéda[2]
[1]CNRS, ICMCB Bordeaux, France; [2]Université de Bordeaux, IMS, France; [3]URV 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 Giberti[1], Andrea Gaiardo[2], Vincenzo Guidi[2], Cesare Malagù[2]
[1]MIST E-R, Italy; [2]University of Ferrara, Italy

A4P-E12 **Conductive Fabric Responding to Extremely Small Temperature Changes**

Elena Laukhina[1], Vladimir Laukhin[2], Victor Lebedev[3], Concepcio Rovira[3], Jaume Veciana[3]
[1]CIBER de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Spain; [2]Institució Catalana de Recerca i Estudis Avançats (ICREA), Spain; [3]Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Spain

A4P-E13 **Electrical, Optical and Sensing Properties of Photo-Activated ZnO Thin Films**

Barbara Fabbri[1], Andrea Gaiardo[1], Alessio Giberti[1], Vincenzo Guidi[1], Cesare Malagù[1], Alessandro Martucci[2], Marco Sturaro[2]
[1]University of Ferrara, Italy; [2]University of Padova, Italy

A4P-E14 **Room Temperature Gas Multisensor System Based on a Novel Polymer Nanocomposite Material**

Mikhail Yablokov[1], Alexey Vasiliev[3], Andrey Varfolomeev[3], Sergey Zavyalov[2]
[1]Enikolopov Institute of Synthetic Polymer Materials, Russia; [2]Karpov Institute of Physical Chemistry, Russia; [3]NRC Kurchatov Institute, Russia

A4P-E15 **In-Line Ultrasonic Melt Flow Measurement of Polypropylene with Different Fillers**

Veronika Putz[2], Ivana Burzic[1], Bernhard Zagar[1], Jürgen Miethlinger[1]
[1]JKU, Austria; [2]LCM GmbH, Austria

A4P-E16 **High Carbon-High Porous SiOC Glasses for Room Temperature No2 Sensing**

Aylin Karakuscu[2], Andrea Ponzoni[2], Dawit Ayana[1], Gian Domenico Soraru[1], Giorgio Sberveglieri[2]
[1]Department of Industrial Engineering, University of Trento, Trento, Italy; [2]Department 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 Galstyan[1], E. Comini[1], C. Baratto[1], M. Ferroni[1], N. Poli[1], G. Faglia[1], E. Bontempi[2], M. Brisotto[2], G. Sberveglieri[1]
[1]SENSOR Lab, University of Brescia and CNR INO, Italy; [2]INSTM 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 Vigueras Santiago[3], Susana Hernandez Lopez[3], Claudia Hernandez Escobar[1], Armando Zaragoza Contreras[1], Jose Rurik Farias[2]
[1]Centro de Investigacion en Materiales Avanzados, Mexico; [2]Universidad Autonoma del Ciudad Juarez, Mexico; [3]universidad 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 César[4], Angélica Denardi de Barros[1], Rafaela Oliveira Do Nascimento[2], Oswaldo Luiz Alves[3], Ioshiaki Doi[1], José Alexandre Diniz[4], Jacobus Willibrordus Swart[4]
[1]Center for Semiconductors Components (CCS-UNICAMP), Brazil; [2]Laboratory of Solid State Chemistry (LQES-UNICAMP, Brazil; [3]Laboratory of Solid State Chemistry (LQES-UNICAMP), Brazil; [4]School of Electrical and Computer Engineering (FEEC-UNICAMP), Br

A4P-F02 Electrochemical Multi-Sensors Device Coupled with Heuristic or Meta-Heuristic Selection Algorithms for Single-Cultivar Olive Oil Classification

António Peres[3], Ana Veloso[2], José Pereira[1], Luís Dias[1]
[1]CIMO-ESA-IPB, Portugal; [2]IPC-ISEC, Portugal; [3]LSRE-ESA-IPB, Portugal

A4P-F03 Localized Surface Plasmon Resonance Sensor Based on Hetero-Core Structured Fiber Optic

Atsushi Seki, Kiyoaki Yoshikawa, Kazuhiro Watanabe
Soka University, Japan

A4P-F04 Micro-pellistor with Integrated Porous Alumina Catalyst Support

Ferenc Bíró[2], Andrea Edit Pap[1], István Bársony[1], Csaba Dücső[1]
[1]MTA TTK MFA, Hungary; [2]MTA 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 Barthet, 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, Maruro 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[3], A. K. Sinha[3], S.K. Ray[3], S.Z. Ali[1], F. Udrea[4], J.W. Gardner[5], P.K. Guha[2]
[1]Cambridge CMOS Sensors Ltd, United Kingdom; [2]Indian Institute of Technology, India, India; [3]Indian Institute of Technology, Kharagpur, India, India; [4]University of Cambridge, United Kingdom; [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 NH3 at Ppm Level in Environmental Conditions**
Tiziana Polichetti[2], Filiberto Ricciardella[2], Filippo Fedi[1], Maria Lucia Miglietta[2], Riccardo Miscioscia[2], Ettore Massera[2], Girolamo Di Francia[2], Maria Arcangela Nigro[3], Giuliana Faggio[3]
[1]CNR, Italy; [2]ENEA, Italy; [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[1], Leonardo Ciaccheri[1], Andrea Azelio Mencaglia[1], Tom Verschooten[2], Heidi Ottevaere[2], Hugo Thienpont[2]
[1]CNR Istituto di Fisica Applicata, Italy; [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[1], Sabrina Grassini[1], Marco Parvis[1], Alberto Vallan[1], Giovanna Saviano[2]
[1]Politecnico di Torino, Italy; [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 Kumar[2], Camilla Baratto[2], Guido Faglia[2], Giorgio Sberveglieri[2], Katarina Vojisavljev[1], Barbara Malič[1]
[1]Electronic Ceramics Department, Jozef Stefan Institute Jamova, Ljubljana, Slovenia; [2]SENSOR Lab and CNR-INO, University of Brescia, Italy

A4P-F18 **Biofilm Oxygen Profiling Using an Array of Microelectrodes on a Microfabricated Needle**

Ana Moya[4], Xavier Guimerà[3], Francisco Javier Del Campo[4], Elisabet Prats-Alfonso[4], Antonio David Dorado[3], Mireia Baeza[2], Rosa Villa[4], David Gabriel[1], Xavier Gamisans[3], Gemma Gabriel[4]
[1]Dept. of Chemical Engineering (UAB), Spain; [2]Dept. of Chemistry (UAB), Spain; [3]EMRN (UPC), Spain; [4]IMB-CNM (CSIC), Spain

A4P-F19 **The GaN/SiC Heterostructure-Based Hydrogen SAW Sensor Operating in GHz Range**

Ivan Ryger[2], Gabriel Vanko[2], Tibor Lalinsky[2], Pavol Nemec[3], Anna Benčúrová[3], Martin Tomáška[1], štefan Haščík[2]
[1]FEI STU, Slovakia; [2]IEE SAS, Slovakia; [3]Inst. 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 Manfredi[2], Jun Lim[1], Joris Van Den Bosch[1], Claudine Buess-Herman[3]
[1]SCK•CEN, Belgium; [2]SCK•CEN/ULB, Belgium; [3]ULB, 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 Liao[1], Ruey-Lue Wang[2], Ying-Zong Jung[1], Hann-Huei Tsai[1], Chi Yu[2], Wey-De Wu[2]
[1]CIC, Taiwan; [2]NKNU, Taiwan

A4P-F23 **Flexible Polyimide Platform Based on the Integration of Potentiometric Multi-Sensor for Biomedical Applications**

Ana Moya[1], Nadia Zine[2], Xavier Illa[1], Elisabet Prats-Alfonso[1], Gemma Gabriel[1], Abdelhamid Errachid[2], Rosa Villa[1]
[1]IMB-CNM (CSIC), Spain; [2]ISA- Université Lyon, France

A4P-F24 **Oil Analysis by Fast DSC**

Isis van Wetten[2], Sander van Herwaarden[2], Rene Splinter[2], Saskia van Ruth[1]
[1]RIKILT/Wageningen University, Netherlands; [2]Xensor 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 Calio', 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 Ito[1], Nobuyoshi Aoki[1], Wakako Shinobu[3], Koji Suzuki[2]
[1]Kanagawa Industrial Technology Center, Japan; [2]Keio University, Japan; [3]NDK 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 Brusson[1], Jérome Rossignol[1], Stéphane Binczak[3], Gabriel Laurent[3], Brice de Fonseca[2]
[1]GERM Dpt Nanosciences, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France; [2]GERM Dpt Nanosciences, Laboratoire Interdisciplinaire Carnot de Bourgogne, UMR CNRS 6303, France; [3]Laboratoire 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 Palacio[1], Joan Daniel Prades[1], Manel Lopez[1], José María Gómez[1], Abdelhamid Errachid[2]
[1]Univ. Barcelona, Spain; [2]Univ. Lyon 1, France

A4P-G07 Development of an Electrochemical Aptasensor for the Detection of Human Osteopontin

Sofia Meirinho[1], Luis Dias[2], Antonio Peres[3], Ligia Rodrigues[1]
[1]CEB-University of Minho, Portugal; [2]CIMO-IPB, Portugal; [3]LSRE-IPB, Portugal

A4P-G08 **Chemical Sensors for Prostate Cancer Detection**
Marco Santonico[1], Giorgio Pennazza[1], Anastasios D. Asimakopoulos[2], Dario Del Fabbro[2], Roberto Miano[2], Rosamaria Capuano[2], Enrico Finazzi[2]
[1]University Campus Bio-Medico of Rome, Italy; [2]University of Rome Tor Vergata, Italy

A4P-G09 **Programmable Current Source for Implantable Neural Stimulation Systems**
Jonas Pistor, Nils Heidmann, Janpeter Höffmann, 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 Mortari[1], Marco Nicolò[2], Andrea Adami[1], Salvatore Gugliemino[2], Leandro Lorenzelli[1]
[1]Fondazione Bruno Kessler, Italy; [2]Messina 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, Evamaria 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 Puers
ESAT-MICAS, KULeuven, Belgium

