Welcome to Catania, Italy, for the 2016 IEEE Sensors Applications Symposium

Welcome to the 11th IEEE Sensors Applications Symposium in Catania, Sicily, Italy!

Catania is a warm city, filled with ancient Roman and Greek archeological sites and with beautiful baroque churches and buildings, that lays between the Etna volcano and the Ionian sea. The historical center of the city and the volcano have been included in the list of UNESCO World Heritage.

IEEE Sensors Applications Symposium (SAS) is one of the flagship conferences of the IEEE Instrumentation and Measurement Society which brings together the community of sensor developers, innovators and users, and provides a forum for exploring new applications in sensor technology. This year's conference continues the series that has seen SAS being previously held in Europe, USA, and Oceania.

The conference focus is toward all the aspects related to sensors, sensing methodologies, sensor fabrication technologies and sensors applications. In these previous years we strived to improve the review process, aiming both to increase the quality of the papers accepted and to avoid excessive burden for the authors. In fact, this year we have adopted a full review process allowing only minor revision that we believe has reached the goal as stated. We ended with 97 papers accepted over a total of 125 submissions. The whole Steering Committee is committed to continue making improvements to the review process and the overall quality of future conferences.

This year we organized the program by scheduling two poster sessions in addition to two parallel sessions, in order to allow more opportunities for the attendees to interact in front of posters and to ease the fruition of oral presentations.

Four Special Sessions have been included in the program (and for this we would like to thank the organizers) that cover key aspects in the sensor applications areas such as: magnetic sensors, assisted technology, Internet of Things, and distributed measurement systems.

As a new initiative we also have a separate poster session, which brings papers accepted after the submission of extended abstracts to the "Recent Results" Call for Papers, which will foster further interactions and discussion between interested authors and attendees.

SAS 2016 will have three plenary talks given by experts from industry and academia that will cover strategic topics for researchers in the sensors area: on integrated sensors applications, next generation telecom services based on sensor applications, and basic research of the sensing principles.

In addition to the three technical keynote speeches this year in the land of the Etna, UNESCO World Heritage, we will also have a special invited speech, a combination of science and passion, to uncover the beauty and the temper of the volcano.

Papers presented this year cover a broad range of topics including magnetic sensing and measurements, nondestructive evaluation and remote sensing, integrated system health management, sensor arrays and multi-sensor data fusion, microsensors, wireless sensor networks, sensors for health monitoring, sensors for smart building and home automation, and sensors applications in agriculture and environment monitoring.

As satellite events, SAS 2016 hosts the Third Sensor Application Development Workshop, which promotes the development of applications on the Sensibility Testbed (a platform for sharing smartphone sensor data between researchers), as well as the First Indoor

Localization challenge that will involve interested participants in the development of effective solutions for smartphone assisted navigation without the aid of GPS.

We are proud to observe that IEEE SAS 2016 participants arrive from several different Continents to continue upholding the international level of the conference.

An international Technical Program Committee of about 200 reviewers, ably led by our Technical Program Committee Co-Chairs, has been responsible for the assessment of the quality and the selection of the papers that are being presented at this conference.

The organization has made all the efforts to make these three days full of events, stimulating and fruitful for all the attendees engaged with the sensor applications community.

As always, we value your suggestions for improving SAS, and we encourage you to provide feedback to the organizers. The size and format of this symposium is meant to encourage informal interactions – so please take advantage of this special environment at SAS.

The IEEE SAS 2016 General Co-Chairs
Salvatore Baglio & Gourab Sen Goupta

Some of the SAS 2016 highlights include:

- Three plenary talks providing insights to sensor research, industry leadership and new business models for massive sensor applications
- Four Special Sessions
- Parallel events (sensor workshop, localization challenge)
- The welcome reception on Wednesday evening at the Scenario Pubblico venue, with a special invited speech on the volcano Etna
- The banquet on Thursday evening at the beautiful Palazzo Manganelli
- Travel and best-paper awards presented to student authors, with the support of the IEEE Instrumentation & Measurement Society
- A Special Issue in the IEEE Transactions on Instrumentation & Measurement which will contain extended papers selected on the basis of the results of regular peer review of the manuscripts submitted for consideration by the participants of SAS 2016

About Catania, our host city, and its region:
Sicily is that enchanted island where you can enjoy traveling both in time and space. In few kilometers you will pass from ancient Greek and Romans archeological remains to beautiful baroque buildings, from sandy beaches and rocky coast to the "lunar landscape" of the highest active volcano in Europe.