A4P-G13 **A CMOS Based Polysilicon Nanowire Biosensor Platform for Different Biological Targets**
Hsin-Huang Lin[2], I-Shun Wang[2], Pei-Wen Yen[1], Hua Cheng[1], Hann-Huei Tsai[5], Hsin-Hao Liao[5], Shih-Jen Lu[4], Fu-Chiang Chou[4], Chih-Ting Lin[3]
[1]Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan; [2]Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan; [3]Graduate Institute of Electronics Engineering, National Taiwan

A4P-G14 **Miniaturized and Low-Power Blood Pressure Telemetry System with RFID Interface**
Michele Caldara[2], Benedetta Nodari[2], Valerio Re[2], Barbara Bonandrini[1]
[1]Mario Negri Institute, Italy; [2]University of Bergamo, Italy

A4P-G15 **Wireless Instrumented Crutches for Force and Tilt Monitoring in Lower Limb Rehabilitation**
Mauro Serpelloni[2], Emilio Sardini[1], Matteo Lancini[2], Simone Pasinetti[2]
[1]University of Brescia, Italy; [2]University 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 Liu[3], Lip Ket Chin[2], Wee Ser[2], Teck Choon Ayi[1], Peng Huat Yap[1], Tarik Bourouina[3], Leprince-Wang Yamin[3]
[1]DSO National Laboratories, Singapore; [2]Nanyang Technological University, Singapore; [3]Universite 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 Clara[2], Mohammad Reza Lornejad-Schäfer[1], Christine Schäfer[1], Bernhard Jakoby[2], Wolfgang Hilber[2]
[1]BioMed, Austria; [2]JKU, Austria

A4P-G20 **Cell Clinic, CMOS Chip Measuring Capacitance As Indication of Cell Adhesion Applied in Evaluating the Cytotoxicity of Nanomaterials**

Niina Halonen[4], Timir Datta-Chaudhuri[3], Antti Hassinen[4], Somashekar Bangalore Prakash[1], Peter Möller[2], Pamela Abshire[3], Elisabeth Smela[3], Sakari Kellokumpu[4], Anita Lloyd Spetz[2]
[1]Intel Corporation, United States; [2]Linköping University, Sweden; [3]University of Maryland, United States; [4]University of Oulu, Finland

A4P-G21 **Quartz Tuning Fork As in-situ Sensor of Bacterial biofilm**

Tomasz Piasecki[2], Grzegorz Guła[1], Karol Waszczuk[2], Zuzanna Drulis-Kawa[1], Teodor Gotszalk[2]
[1]University of Wrocław, Institute of Genetics and Microbiology, Poland; [2]Wrocław 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 Vinayaka[1], Sander Van Den Driesche[1], Steffen Janssen[1], Mathias Frodl[2], Roland Blank[1], Filippo Cipriani[1], Walter Lang[1], Michael Vellekoop[1]
[1]IMSAS/University of Bremen, Germany; [2]microFAB Service GmbH, Germany

A4P-G23 **A Fully Integrated Electrochemical Biomems Fabrication Process for Cytokine Detection: Application for Heart Failure**

Abdoullatif Baraket[4], Michael Lee[4], Nadia Zine[4], Maria Giovanna Trivella[3], Miguel Zabala[1], Joan Bausells[2], Monique Sigaud[4], Nicole Jaffrezic-Renault[4], Abdelhamid Errachid[4]
[1]Centro Nacional de Microelectrónica, Spain; [2]Centro Nacional de Microelectrónica., Spain; [3]Consiglio Nazionale Ricerche, Italy; [4]Université de Lyon1, France

A4P-G24 **A Novel Polyimide " Platinum " SU-8 Microelectrode Array for Various Electrophysiological Applications**

Gergely Márton[2], Gábor Orbán[2], Marcell Kiss[2], Anita Pongrácz[2], István Ulbert[1]
[1]Comparative Psychophysiology Dept., Institute of Cognitive Neuroscience and Psychology, RCNS-HAS, Hungary; [2]Dept. 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 Weber[1], Yung-Chang Chen[2], Yu-Ting Cheng[2]
[1]EPFL, Switzerland; [2]NCTU, Taiwan

A4P-G26 **Nanostructured Shape Memory Alloy for Vascular Devices**

Kyounghwan Song[1], Yongsuk Nam[1], Taegee Min[2]
[1]Kyunghee University, Korea, South; [2]S&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 Berneschi[1], Romeo Bernini[2], Chiara Berrettoni[1], Ambra Giannetti[1], Immacolata Grimaldi[2], Gianluca Persichetti[2], Genni Testa[2], Sara Tombelli[1], Cosimo Trono[1], Francesco Baldini[1]
[1]IFAC-CNR, Italy; [2]IREA-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 Goreke[2], Kivanc Azgin[2], Mustafa Beyaz[1]
[1]Antalya International University, Turkey; [2]Middle East Technical University, Turkey

A4P-H02 An Electrochemical Oxygen Pump Model - a Tool for Sensor Optimisation
Cristian Diaconu[2], Keith Pratt[1], Mihai Gologanu[2], Cazimir Bostan[2], Martin Willett[1]
[1]City Technology Ltd, United Kingdom; [2]Honeywell, Romania

A4P-H03 Multiple-Level Digital Loudspeaker Array
Sangchai 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 Elhosni[2], Omar Elmazria[2], Abdelkrim Talbi[1], Keltouma Ait Aissa[2], Laurent Bouvot[2], Frederic Sarry[2]
[1]IEMN, France; [2]Institut 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 ISIT, Germany

A4P-H07 Vibration Energy Generators for Low-Frequency Spectral Excitations
Bianca Leistritz[2], Michael Katzschmann[1], Hannes Toepfer[2]
[1]Institut für Mikroelektronik- und Mechatronik-Systeme gemeinnützige GmbH, Germany; [2]Technische Universität Ilmenau, Germany

A4P-H08 Neural Modeling of Relative Humidity on IP2C Vibrating Transducer
Viviana De Luca[1], Ehsan Hosseini-Asl[2], Salvatore Graziani[1], Jacek M. Zurada[2]
[1]Dipartimento di Ingegneria Elettrica Elettronica ed Informatica (DIEEI), Università di Catania, Italy; [2]Electrical and Computer Engineering Department, University of Louisville, United States

A4P-H09 **Design and Simulation of the Comb MWCNT Temperature Sensor for textronics**
Jacek Golebiowski[1], Sylwia Walczak[2], Szymon Milcarz[1]
[1]Department of Semiconductor and Optoelectronics Devices, Lodz University of Technology, Poland; [2]Research 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 Kainz[2], Wilfried Hortschitz[1], Michael Stifter[1], Johannes Schalko[2], Franz Keplinger[2]
[1]Danube University Krems, Austria; [2]Vienna 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 Guo[2], Kosuke Seki[2], Ko-Ichiro Miyamoto[2], Torsten Wagner[1], Michael Schöning[1], Tatsuo Yoshinobu[2]
[1]Aachen University of Applied Sciences, Germany; [2]Tohoku University, Japan

A4P-H17 **Resonant Frequency and Phase Noise of Nanoelectromechanical Oscillators Based on Two-Dimensional Crystal Resonators**
Zoran Djuric[2], Ivana Jokic[1], Katarina Radulovic[1]
[1]ICTM – Institute of Microelectronic Technologies, University of Belgrade, Serbia; [2]ITN – 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[2], Attilio Frangi[2], Cristian Cassella[1], Gianluca Piazza[1]
[1]Carnegie Mellon University, United States; [2]Politecnico di Milano, Italy

A4P-H20 **Optimization of Acoustic Sensor Using Finite Element and Design of Experiment**

Rubaiyet Haque[1], Christophe Loussert[2], Michelle Sergent[3], Xavier Boddaert[1], Patrick Benaben[1]
[1]Centre Microélectronique de Provence, Ecole des Mines de Saint-Etienne, Gardanne, France; [2]TAGSYS RFID, La Ciotat, France; [3]Université 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[1], Erwin Reichel[1], Isabelle Dufour[2], Bernhard Jakoby[1]
[1]JKU, Austria; [2]Université 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[2], Vasant Kumar[2], Florin Udrea[3], Zeeshan Ali[1]
[1]Cambridge CMOS Sensors Ltd., United Kingdom; [2]University of Cambridge, United Kingdom; [3]University of Cambridge, Cambridge CMOS Sensors Ltd., United Kingdom

A4P-H23 **Perforated Plates of Inertial Sensors - Modeling by Effective Material Properties**

Steffen Michael[2], Astrid Frank[2], Gisbert Hölzer[3], Gunar Lorenz[1]
[1]Coventor, France; [2]IMMS gGmbH, Germany; [3]X-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, Lisbon (Portugal)*

A4P-J01 In-situ Surface Modification of Microfluidic Channels by Integrated Plasma Source

Tamás Kárpáti, Eszter Holczer, János Ferencz, Andrea Edit Pap, Péter Fürjes
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, Gwenael Le-Rhun, Philippe Robert, Yves Fouillet, Emmanuel Defaÿ
CEA-Leti, France

A4P-J03 Effects of micropatterning and Surface Modification of Microfluidic Channels on Capillary Water Transport

Eszter Holczer, Péter Fürjes
MEMS Lab, Research Centre for Natural Sciences – HAS, Hungary

A4P-J04 A Disposable Microfluidic Chip for Rapid and Sensitive Detection of Plasma Biomarkers

Helene Zirath[1], Johannes Peham[1], Guntram Schnetz[2], Lukas Brandhoff[5], Andreas Spittler[4], Herbert Wiesinger-Mayr[1], Michael Vellekoop[5], Heinz Redl[3]
[1]Austrian Institute of Technology, Austria; [2]Biegler GmbH, Austria; [3]Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Austria; [4]Medical University of Vienna, Austria; [5]University of Bremen, Germany

A4P-J05 Development of a MEMS preconcentrator for Micro-Gas 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, Bessaudou Annie, Blondy Pierre
XLIM, France

A4P-J07 A scalable, minimal contact device for the characterization of elastomer membrane deformation

Paul Scanlan, Steven Hammer, Wenmiao Shu, Robert Reuben
Heriot Watt University, United Kingdom

A4P-J08 Toxicity Sensing by Using Chemotactic Reaction of Microbial Cells Confined in Microfluidic Chip

Kazunari Ozasa[2], Jeesoo Lee[1], Simon Song[1], Mizuo Maeda[2]
[1]Hanyang University, Korea, South; [2]RIKEN, Japan

A4P-J09 **Chromatographic Air Analyser Microsystem for the Selective and Sensitive Detection of Explosive-Related Compounds**

Jean-Baptiste Sanchez[3], Yehya Mohsen[1], Houda Lahlou[3], Franck Berger[3], Igor Bezverkhyy[2], Guy Weber[2], Jean-Pierre Bellat[2]

[1]Centre Gabriel Lippmann, Luxembourg; [2]ICB, France; [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 Somov[2], Victor Lebedev[3], Alexander Baranov[1], Elena Laukhina[3], Vladimir Laukhin[3], Roberto Passerone[4], C Rovira[3], J Veciana[3]
[1]'MATI'-Russian State Technological University, Russia; [2]CREATE-NET, Italy; [3]Institut de Ciencia de Materials de Barcelona, Spain; [4]University 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 Köppe[1], Daniel Augustin[2], Matthias Bartholmai[1]
[1]BAM, Germany; [2]FOG GmbH, Germany

A4P-K04 Combined Molecularly Imprinted Polymer and Surface Plasmon Resonance Transduction in Plastic Optical Fiber for Monitoring Oil-Filled Power Transformers

Nunzio Cennamo[2], Letizia De Maria[1], Girolamo D'Agostino[3], Maria Pesavento[3], Luigi Zeni[2]
[1]RSE, Italy; [2]Second University of Naples, Italy; [3]University 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 Harris[1], Andy Cranny[1], Mark Rivers[2]
[1]University of Southampton, United Kingdom; [2]University 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[2], José Pedro Santos[1], José Ignacio Suárez[2], Patricia Arroyo[2], José Luis Herrero[2], Antonio Martín[2]
[1]Spanish Council on Scientific Research, Spain; [2]University of Extremadura, Spain

A4P-K11 **Improvement of an Antenna Sensor for Occupant Detection in Passenger Transportation**

Marcus Groinig, 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[2], Athanasios Botsialas[2], Antonis Olziersky[2], Ioannis Stratakos[3], Dimitris Dimas[3], George Sotiropoulos[1], Dimitrios Goustouridis[4], Ioannis Raptis[4], Merope Sanopoulou[2]
[1]Alfa Beta Roto S.A., Greece; [2]Institute of Nanoscience and Nanotechnology, NCSR 'Demokritos', Greece; [3]Prisma Electronics S.A., Greece; [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[2], Estefania Nunez Carmona[1], Dario Zappa[3], Elisabetta Comini[3], Andrea Pulvirenti[4]
[1]CNR - IBF - Palermo, Italy; [2]CNR - INO sensor LAB - Brescia, Italy; [3]University of Brescia, Italy; [4]University of Modena and Reggio Emilia, Italy

A4P-K15 **Animals Dedicated, MEMS Sensors Based Mechatronic Movement Assessment System**

Pawel Knapkiewicz[2], Wojciech Kosek[2], Piotr Jozwiak[1], Jan Dziuban[2], Jedrzej Jaskowski[1]
[1]University of Life Sciences in Poznan, Poland; [2]Wrocław 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
Wrocław 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[2]
[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[2], Mutsumi Kimura[3], 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[1], Mike Andersson[1]
[1]Linköping University, Sweden; [2]Saarland University, Germany; [3]Saarland Universtiy, Germany

09:30

B1L-A03 Drift correction in a porphyrin-coated ZnO nanorods gas sensor

Corrado Di Natale, Gabriele Magna, Alice Babbi, Eugenio Martinelli, Roberto Paolesse
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-Ichiro Miyamoto[2], Kosuke Seki[2], Yuanyuan Guo[2], 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[2], Roland Pohle[1], Erhard Magori[1], Maximilian Fleischer[1], Ralf Moos[2]
[1]Siemens AG, Germany; [2]University of Bayreuth, Germany

B1L-B Theory and Modeling

Time: Tuesday, September 9, 2014, 09:00 - 10:30
Place: 'Sala CONSILIARE' 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[3], Andrea de Luca[3], Sohab Sarfraz[3], Ibraheem Hanheef[2], John Coull[3], Zeeshan Ali[1], Florin Udrea[3]
[1]Cambridge CMOS Sensors ltd, United Kingdom; [2]Institute of Avionics & Aeronautics Air University, Pakistan; [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[1], Diego Reyes-Romero[3], Samir Cerimovic[1], Franz Kohl[1], Thomas Voglhuber-Brunnmaier[1], Bernhard Jakoby[2], Gerald Urban[3]
[1]Danube University Krems, Austria; [2]Johannes Kepler University Linz, Austria; [3]University of Freiburg, Germany

09:45

B1L-B04 System-Level Modeling of Silicon Microphones Including Distributed Effects
Thomas Kuenzig[2], Gabriele Schrag[2], Mohsin Nawaz[1], Matthias Herrmann[1], Alfons Dehe[1], Gerhard Wachutka[2]
[1]Infineon Technologies AG, Germany; [2]Munich University of Technology, Germany

10:00

B1L-B05 A Differential Resonant Micro Accelerometer for Out-of"plane Measurements
Alessandro Caspani[1], Claudia Comi[1], Alberto Corigliano[1], Giacomo Langfelder[1], Valentina Zega[1], Sarah Zerbini[2]
[1]Politecnico di Milano, Italy; [2]STMicroelectronics, Italy

10:15

B1L-B06 Validity of Describing Resonant Viscosity and Mass Density Sensors by Linear 2nd Order Resonators
Martin Heinisch[1], Thomas Voglhuber-Brunnmaier[1], Isabelle Dufour[2], Bernhard Jakoby[1]
[1]JKU, Austria; [2]Université Bordeaux 1, France

B1L-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

B1L-C01 Silicon-Based Multi-Nanowire Biosensor with High-K Dielectric and Stacked Oxide Sensing Membrane for Cardiac Troponin I Detection

Shih-Hsiang Shen[3], Hua Cheng[2], Tung-Yi Kao[1], Miin-Jang Chen[1], Chih-Ting Lin[3]
[1]Department of Materials Science and Engineering, National Taiwan University, Taiwan; [2]Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan; [3]Graduate Institute of Electronics Engineering, National Taiw

09:15

B1L-C02 Improvement of Infrared Detectors for Tissue Oximetry Using Black Silicon Nanostructures

Søren Dahl Petersen, Rasmus Schmidt Davidsen, Lucia Rosario Alcalá, Michael Stenbæk Schmidt, Anja Boisen, Ole Hansen, Erik Vilain Thomsen
DTU Nanotech, Denmark

09:30

B1L-C03 A Scalable Actuator for the Dynamic Palpation of Soft Tissue for Use in the Assessment of Prostate Tissue Quality

Paul Scanlan[2], Steven Hammer[2], Daniel Good[3], Will Shu[2], Robert Reuben[2], Simon Phipps[1], Grant Stewart[1], Alan McNeill[1]
[1]Edinburgh Western General Hospital, United Kingdom; [2]Heriot Watt University, United Kingdom; [3]University of Edinburgh, United Kingdom

09:45

B1L-C04 Measurement of Prostate Specific Antigen Using Self-Sensing Nanomechanical Membrane

Meisam Omidi[2], Mohammadmehdi Choolai[2], F. Asjodi[1], F. Haghiralsadat[2], F. Yazdian[2]
[1]cApplied scientific university of perspolis, sport nutrition branch, Tehran, Iran, Iran; [2]university of tehran, Iran

10:00

B1L-C05 Chemical Sensor Approach to Volatile Phenotyping of Respiratory Diseases

Giorgio Pennazza[1], Marco Santonico[1], Domenica Chiurco[1], Simone Scarlata[1], Chiara Vernile[1], Simone Grasso[1], Raffaele Antonelli Incalzi[1], Arnaldo D'Amico[2]
[1]University Campus Bio-Medico of Rome, Italy; [2]University 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

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
B1L-D04 **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
B1L-D06 **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 Annanouch[2], Malick Camara[1], Jose Luis Ramirez[2], Danick Briand[1], Eduard Llobet[2]
[1]EPFL-IMT SAMLAB, Switzerland; [2]Universitat 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 Clément[2], Claude Lucat[1], Hélène Debéda[1], Eduard Llobet[2]
[1]Institut du Matériau au Système, France; [2]Universitat Rovira i Virgili, Spain

12:00

B2L-A05 CNT Wiring for Signal Amplification in Electrochemical magnetosensors

Zorione Herrasti[1], Fernando Martínez[1], Eva Baldrich[2]
[1]IK4-Ikerlan, Spain; [2]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 Rigoni[3], Silvia Tognolini[3], Patrizia Borghetti[1], Giovanni Drera[3], Stefania Pagliara[3], Andrea Goldoni[2], Luigi Sangaletti[3]
[1]Centro de Física de Materiales (CSIC/UPV-EHU) – Materials Physics Center, Spain; [2]Elettra Sincrotrone Trieste S.C.p.A., Italy; [3]Interdisciplinary 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 Giuliani[1], Lionello Drera[1], Domenico Arancio[1], Biswaijit Mukhopadhyay[2], Ha-Duong Ngo[2]
[1]Gefran SpA, Italy;
[2]Technical 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 Sander[2], Maria-Cristina Vecchi[1], Martin Cornils[1], Oliver Paul[2]
[1]Micronas, Germany; [2]University of Freiburg, Germany