Catania lays in the Eastern coast of Sicily between the volcano Etna and the sea, it is the second largest city in Sicily. The city dates back to 729 b.C. and brings witnesses of several cultures that succeeded in the domination during centuries. Catania was almost totally destroyed by the devastating eruption of 1669 and by a terrible earthquake 24 years after. However the city was rebuilt with a modern plan and several beautiful baroque buildings have been included.

Catania is home of the oldest University in Sicily (1434) and its historical center, characterized by the use of black volcanic rock, has been added to the list of UNESCO World Heritage in 2002. Nowadays Catania is a vibrant modern city that proudly brings all the signs of its traditions in the culture, in the language, in the folklore, in the cuisine and in the warmth of the people.

Symposium History

SAS 2015
April 13-15, 2015 | Zadar, Croatia

SAS 2014
February 18-20, 2014 | Queenstown, New Zealand

SAS 2013
February 19-21, 2013 | Galveston, Texas

SAS 2012
February 7-9, 2012 | Brescia, Italy

SAS 2011
February 22-24, 2011 | San Antonio, Texas

SAS 2010
February 23-25, 2010 | Limerick, Ireland

SAS 2009
February 17-19, 2009 | New Orleans, Louisiana

SAS 2008
February 12-14, 2008 | Atlanta, Georgia

SAS 2007
February 6-8, 2007 | San Diego, California

SAS 2006
February 7-9, 2006 | Houston, Texas

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Gourab Sen Gupta, Massey University, New Zealand

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Stephanie Parragh, AIT Austrian Institute of Technology GmbH, Austria
Luca Pernini, Università Politecnica delle Marche, Italy
Fabio Piccinelli, CERN - University of Brescia, Switzerland
Antonio Pistorio, University of Catania, Italy
Ian Platt, Lincoln Agritech Ltd, New Zealand
Rodrigo Porto, UFRGS, Brazil
Peter Priller, AVL List GmbH, Austria
Matthew Pugh, Sandia National Laboratories, USA
Amir-Mohammad Rahmani, University of Turku, Finland
Konstantinos Rantos, Eastern Macedonia and Thrace Institute of Technology, Greece

Conference Management:

Conference Venue

Venue: Museo Diocesano
Piazza Duomo
Via Etnea, 8, 95121 Catania CT, Italy

Social Events

Welcome Reception
Venue: Scenario Pubblico
Via Teatro Massimo, 16, Catania CT, Italy
Wednesday, April 20: 18:30 - 21:30
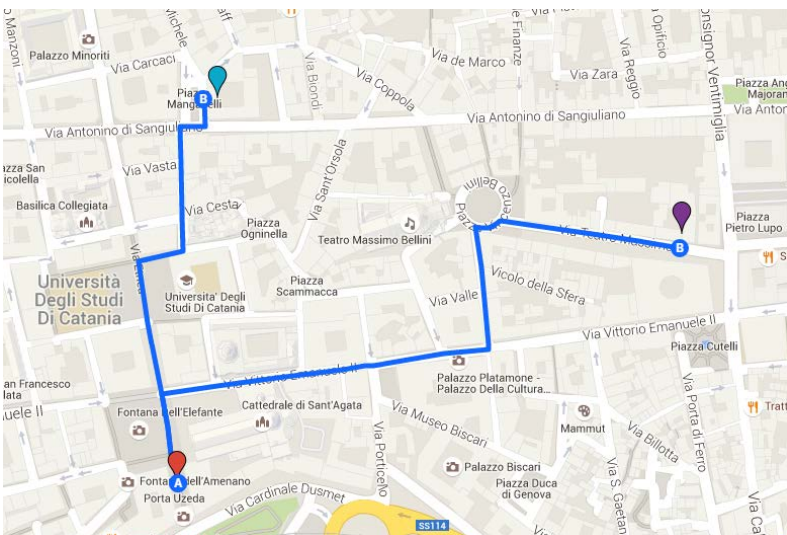Dr. Boris Behncke, a Volcanologist who merges science with a deep passion for our volcano, will be giving an informal speech called "Etna 2016 - a kaleidoscope of volcanic tempers".