12:00

B2L-B05 Low Voltage Acoustic Particle Velocity Sensor with Integrated Low Noise Chopper Pre-Amplifier
Massimo Piotto[2], Federico Butti[3], Alessia Di Pancrazio[1], Paolo Bruschi[1]
[1]Dipartimento di Ingegneria dell'Informazione, University of Pisa, Italy; [2]IEIIT - Pisa, CNR, Italy; [3]Marvell Semiconductor, Italy

12:15

B2L-B06 Silicon Nanowire Based Thermal Conductivity Detector
Jérémie Ruellan, 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 Arnau, *Polytechnic University of Valencia, Valencia (Spain)*

11:00 *Invited Talk*

B2L-C01 Bio-Inspired Explosive Sensors and Specific Signatures

Denis Spitzer[1], Karine Bonnot[1], Laurent Schlur[1], Nelly Piazzon[1,2], David Doblas[1,2], Dimitri Ivanov[2], Thomas Cottineau[3], Valérie Keller[3]
[1]Laboratoire des Nanomatériaux pour les Systèmes Sous Sollicitations Extrêmes, ISL-CNRS-UdS, France; [2]Institut de Science des Matériaux de Mulhouse, CNRS-UHA, France; [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[3], Sara Carpi[2], Ambra Giannetti[3], Paola Nieri[2], Mario Pellegrino[1], Giovanna Sotgiu[4], Sara Tombelli[3], Cosimo Trono[3], Greta Varchi[4], Francesco Baldini[3]
[1]Dip.Ricerca Traslazionale e delle Nuove Tecnologie in Medicina e Chirurgia, Univ. Pisa, Italy; [2]Dipartimento di Farmacia, Università di Pisa, Italy; [3]IFAC-CNR, Italy; [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 Bronder[1], Chunsheng Wu[3], Arshak Poghossian[1], Frederik Werner[1], Michael Keusgen[2], Michael Schöning[1]
[1]FH Aachen, Germany; [2]Philipps University Marburg, Germany; [3]Zhejiang University, China

12:15

B2L-C06 Love Mode Surface Acoustic Wave and High Fundamental Frequency Quartz Crystal Microbalance Immunosensors for the Detection of Carbaryl Pesticide

José Vicente García Narbón[1], María Isabel Rocha Gaso[1], Carmen March Iborra[1], Pablo García Mollá[1], Laurent Francis[3], ángel Montoya Baides[2], Antonio Arnau Vives[2], Yolanda Jiménez Jiménez[2]
[1]Advanced Wave Sensors S.L., Spain; [2]Universitat Politècnica de València, Spain; [3]Université catholique de Louvain, Belgium

B2L-D Energy Harvesting

Time: Tuesday, September 9, 2014, 11:00 - 12:30
Place: Room N2
Chair(s): Skandar Basrour, *Laboratoire TIMA. CNRS-UJF-INPG, Grenoble (France)*
Tomasz Zawada, *Meggitt Sensing Systems A/S, Kvistgaard (Denmark)*

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 Podder[1], Andreas Amann[2], Saibal Roy[1]
[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 Wen[2], Robert Schulze[1], Detlef Billep[2], Thomas Otto[2], Thomas Gessner[2]
[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 Zhu[2], Leran Wang[2], Julien Henaut[1], Steve Beeby[2]
[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 Mutinati[1], Elise Brunet[1], Anton Köck[4], Stephan Steinhauer[4], Olena Yurchenko[2], Elmar Laubender[2], Gerald Urban[2], Joerg Siegert[3], Karl Rohracher[3], Franz Schrank[3], Martin Schrems[3]
[1]AIT Austrian Institute of Technology GmbH, Austria; [2]Albert-Ludwigs-Universität Freiburg, Germany; [3]ams AG, Austria; [4]Materials Center Leoben Forschung GmbH, Austria

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

14:30 *Invited Talk*
B3L-A03 Semiconductor Metal Oxides As Hydrogen Gas Sensors
Sukon Phanichphan
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 Epifani[1], Elisabetta Comini[2], Raul Diaz[5], Teresa Andreu[6], Aziz Genç[3], Jordi Arbiol[4], Pietro Siciliano[1], Guido Faglia[2], Joan Ramon Morante[7]
[1]CNR-IMM, Italy; [2]CNR-INO and Università di Brescia, Italy; [3]ICMAB-CSIC, Spain; [4]ICMAB-CSIC and ICREA, Spain; [5]IMDEA Energia, Spain; [6]IREC, Spain; [7]IREC and Universidad de Barcelona, Spain

15:15
B3L-A06 Niobium Oxide Nanostructures for Chemical Sensing
Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri
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 Vázquez[2], Alexander Mozalev[1], Eduard Llobet[2]
[1]Brno University of Technology, Czech Rep.; [2]Universitat Rovira i Virgili, Spain

15:45

B3L-A08 **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 Laghi[1], Stefano Dellea[1], Giacomo Langfelder[1], Antonio Longoni[1], Paolo Minotti[1], Alessandro Tocchio[2], Sarah Zerbini[2]
[1]Politecnico di Milano, Italy; [2]ST Microelectronics, Italy

14:15
B3L-B02 **Characterization of MEMS Resonators via Feedthrough Deembedding of Pulsed-Mode Response**
Alexis Brenes[2], Jérôme Juillard[1], Alain Bonnoit[1], Filipe Vinci Dos Santos[3]
[1]SSE Supélec, France; [2]Thales Avionics, France; [3]Thales Chair, 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 Cerini[3], Marco Ferrari[3], Vittorio Ferrari[3], Alfio-Lip Russo[2], Mikel Azpeitia Urquia[2], Raffaele Ardito[1], Biagio De Masi[1], Attaallah Almasi[4], Davide Iannuzzi[4], René Sedmik[4]
[1]Politecnico di Milano, Italy; [2]STMicroelectronics, Italy; [3]University of Brescia, Italy; [4]VU University Amsterdam, Netherlands

14:45
B3L-B04 **Thermal Compensated Pull-in Voltage MEMS Inclinometers**
Filipe Serra Alves[2], Rosana Alves Dias[2], Jorge Cabral[2], João Gaspar[1], Luís Alexandre Rocha[2]
[1]International Iberian Nanotechnology laboratory, Portugal; [2]University 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 Hortschitz[1], Andreas Kainz[2], Franz Kohl[1], Michael Stifter[1], Harald Steiner[1], Franz Keplinger[2], Thilo Sauter[1], Johannes Schalko[2]
[1]CISS/DUK, Austria; [2]TU-Vienna, Austria

15:45

B3L-B08 **SOI CMOS MEMS Infra-Red Thermal Source with Carbon Nanotubes Coating**

Andrea De Luca[2], Matthew Cole[2], Richard Hopper[1], Zeeshan Ali[1], Florin Udrea[2], Julian Gardner[3], William Milne[2]
[1]Cambridge CMOS Sensors Ltd, United Kingdom; [2]University of Cambridge, United Kingdom; [3]University of Warwick, United Kingdom

B3L-C Signal and Data Processing for Chemical Sensing

Time: Tuesday, September 9, 2014, 14:00 - 16:00
Place: Room N1
Chair(s): Eugenio Martinelli, *University of Rome Tor Vergata, Rome (Italy)*
Santiago Marco, *University of Barcelona, Barcelona (Spain)*

14:00
B3L-C01 **Continuous Prediction in chemoresistive Gas Sensors Using Reservoir Computing**
Sadique Sheik[2], Santiago Marco[1], Ramon Huerta[2], Jordi Fonollosa[2]
[1]IBEC, Spain; [2]UCSD, United States

14:15
B3L-C02 **Thermally Pulsed Metal Oxide Gas Sensor Combined with a Colorimetric Gas Sensor for the Selective Detection of Trace Gases**
Sven Rademacher[1], Carolin Peter[1], Katrin Schmitt[1], Jürgen Wöllenstein[2]
[1]Fraunhofer IPM, Germany; [2]IMTEK - University of Freiburg, Germany

14:30
B3L-C03 **Robustness to Sensor Damage of a Highly Redundant Gas Sensor Array**
Luis Fernandez, Agustin Gutierrez, Santiago Marco
IBEC, Spain

14:45
B3L-C04 **Automatic Fault Identification and on-Line Unsupervised Calibration of Replaced Sensors by Means of Cooperative Classifiers**
Eugenio Martinelli[1], Gabriele Magna[1], Alexander Vergara[2], Corrado Di Natale[1]
[1]Dept. Electronic Engineering, University of Rome Tor Vergata, Italy; [2]Material Measurement Lab., National Institute of Standards Technology, Gaithersburg, USA, Mexico

15:00
B3L-C05 **Combining Real Time Classifiers for Fast and Reliable Electronic Nose Response Analysis for Aerospace NDTs**
Saverio De Vito, Maria Salvato, Ettore Massera, Mara Miglietta, Antonio Buonanno, Grazia Fattoruso, Girolamo Di Francia
ENEA, Italy

15:15
B3L-C06 **Description and Characterisation of a Large Array of Sensors Mimicking an Artificial Olfactory Epithelium**
Mara Bernabei, Simone Pantalei, Krishna Persaud
The University of Manchester, United Kingdom

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, *Wrocław University of Technology, Wrocław (Poland)*

14:00 *Invited Talk*

B3L-D01 Membrane Platforms for Sensors
István Bársony, Csaba Dücső, 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 Brueckner[1], Alfons Dehé[2], Ellen Auerswald[1], Rainer Dudek[1], Sven Rzepka[1], Bernd Michel[1]
[1]Fraunhofer ENAS, Germany; [2]Infineon 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 Torunbalci[1], Said Emre Alper[1], Tayfun Akin[2]
[1]METU-MEMS Research and Applications Center, Turkey; [2]METU-MEMS Research and Applications Center/METU, Department of Electrical and Electronics Eng., Turkey

15:15

B3L-D06 Miniature Integrated High-Vacuum MEMS
Tomasz Grzebyk[2], Anna Górecka-Drzazga[2], Jan Dziuban[2], Tatjana Dankovic[1], Alan Feinerman[1], Heinz Busta[1]
[1]University of Illinois, United States; [2]Wrocław University of Technology, Poland

15:30

B3L-D07 The Use of Polymeric Technologies for Functional 3D microdevices
Cátia Silva[2], Jong Noh[1], António Pontes[2], João Gaspar[1], Luis Rocha[2]
[1]International Iberian Nanotechnology Laboratory, Portugal; [2]Universidade 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 Fazio[1], Cristiano D'Andrea[1], Antonino Foti[1], Elena Messina[1], Pietro Giuseppe Gucciardi[1], Marina Giordano[2], Christian Martella[2], Daniele Chiappe[2], Andrea Toma[2], Francesco Buatier de Mongeot[2], Francesco Tantussi[3], Priya Vasanthakumar[3], Maria Allegrini[3]
[1]CNR IPCF, Italy; [2]UniGE, Italy; [3]UniPI, 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 Acuautla[1], Sandrine Bernardini[1], Laurent Gallais[2], Marc Bendahan[1]
[1]Aix – Marseille University, CNRS, IM2NP – UMR 7334, France; [2]Aix-Marseille Université, Centrale Marseille, CNRS, Institute Fresnel-UMR 7249, France

B4P-E02 Processing of Nanoscale Gaps for Boron-Doped Nanocrystalline Diamond Based MEMS

Dimitre Iankov[2], Verena Zuerbig[2], Wilfried Pletschen[1], Christian Giese[1], Robert Iannucci[1], Oliver Ambacher[1], Vadim Lebedev[1]
[1]Fraunhofer Institute for Applied Solid State Physics IAF, Germany; [2]Fraunhofer Institute for Applied Solid State Physics IAF and IMTEK, University of Freiburg, Germany

B4P-E03 Shape Controlled ZnO Nanostructures for Gas Sensing Applications

Justyna Jońca[1], Andrey Ryzhikov[1], Myrtil Kahn[1], Katia Fajerwerg[1], Bruno Chaudret[2], Audrey Chapelle[3], Philippe Menini[3], Pierre Fau[1]
[1]Laboratoire de Chimie de Coordination, France; [2]Laboratoire de Physique et de Chimie des Nano-objets, France; [3]Laboratoire 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 Rennes1, France

B4P-E05 Electronic Sensor for Ph Measurements in nanoliters

Ismaïl 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 Jońca[1], Andrey Ryzhikov[1], Katia Fajerwerg[1], Myrtil Kahn[1], Bruno Chaudret[2], Audrey Chapelle[3], Philippe Menini[3], Pierre Fau[1]
[1]Laboratoire de Chimie de Coordination, France; [2]Laboratoire de Physique et de Chimie des Nano-objets, France; [3]Laboratoire d'Analyse et d'Architecture des Systèmes, France

B4P-E08 **Fully Integrated Lambda Sensor Based on Micromachined Platforms and Ytria Stabilized Zirconia Thin Membranes for Oxygen Measurement**

Alex Morata[2], Iñigo Garbayo[2], Dolors Pla[2], Marc Salleras[1], Neus Sabaté[1], Albert Tarancón[2], Joan Ramón Morante[2]
[1]2Institut de Microelectrònica de Barcelona, CSIC, Bellatera 08139 SPAIN, Spain; [2]Institut de Recerca en Energia de Catalunya (IREC), Spain

B4P-E09 **Carbon Nanotubes As Base Material for Fabrication of Gap Waveguide Components**

Muhammad Amin Saleem[2], Sofia Rahiminejad[1], Vincent Desmaris[2], Peter Enoksson[1]
[1]Chalmers University of Technology, Sweden; [2]Smoltek AB, Sweden

B4P-E10 **Design and Fabrication of an Acoustic Micromixer for Biological Media Activation**

Rabah Zeggari[2], Jean François Manceau[1], Ece Aybeke[3], Réda Yahiaoui[1], Eric Lesniewska[3], Wilfrid Boireau[2]
[1]Femto-st, France; [2]Femto-st, CLIPP, France; [3]ICB, 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 Shaposhnik[3], Stanislav Ryabtsev[4], Feng Shao[1], Francisco Hernández Ramírez[1], Juan Ramón Morante[1], Alexey Zviagin[3], Elena Sizask[3], Dmitry Shaposnik[2]
[1]Catalonia Institute for Energy Research, Spain; [2]University Rovira i Virgili, Spain; [3]Voronezh State Agrarian University, Russia; [4]Voronezh State University, Russia

B4P-E15 **Electromagnetically Actuated Microcantilever for Chemical and Biochemical Sensing in Static Mode**

Daniel Kopiec[2], Wojciech Majstrzyk[2], Piotr Pałetko[2], Piotr Kunicki[2], Andrzej Sierakowski[1], Teodor Gotszalk[2]
[1]Institute of Electron Technology, Poland; [2]Wrocław University of Technology, Poland

B4P-E16 **Improvement of the Thermal Resistance of Thin Film Heaters on Glass Substrate for Lab-on-Chip Applications**
Andrea Scorzoni[3], Michele Tavernelli[3], Pisana Placidi[3], Paolo Valigi[3], Stefano Zampolli[1], Domenico Caputo[2], Giulia Petrucci[2], Augusto Nascetti[2]
[1]CNR-IMM Bologna, Italy; [2]Sapienza University of Rome, Italy; [3]University of Perugia, Italy

B4P-E17 **CNT-Ni-Pd Nanocomposite Films for Optical Gas Sensor**
Elzbieta Czerwosz[2], Wojtek Wlodarski[1]
[1]RMIT Univ., Australia; [2]Tele&RadioResearch Inst., Poland

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

B4P-E19 **Neural Cell Response to Nanostructured Biosensor Surfaces**
Zsófia Bérces[2], ágoston Horváth[2], Attila Jády[1], Anita Pongrácz[2], Emília Madarász[1], Zoltán Fekete[2]
[1]Institute of Experimental Medicine, HAS, Hungary; [2]Research Center for Natural Sciences, HAS, Hungary

B4P-E20 **Design and Development of a 3-Axis Micro Gyroscope with Vibratory Ring Springs**
Yeonhwa Jeon[2], Heejun Kwon[2], Hyeoncheol Kim[2], Sungwook Kim[1]
[1]TLI Inc., Korea, South; [2]Ulsan 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**
Cesar Elosua, Nerea de Acha, Diego Lopez-Torres, Ignacio Matias 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 Hierlemann, *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 Makeenkov[2], Igor Lapitskiy[2], Oleg Kanischev[2], Andrey Somov[1]
[1]CREATE-NET, Italy; [2]FSUE SPA ANALITPRIBOR, Russia

B4P-F02 Graphene-Coated Rayleigh SAW Resonators for No2 Detection

Sanju Thomas[2], Marina Cole[2], Andrea de Luca[1], Felice Torissi[1], Andrea Ferrari[1], Florin Udrea[1], Julian Gardner[2]
[1]Cambridge University, United Kingdom; [2]Warwick 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 Takács[1], Csaba Dücső[2], Zoltán Lábadi[2], Andrea Edit Pap[2]
[1]Institute of Hungarian Academy of Sciences and Budapest University of Technology and Economics, Hungary; [2]Institute of Technical Physics and Materials Science, Hungarian Academy of Sciences, Hungary

B4P-F06 Hydrogen-Induced Dipoles and Sensing Princeples 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 Fonseca[2], Jérôme Rossignol[2], Igor Bezverkhyy[1], Jean Pierre Bellat[1], Didier Stuerga[2], Pierre Pribetich[2]
[1]ASP Dpt. OMR, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France; [2]GERM Dpt. Nanosciences, Laboratoire Interdisciplinaire Carnot de Bourgogne UMR CNRS 6303, France

B4P-F08 Copper Oxide Nanowires for Surface Ionization Based Gas Sensor

Cristina Cerqui[2], Andrea Ponzoni[1], Dario Zappa[2], Elisabetta Comini[2], Giorgio Sberveglieri[2]
[1]CNR, Italy; [2]University of Brescia, Italy

B4P-F09 **Electrode Spacing Effect on LPCVD Monolayer Graphene for Ammonia and Acetone Gas Sensors**

Tsung-Cheng Chen[1], Wei-Tse Lin[1], Tzu-Hao Hung[1], Hui-Ling Liu[1], Chin-Pao Cheng[2], Chun-Hu Cheng[2], Chung-Hung Chen[2], Kuan-I Ho[1], Meng-Chin Su[1], Ming-Yang Shih[1], Chia-Ming Yang[1], Chao-Sung Lai[1]
[1]Chang Gung University, Taiwan; [2]National Taiwan Normal University, Taiwan

B4P-F10 **Development and Application of a Fast Solid-State Potentiometric CO2-Sensor in Thick-Film Technology**

Sven Wiegärtner[3], Jaroslaw Kita[3], Gunter Hagen[3], Christa Schmaus[2], André Kießig[2], Eckard Glaser[1], Armin Bolz[1], Ralf Moos[3]
[1]Corscience GmbH & Co. KG, Germany; [2]Siegert electronic GmbH, Germany; [3]University Bayreuth, Germany

B4P-F11 **Nanostructured Mixed Phase Vanadium Oxide Thin Films As Highly Sensitive Ammonia Sensor Material**

Joni Huotari[2], Robert Bjorklund[1], Jyrki Lappalainen[2], Anita Lloyd Spetz[1]
[1]Linköping University, Sweden; [2]University of Oulu, Finland

B4P-F12 **The Gas Sensing Properties of Porphyrins-Coated Laterally Grown ZnO nanorods**

Corrado Di Natale[2], Yuvaraj Sivalingam[2], Gabriele Magna[2], Luca Businaro[1], Annamaria Gerardino[1], Roberto Paolesse[2], Alexandro Catini[2], Giuseppe Pomarico[2], Francesco Basoli[2]
[1]CNR, Italy; [2]University of Rome Tor Vergata, Italy

B4P-F13 **Fully Printed Electrochemical No2 Sensor**

Petr Kuberský[2], Tomáš Syrový[1], Aleš Hamáček[2], Stanislav Nešpůrek[2], Lucie Syrová[1]
[1]University of Pardubice, Czech Rep.; [2]University of West Bohemia, Czech Rep.