Gala Dinner & Awards
Venue: Palazzo Manganelli
Piazza Manganelli, 16, Catania CT, Italy
Thursday, April 21: 19:00 to 23:00

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Plenary Speakers

Dr. Ernesto Lasalandra, STMicroelectronics

Topic:
The sensor world beyond Motion MEMS

Abstract:
From the Nintendo Wii—arguably the first mass consumer-market product enabled by MEMS and Sensors—to Smartphones, which have been the most recent high-volume driver of MEMS and Sensor adoption, we have seen dramatic growth and change in the marketplace. Still, while we're far from exhausting the potential of existing MEMS in existing and derivative applications, the best is yet to come. The next wave of MEMS development is moving toward actuation and, while the ripples from these beautiful little machines have been building slowly for years, as they converge with those from the Internet of Things, the ride is about to get more exciting! Some examples of what we are seeing as first applications include tiny mirrors that enable people to interact more naturally with technology, smaller, faster autofocus solutions for cellphones and new types of printheads for 3D printing - and this is just the beginning.

Speaker Biography:
Ernesto Lasalandra was born in Broni, Italy, in 1972, and graduated with a degree in Electronic Engineer from the University of Pavia, Italy. He joined STMicroelectronics in 1998 in the team that started the MEMS adventure. In few years under his technical guidance on MEMS design and electronic design ST three axis accelerometers and three axis gyroscopes changed the user interfaces world. Ernesto has piloted successful stories with microphones, magnetic sensors, environmental sensors, mirrors, actuators and touch sensors. He has numerous papers and publications on MEMS area. Currently he is Analog & MEMS Group R&D General Manager.

Dr. Ricardo Jardim Goncalves, Universidade Nova de Lisboa

Topic:
Digital and Sensing Enterprise: Applying sensors in the Internet of Everything

Abstract:
The emerging concept of Digital Enterprise is foreseen as an organization that uses digital technology in its internal and external operations. The Sensing Enterprise notion has been emerging with the evolution of the Internet of Things (IoT), when sensors, smart objects, equipment, and technological infrastructures will exhibit advanced networking and processing capabilities, actively seamless cooperating within the enterprise. Nevertheless, Internet of Everything (IoE) has been defined as the framework suitable to bring together people, process, data, and things to make networked connections more relevant and valuable than ever before. The speech will address the actual developments and trends in the domain of Digital and Sensing Enterprise, and will give insights on the point of view of the speaker concerning the realization of these concepts in the advent of the Internet of Everything.

Speaker Biography:
Ricardo Jardim-Goncalves holds a PhD degree and received his habilitation (*Agregação*) in Industrial Information Systems by the New University of Lisbon (UNL). He is an Associate Professor at the New University of Lisbon, Faculty of Sciences and Technology, and a Senior Researcher at UNINOVA – Instituto de Desenvolvimento de Novas Tecnologia. He has graduated in Computer Science, with MSc in Operational Research and Systems Engineering. His research activities have been focused on Interoperability of Complex Systems and Internet of Things. He has been researching in European Commission funded projects during the last 25years, with more than 300 papers published in conferences, journals and books. He directs GRIS (GRupo para a investigação em Interoperabilidade de Sistemas; Group for Research in Interoperability of Systems) at UNINOVA (Instituto para o Desenvolvimento de Novas Tecnologias), CTS (Centro para as Tecnologias e Sistemas). He is a project leader in ISO TC184/SC4.

Dr. Vincenzo Sacco, Melexis

Topic:
Sensors architectures for safety critical applications

Abstract:
Over the last decades, the industry has provided a steady improvement in the safety of automobiles. Advances in modern electronics have accelerated the number and features of safety systems. Semiconductor devices, sensors, actuators and computer controlled systems with complex software are integral to these system designs.

This increasing complexity drives the need for a new paradigm for safety systems development and engineering to achieve their function. ISO-26262 "Road vehicles — Functional Safety" provides appropriate standardized requirements, processes and an automotive-specific risk-based approach to determine integrity levels, also known as Automotive Safety Integrity Levels or ASILs. ASILs are used to specify applicable requirements of the ISO-26262 standard so as to avoid unreasonable residual risk;
Smart integrated sensors in particular, are used extensively in automotive safety-critical applications (throttle valve position, braking and acceleration pedal angle, object distance detection for emergency braking, ignition key switch and many others …). In vision of the increase complexity and application scenario, the functional and safety requirements allocated to these sensors demand therefore innovative architectures.