B4P-F14 **CO2 Gas Sensor Based on Mis Structure with LaF3 Layer**

Andrey Varfolomeev[2], Alexey Vasiliev[2], Nikolay Zaretskiy[2], Werner Moritz[1]
[1]Humboldt University of Berlin, Germany; [2]NRC Kurchatov Institute, Russia

B4P-F15 **Acetone and Ethanol Selective Detection by a Single MOX-Sensor**

Alexey Shaposhnik[3], Alexey Zviagin[3], Elena Sizask[3], Stanislav Ryabtsev[4], Alexey Vasiliev[1], Dmitry Shaposhnik[2]
[1]NIC Kurchatov institute, Russia; [2]University Rovira i Virgili, Spain; [3]Voronezh State Agrarian University, Russia; [4]Voronezh 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 Gwizdz[1], Marta Radecka[1], Katarzyna Zakrzewska[1]
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, Audruzis Mironas, Arunas Setkus
Center for Physical Sciences and Technology, Lithuania

B4P-F19 **NOx Sensing Properties of Barium Titanate Thin Films**
Savita Sharma[1], Anjali Sharma[2], Monika Tomar[2], Nitin K. Puri[1], Vinay Gupta[2]
[1]Delhi Technological University, India; [2]University of Delhi, India

B4P-F20 **Mg-MOF74 and Co-MOF74 As Sensing Layers for CO2 Detection**
Olena Yurchenko[2], Venkateswarlu Pentyala[2], Polina Davydovskaya[1], Roland Pohle[1], Gerald Urban[2]
[1]Siemens AG, Germany; [2]University 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 Dhahri[3], Mokhtar Hjiri[2], Lassaad El Mir[1], Anna Bonavita[3], Salvatore Gianluca Leonardi[3], Giovanni Neri[3]
[1]Al Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia; [2] University of Gabes, Tunisia; [3] University 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 Pinna[1], S. Mariotti[1], Gianvito Caputo[1], S.G. Leonardi[2], Mariangela Latino[2], N. Donato[2], S. Trocino[2], G. Neri[2]
[1]Humboldt Universität zu Berlin, Germany; [2]University 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

B4P-G Physical Sensors and Microsystems

Time: Tuesday, September 9, 2014, 16:30 - 18:30
Place: Poster Area
Chair(s): Philippe Robert, *CEA-LETI/MINATEC, Grenoble (France)*
Franz Keplinger, *Vienna University of Technology, Vienna (Austria)*

B4P-G01 High Pressure Sensor with PZT Transducer in LTCC Package
Arkadiusz Dabrowski, Leszek Golonka
Wrocław University of Technology, Poland

B4P-G02 CMOS Image Sensor with Tunable Dynamic Range for Catheter Based endoluminal Applications
Monica Vatteroni, Carmela Cavallotti, Michele Silvestri, Hieu T. Tran, Arianna Menciassi
Scuola Superiore Sant'Anna, Italy

B4P-G03 3-D Silicon Hall Device with Subsequent Magnetic-Field Components Measurement
Siya Lozanova, Svetoslav Noykov, Avgust Ivanov, Georgi Velichkov, Chavdar Roumenin
Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria

B4P-G04 A Novel Orthogonally Activated Double-Hall Device
Siya Lozanova, Svetoslav Noykov, Georgi Velichkov, Avgust Ivanov, Chavdar Roumenin
Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria

B4P-G05 A Novel Coupling of Three-Contact Parallel-Field Hall Devices for Offset Compensation
Siya Lozanova, Svetoslav Noykov, Avgust Ivanov, Georgi Velichkov, Chavdar Roumenin
Institute of Systems Engineering and Robotics at Bulgarian Academy of Sciences, Bulgaria

B4P-G06 Characterization of CMOS MEMS Capacitive Ultrasonic Sensors for Fast Photoacoustic Imaging
Chin-An Kuo, Michael Lu
NTHU, Taiwan

B4P-G07 An Ionic Liquid Based Strain Sensor for Large Displacements
Grim Keulemans, Patrick Pelgrims, Marko Bakula, Frederik Ceyssens, Robert Puers
KU Leuven, Belgium

B4P-G08 A CMOS-MEMS Thermopile with an Integrated Temperature Sensing Diode for Thermometry Applications
Richard Hopper[1], Zeeshan Ali[1], Foysol Chowdhury[1], Andrea De Luca[2], Florin Udrea[2], Julian Gardner[3], Sophie Boual[1]
[1]Cambridge CMOS Sensors, United Kingdom; [2]University of Cambridge, United Kingdom; [3]Warwick University, United Kingdom

B4P-G09 **Terahertz Sensor for Integrated Image Detector**
Volha Varlamava[2], Fabrizio Palma[2], Paolo Nenzi[1], Marco Balucani[2]
[1]ENEA, Italy; [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[2], Elena Laukhina[1], Victor Lebedev[3], Concepcio Rovira[3], Jaume Veciana[3]
[1]CIBER de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Spain; [2]Institució Catalana de Recerca i Estudis Avançats (ICREA), Spain; [3]Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Spain

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

B4P-G12 **A Spiral Spring Resonator for Mass Density and Viscosity Measurements**
Martin Heinisch[1], Stefan Clara[1], Isabelle Dufour[2], Bernhard Jakoby[1]
[1]JKU, Austria; [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 Patela, 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[1], Marco Ferrari[2], Vittorio Ferrari[2], Humberto Campanella[1]
[1]ASTAR IME, Singapore; [2]University of Brescia, Italy

B4P-G15 **Contact Mode MEMS Position Sensors with Piezoresistive Detection**
Vencislav Todorov[2], Galina Stavreva[1], Vladimir Stavrov[1]
[1]AMG Technology Ltd, Bulgaria; [2]Techproject, Austria

B4P-G16 **Micromechanical High-Doses Radiation Sensor with Bossed Membrane and Interferometry Optical Read-Out**
Izabela Augustyniak[3], Katarzyna Sareło[3],Paweł Knapkiewicz[3], Jan Dziuban[3], Emilie Debourg[2], Patrick Pons[2], Michał Olszacki[1]
[1]National Centre for Nuclear Research, Poland; [2]The National Center for Scientific Research, LAAS, France; [3]Wrocław University of Technology, Poland

B4P-G17 **Fabrication of a Smart Suspension Structure of Micro Tactile Probing**
Khalid Alblalaihid
The University of Nottingham, United Kingdom

B4P-G18 **A Selective, Miniaturized, Low-Cost Detection Element for a Photoacoustic CO2 Sensor for Room Climate Monitoring**
Jochen Huber[1], Alexander Ambs[1], Sven Rademacher[1], Jürgen Wöllenstein[2]
[1]Fraunhofer IPM, Germany; [2]IMTEK, University of Freiburg, Germany

B4P-G19 **Ultraviolet Radiation Detection by Barium Titanate Thin Films Grown by Sol-Gel Hydrothermal Method**
Savita Sharma[1], Monika Tomar[2], Nitin K. Puri[1], Vinay Gupta[2]
[1]Delhi Technological university, India; [2]University 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 Szymanska[2], Krzysztof Krogulski[2], Predrag Mikulic[1], Wojtek Bock[1], Mateusz Smietana[2]
[1]Universite du Quebec en Outaouais, Canada; [2]Warsaw 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 Heinisch[1], Alexander Niedermayer[1], Isabelle Dufour[2], Bernhard Jakoby[1]
[1]JKU, Austria; [2]Université 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 Fujita[2], Michael Renaud[1], Martijn Goedbloed[1], Christine de Nooijer[1], Rene Elfrink[1], Geert Altena[1], Rob van Schaijk[1]
[1]Holst Centre / imec, Netherlands; [2]University 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 Houri[2], Denis Aubry[1], Philippe Gaucher[1], Elie Lefeuvre[2]
[1]ECP, France; [2]IEF, 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

B4P-H07 Portable Energy-Logger Circuit for the Experimental Evaluation of Energy Harvesting Solutions from Motion for Wearable Autonomous Sensors
Gabriele Pellegrinelli, Marco Baù, 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. Nastasi[3], Antonino Scuderi[2], Hanns-Erik Endres[1], Waltraud Hell[1], Karlheinz Bock[1]
[1]Fraunhofer Research Institution for Modular Solid State Technologies EMFT, Germany; [2]Qualcomm, United States; [3]STMicroelectronics, 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 Capineri[2], Andrea Bulletti[2], Marco Calzolai[2], Daniele Francesconi[1]
[1]Thales Alenia Space Italia S.p.A, Italy; [2]University 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 Kokolanski[1], Josep Jordana[2], Manel Gasulla[2], Vladimir Dimcev[1], Ferran Reverter[2]
[1]Ss. Cyril and Methodius State University, Macedonia; [2]Universitat 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 Jozwiak[3], Daniel Kopiec[3], Teodor Gotszalk[3], Piotr Grabiec[2], Ivo W. Rangelov[1]
[1]Ilmenau University of Technology, Germany; [2]Institute of Electron Technology, Poland; [3]Wrocław University of Technology, Poland

B4P-J08 **Position Estimation of RFID Based Sensors Using Passive SAW Compressive Receivers**

Martin Brandl, Karlheinz Kellner
Danube University Krems, Austria

B4P-J09 **Arrays of Conformable Ultrasonic Lamb Wave Transducers for Structural Health Monitoring with Real-Time Electronics**

Lorenzo Capineri[2], Andrea Bulletti[2], Marco Calzolai[2], Pietro Giannelli[2], Daniele Francesconi[1]
[1]Thales Alenia Space Italia SpA, Italy; [2]University of Florence, Italy

B4P-J10 **Cross-Talk Characterization of Single-Photon Avalanche Diode (SPAD) Arrays in CMOS 150nm Technology**

Hesong Xu[1], Lucio Pancheri[2], Leo Huf Campos Braga[1], Gian-Fanco Dalla Betta[2], David Stoppa[1]
[1]Fondazione Bruno Kessler, Italy; [2]University 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 Li[1], Wojtek Wlodarski[2], Uwe Marschner[3], Sebastian Sauer[3], Eric Starke[3], Wolf-Joachim Fischer[3]
[1]Infineon AG, Germany; [2]RMIT University, Australia; [3]Technische 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, *Wrocław University of Technology, Wrocław (Poland)*

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

B4P-K02 Wi-Fi Wireless Digital Sensor Matrix for Environmental Gas Monitoring
Nikolay Samotaev[1], Anastasia Ivanova[1], Konstantin Oblov[1], Sergey Soloviev[1], Alexey Vasiliev[2]
[1]National Research Nuclear University MEPhI, Russia; [2]NRC 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 Zambotti[1], Veronica Sberveglieri[4], Emanuela Gobbi[2], Matteo Falasconi[1], Estefania Nunez[3], Andrea Pulvirenti[4]
[1]University of Brescia & CNR INO, Italy; [2]University of Brescia & CNR-INO, Italy; [3]University of Modena and Reggio Emilia & CNR IBF, Italy; [4]University 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 Bernard[3], Marie Gorisse[3], Fabrice Casset[1], Cédrick Chappaz[2], Skandar Basrour[3]
[1]CEA LETI laboratory, France; [2]STMicroelectronics, France; [3]TIMA laboratory, France

B4P-K07 Enzymatically Catalyzed Degradation of Biodegradable Polymers Investigated by Means of a Semiconductor-Based Field-Effect Sensor
Sebastian Schusser[1], Matthias Bäcker[1], Maximilian Krischer[1], Laura Wenzel[1], Marcel Leinhos[1], Arshak Poghossian[1], Manfred Biselli[1], Patrick Wagner[2], Michael Schöning[1]
[1]FH Aachen, Institute of Nano- and Biotechnologies (INB), Germany; [2]Hasselt University, Institute for Materials Research (IMO), Belgium

B4P-K08 **Low Cost, Mobile Sensor System for Measurement of Carbon Dioxide in Permafrost Areas**

Andre Eberhardt[4], Louisa Scholz[4], Sebastian Westermann[5], Torsten Sachs[3], Moritz Langer[1], Jürgen Wöllenstein[2], Stefan Palzer[4]
[1]Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany; [2]Fraunhofer Institute for Physical Measurement Techniques, University of Freiburg, Germany; [3]GFZ German Research Centre for Geosciences, Germany; [4]University of Fr

B4P-K09 **Detection of Smokeless Pyrolysis of Organic Materials by Metal Oxide Gas Sensor**

Nikolay Samotaev[1], Alexey Vasiliev[2], Alexander Pisliakov[2], Andrey Sokolov[2]
[1]National Research Nuclear University MEPhI, Russia; [2]RRC Kurchatov Institute, Russia

B4P-K10 **Innovative IAQ Organic Sensor**

Alessandro Zompanti[1], Simone Grasso[1], Marco Santonico[1], Giorgio Pennazza[1], Mariano Bizzarri[2], Arnaldo D'Amico[3]
[1]University Campus Bio-Medico di Roma, Italy; [2]University La Sapienza, Rome, Italy; [3]University of Rome Tor Vergata, Italy

B4P-K11 **An Investigation Into the Accuracy of Calculating Upper Body Joint Angles Using MARG Sensors**

Evangelos Mazomenos, Dwaipayan 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 Batog[2], Andrzej Wołczowski[1]
[1]Faculty of Electronics, Wrocław University of Technology, Poland; [2]Faculty of Environmental Engineering, Wrocław University of Technology, Poland

B4P-K13 **An Improved Ultrasound System for Biometric Recognition Based on Hand Geometry and Palmprint**

Antonio Iula[1], Gabriel Hine[1], Alessandro Ramalli[2], Francesco Guidi[2]
[1]University of Basilicata, Italy; [2]University of Firenze, Italy

B4P-K14 **Thermal Flow Sensor Based on Printed Circuit Board Technology for Ventilation and Air Conditioning Systems**

Thomas Glatzl[1], Harald Steiner[1], Franz Kohl[1], Franz Keplinger[2], Thilo Sauter[1]
[1]Danube University Krems, Austria; [2]Vienna University of Technology, Austria

B4P-K15 **Fully RF Powered UHF-RFID Sensors Platform**

Francesco Giuseppe Della Corte[2], Corrado Felini[2], Massimo Merenda[1]
[1]mediterranea university, Italy; [2]mediterranea 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 Caputo[2], Giampiero de Cesare[2], Augusto Nascetti[2], Riccardo Scipinotti[2], Fabrizio Pavanello[1], Roberto Arrigoni[1]
[1]Automation srl, Italy; [2]Sapienza, University of Rome, Italy

B4P-K18 **E-Tongue for Ecological Monitoring Purposes: the Case of microcystins Detection**
Larisa Lvova[2], Carla Guanais Branchini[2], Konstantinos Petropoulos[2], Laura Micheli[2], Giulia Volpe[2], Giuseppe Palleschi[2], Emanuela Viaggiù[2], Roberta Congestri[2], Licia Guzzella[1], Fiorenzo Pozzoni[1], Corrado Di Natale[2], Roberto Paolesse[2]
[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
Instituto Politécnico de Leiria, Portugal

B4P-K20 **Thermal Flow Measurements by a Flexible Sensor, Implemented on the External Surface of the Flow Channel**
Anastasios Moschos, Anastasios Petropoulos, Evangelos Zervas, Spyros Athinaios, Grigoris Kaltsas
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, *Wrocław University of Technology, Wrocław (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 Moreira[2], Filipe Serra Alves[2], Rosana Alves Dias[2], Jorge Cabral[2], João Gaspar[1], Luis Alexandre Rocha[2]
[1]International Iberian Nanotechnology Laboratory, Portugal; [2]University 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 Piezoelectic 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 Svilicic[2], Enrico Mastropaolo[1], Rebecca Cheung[1]
[1]University of Edinburgh, Scottish Microelectronics Centre, United Kingdom; [2]University 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 Silva[2], Jose Rodrigues[2], Maria Oliveira[2], Ana Fernandes[2], Sergio Pereira[2], Catarina Costa[2], Mohammadamir Ghaderi[1], Pelin Ayerden[1], Luis Goncalves[2], Ger de Graaf[1], Reinoud Wolffenbuttel[1], Jose Correia[1]
[1]Delft University of Technology, Netherlands; [2]University 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

C1L-A Chemical Sensor Development and Applications

Time: Wednesday, September 10, 2014, 09:00 - 10:30
Place: 'Aula MAGNA' Hall
Chair(s): Wojtek Wlodarski, *RMIT University, Melbourne (Australia)*
Maria Teresa Gomes, *University of Aveiro, Aveiro (Portugal)*

09:00 *Invited Talk*

C1L-A01 **Gas Dependent Changes in the Electrical Behavior of Selective Metal-Oxide Layers**
Janosch Kneer[2], André Eberhardt[2], Jürgen Wöllenstein[1], Stefan Palzer[2]
[1]Fraunhofer Institute for Physical Measurement Techniques, Germany; [2]University of Freiburg - IMTEK, Germany

09:30

C1L-A03 **Miniature Multisensor Probe for Soil Nutrient Monitoring**
Ulrike Lehmann, Alain Grisel
MICROSENS SA, Switzerland

09:45

C1L-A04 **Selective and Sensitive Detection of C3 Molecules with Cu-BTC Metal-Organic Framework by Means of Mass Sensitive and Work Function Based Read-Out**
Polina Davydovskaya[3], Annekathrin Ranft[1], Bettina V. Lotsch[2], Roland Pohle[3]
[1]Max Planck Institute for Solid State Research, Germany; [2]Max Planck Institute for Solid State Research,, Germany; [3]Siemens AG, Germany

10:00

C1L-A05 **Activated Carbon As a Pseudo-Reference Electrode for Potentiometric Sensing Inside Concrete**
Yawar Abbas[1], Farhad Pargar[2], Wouter Olthuis[1], Albert van Den Berg[1]
[1]BIOS-Lab on a Chip Group, MESAplus Institute of Nanotechnology, University of Twente, Netherlands; [2]Delft University of Technology, Netherlands

10:15

C1L-A06 **Detection of Soluble Organic and Inorganic Compounds with an Array of Pure and Blended Optical Reporters**
Corrado Di Natale[2], Carla Guanais Branchini[2], Francesca Dini[2], Ingemar Lundstrom[1], Roberto Paolesse[2]
[1]University of Linkoping, Sweden; [2]University 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, *Wrocław University of Technology, Wrocław (Poland)*

09:00

C1L-B01 Gas Sensor System for the Determination of Methane in Water

Alexey Vasiliev[4], Alexandr Pisliakov[4], Andrey Sokolov[4], Nikolay Samotaev[2], Wojciech Kujawski[3], Anna Rozicka[3], Vittorio Guarnieri[1], Leandro Lorenzelli[1]
[1]Fondazione Bruno Kessler, Italy; [2]National Research Nuclear University MEPhI, Russia; [3]Nicolaus Copernicus University, Poland; [4]NRC Kurchatov Institute, Russia

09:15

C1L-B02 Selective Detection of Hazardous Indoor VOCs Using Metal Oxide Gas Sensors

Martin Leidinger[3], Tilman Sauerwald[3], Thorsten Conrad[1], Wolfhard Reimringer[1], Gabriela Ventura[2], Andreas Schütze[3]
[1]3S - Sensors, Signal processing, Systems GmbH, Germany; [2]IDMEC – Institute of Mechanical Engeneering, Portugal; [3]Saarland University / Lab for Measurement Technology, Germany

09:30

C1L-B03 Nanowire Technology for the Detection of Microorganism in Potable Water

Estefania Núñez Carmona[1], Veronica Sberveglieri[2], Elisabetta Comini[2], Dario Zappa[2], Andrea Pulvirenti[2]
[1]CNR- IBF, Italy; [2]CNR-INO, Italy

09:45

C1L-B04 A MEMS Silicon-Based Piezoelectric AC Current Sensor

Oskar Zbigniew Olszewski[2], Ruth Houlihan[2], Rosemary O'keeffe[2], Mike O'neill[1], Alan Mathewson[2], Finbarr Waldron[2], Nathan Jackson[2]
[1]Analog Device, Ireland; [2]Tyndall National Institute, UCC, Ireland

10:00

C1L-B05 An Optoelectrical, Standard-CMOS-Based Active Catheter Tracking System for MRI

Berk Camli[2], Baykal Sarioglu[1], Arda Deniz Yalcinkaya[2]
[1]Bilgi University, Istanbul, Turkey; [2]Bogazici 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 Lucklum, *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 Borrielli[3], Michele Bonaldi[3], Livia Conti[2], Gregory Pandraud[1], P.M. Lina Sarro[1]
[1]Department of Microelectronics /ECTM/DIMES Technology Centre, Feldmanweg 17, 2628 CT Delft, P.O. Bo, Netherlands; [2]INFN, Sezione di Padova, via Marzolo 8, I-35131 Padova, Italy, Italy; [3]Institute of Materials for Electronics and Magnetism, Nanoscie

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 Fiorentino[1], Waqas Syed[3], Aurele Adam[2], Andrea Neto[3], Pasqualina Sarro[1]
[1]ECTM - TU Delft, Netherlands; [2]TNW - TU Delft, Netherlands; [3]TU - Delft, Netherlands

11:30
C2L-A03 **High Quality Wafer-Scale CVD graphene on Molybdenum Thin Film for Sensing Application**
Yelena Grachova[3], Sten Vollebregt[2], Andrea Leonardo Lacaita[1], Pasqualina M. Sarro[2]
[1]Politecnico di Milano, Italy; [2]TU Delft, Netherlands; [3]TU 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
C2L-B03 **Frequency Up-Converting Vibration Energy Harvester with Multiple Impacting Beams for Enhanced Wideband Operation at Low Frequencies**
Rolanas Dauksevicius[2], Danick Briand[1], Robert Lockhart[1], Andres Vásquez Quintero[1], Nico de Rooij[1], Rimvydas Gaidys[2], Vytautas Ostasevicius[2]
[1]*École Polytechnique Fédérale de Lausanne, Switzerland;*
[2]*Kaunas University of Technology, Lithuania*

11:45
C2L-B04 **Piezoelectric Transformers for Ultra-Low Voltage Energy Harvesting Applications**
Antonio Camarda, Aldo Romani, Marco Tartagni
University of Bologna, Italy

12:00
C2L-B05 **Quasi-Synchronous Charge Extraction for Improved Energy Harvesting from Highly Coupled Piezoelectric Transducers**
Aldo Romani, Matteo Filippi
University of Bologna, Italy

12:15
C2L-B06 **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

C2L-C Optical MEMS and Optical Sensors

Time: Wednesday, September 10, 2014, 11:00 - 12:30
Place: Room N1
Chair(s): Francisco J. Arregui, *Public University of Navarre, Pamplona (Spain)*
Marco Sampietro, *Politecnico di Milano, Milan (Italy)*

11:00
C2L-C01 **Surface-Micromachined Bragg Reflectors Based on Multiple Airgap/SiO2 Layers, for CMOS-Compatible Fabry-Perot Filters in the UV-Visible Spectral Range**
Mohammadamir Ghaderi, Pelin Ayerden, Ger de Graaf, Reinoud Wolffenbuttel
TU Delft, Netherlands

11:15
C2L-C02 **Optrode for multimodal deep-brain infrared stimulation**
Marcell Kiss, Péter Földesy, Zoltán Fekete
Institute for Technical Physics and Material Science, RCNS HAS, Hungary

11:30
C2L-C03 **Laser Light Module with Integrated MEMS Mirror for Autostereoscopic Outdoor Displays**
Jörg Reitterer[1], Franz Fidler[1], Gerhard Schmid[1], Thomas Riel[1], Christian Hambeck[1], Ferdinand Saint Julien-Wallsee[1], Walter Leeb[2], Ulrich Schmid[2]
[1]TriLite Technologies GmbH, Austria; [2]Vienna University of Technology, Austria

11:45
C2L-C04 **Impedance-Based Transparent Monitoring of Light for Local Control of Integrated Photonic Circuits**
Marco Carminati, Stefano Grillanda, Pietro Ciccarella, Francesco Morichetti, Giovanni Bellotti, Davide Bianchi, Giorgio Ferrari, Andrea Melloni, Marco Sampietro
Politecnico di Milano, Italy

12:00
C2L-C05 **Distinctive Optofluidic Parallel Waveguides**
Lip Ket Chin, Yi Yang, Lei Lei, Ai Qun Liu
Nanyang Technological University, Singapore

12:15
C2L-C06 **Design and Fabrication of a Tunable Two-Fluid Micro-Lens Device with a Large Deflection Polymer Actuator**
Florenta Costache, Christian Schirrmann, Kirstin Bornhorst, Boscij Pawlik, Andreas Rieck, Harald Schenk
Fraunhofer Institute for Photonic Microsystems, Germany

C3L-A New Technologies in Sensors and Systems

Time: Wednesday, September 10, 2014, 14:00 - 15:00
Place: 'Aula MAGNA' Hall
Chair(s): Eduard Llobet, *Rovira i Virgili University, Tarragona (Spain)*
Vincenzo Guidi, *University of Ferrara, Ferrara (Italy)*

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[3], Aldo Romani[3], Ningning Wang[2], Saibal Roy[2], Michael Hayes[2], Rudi Paolo Paganelli[1], Marco Tartagni[3]
[1]National Research Council, Italy; [2]Tyndall National Institute, Ireland; [3]University of Bologna, Italy

14:15

C3L-A02 **Stress-Unsusceptible Pressure Sensors Embedded in Fiber Composite**

Martin Schwerter[2], 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

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

14:45

C3L-A04 **Energy Harvesting from Piezoelectric Textile Fibers**

Erik Nilsson[2], Loreto Mateu[1], Peter Spies[1], Bengt Hagstrom[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)*

14:00

C3L-B01 **A Novel Architecture for Differential Resonant Sensing**
Jérôme Juillard[1], Alain Bonnoit[1], Nuria Barniol[2], Arantxa Uranga[2], Gabriel Vidal-Alvarez[2]
[1]SUPELEC, France; [2]UAB, Spain

14:15

C3L-B02 **Multi-Channel Very-Low-Noise Current Acquisition System with on-Board Voltage Supply for Sensor Biasing and Readout**
Augusto Nascetti[1], Germano Colonia[1], Domenico Caputo[1], Michele Tavernelli[2], Pisana Placidi[2], Andrea Scorzoni[2], Giampiero de Cesare[1]
[1]Sapienza University of Rome, Italy; [2]University of Perugia, Italy

14:30

C3L-B03 **Optimal Parameter Estimation Method for Different Types of Resonant Liquid Sensors**
Thomas Voglhuber-Brunnmaier[1], Martin Heinisch[1], Alexander O. Niedermayer[1], Ali Abdallah[1], Roman Beigelbeck[2], Bernhard Jakoby[1]
[1]Johannes Kepler University Linz, Austria; [2]Vienna University of Technology, Austria

14:45

C3L-B04 **Advances in Signal Acquisition and Signal Processing of Coriolis Flow Meters**
Jürgen Ruoff[1], Wolfgang Gauchel[1], Heinz Kück[2]
[1]Festo AG & Co. KG, Germany; [2]Insitute of Microintegration, University of Stuttgart, Germany

C3L-C Actuators, Micromechanisms and Micromachines

Time: Wednesday, September 10, 2014, 14:00 - 15:00
Place: Room N1
Chair(s): David Elata, *Technion - Israel Institute of Technology, Haifa (Israel)*
Leszek Golonka, *Wrocław University of Technology, Wrocław (Poland)*

14:00
C3L-C01 **Selective Stiffening for Producing Motion Conversion Mechanisms**
Inbar Hotzen, Orna Ternyak, Shai Shmulevich, David Elata
Technion - Israel Institute of Technology, Israel

14:15
C3L-C02 **High Frequency 1D Piezoelectric Resonant MICROSCANNERS with Large Displacements**
Shanshan Gu-Stoppel, Joachim Janes, Hans-Joachim Quenzer, Christian Eisermann, Felix Heinrich, Wolfgang Benecke
Fraunhofer ISIT, Germany

14:30
C3L-C03 **Piezoelectrically Actuated Linear Resonators on Ring-Shaped Suspensions for Application in MEMS Phase-Sensitive Gyroscope**
Sergey Gorelick, James Dekker, Bin Guo, Henry Rimminen
VTT Technical Research Centre of Finland, Finland

14:45
C3L-C04 **Strain-Enhanced Nanocomposites of Electrostrictive Polymers and High-K Nanofillers for Micro-Actuation Applications**
Florenta Costache, Boscij Pawlik, Christian Schirrmann, Kirstin Bornhorst
Fraunhofer Institute for Photonic Microsystems, Germany

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