This presentation will review some of the existing architectures in and improvements proposals needed to meet the new stringent safety targets in vision of the autonomous driving era.

Speaker Biography:
Dr. Vincenzo Sacco received his PhD in 2006. He wrote his thesis on "magnetic micro-sensors in Mems and CMOS technologies". He has authored 40 papers and 1 patent. He has developed his career in Melexis: Analog Design Engineer (1y), Project Manager (3y), Program Manager (3y), Global Functional Safety Manager (2y). Today he is responsible for coordinating the global Functional Safety Program in Melexis (ensure implementation of ISO 26262, ensure FS competencies development in all Melexis development sites, ensure product development according to safety standards). He is accountable for enhancing System Engineering competencies, practises, methods, tools and techniques as well as for enhancing Project Management competencies, practises, methods, tools and techniques. He is also a member of Melexis Development Staff.

Conference Grid: Wednesday, April 20th, 2016	
08:00 09:00	Registration
09:00 09:30	Opening Ceremony *Pinacoteca*
09:30 10:30	Keynote: Ernesto Lasalandra *Pinacoteca*
10:30 11:00	Coffee Break / EXHIBITORS *Cafeteria and terrace*
11:00 12:20	Parallel Oral Sessions W11/W12 *Pinacoteca & Sala Polifunzionale*
12:20 14:00	Lunch / EXHIBITORS *Cafeteria and terrace*
14:00 15:20	Parallel Oral Sessions W21/W22 *Pinacoteca & Sala Polifunzionale*
15:20 16:00	Coffee Break / EXHIBITORS *Cafeteria and terrace*
16:00 17:20	Parallel Oral Sessions W31/W32 *Pinacoteca & Sala Polifunzionale*
18:30 21:30	**Welcome Reception** Venue: Scenario Pubblico *Invited Speech: Boris Behncke* ***"Etna 2016 - a kaleidoscope of volcanic tempers"***

Conference Grid: Thursday, April 21st, 2016		
08:00 08:30	Registration	
08:30 09:30	Keynote: Ricardo Goncalves *Pinacoteca*	Workshop
09:30 10:00	Coffee Break / EXHIBITORS *Cafeteria and terrace*	
10:00 11:20	Parallel Oral Sessions T11/T12 *Pinacoteca & Sala Polifunzionale*	Workshop
11:20 12:40	Parallel Oral Sessions T21/T22 *Pinacoteca & Sala Polifunzionale*	
12:40 14:00	Lunch / EXHIBITORS *Cafeteria and terrace*	
14:00 14:30	"Late Results" Poster Session *Sala IV*	Workshop
14:30 15:30	Keynote: Vincenzo Sacco *Pinacoteca*	
15:30 15:40	IEEE SAS 2017 Presentation	
15:40 16:10	Coffee Break / EXHIBITORS *Cafeteria and terrace*	
16:10 17:30	Parallel Oral Sessions T31/T32 *Pinacoteca & Sala Polifunzionale*	Workshop
19:00 23:00	**Gala Dinner** Venue: Palazzo Manganelli Award Ceremony	

Conference Grid: Friday, April 22nd, 2016		
08:00 08:30	Registration	
08:30 09:30	Posters P1 *Sala IV*	Localization challenge
09:30 10:00	Coffee Break / EXIBITORS *Cafeteria and terrace*	
10:00 11:20	Parallel Oral Sessions F11/F12 *Pinacoteca & Sala Polifunzionale*	Localization challenge
11:20 12:40	Parallel Oral Sessions F21/F22 *Pinacoteca & Sala Polifunzionale*	
12:40 14:00	Lunch / EXHIBITORS *Cafeteria and terrace*	
14:00 14:30	Demo Session *Sala IV*	Localization challenge
14:30 15:30	Poster P2 *Sala IV*	
15:30 16:00	Coffee Break / EXHIBITORS *Cafeteria and terrace*	
16:00 17:20	Parallel Oral Sessions F31/F32 *Pinacoteca & Sala Polifunzionale*	Localization challenge
17:20 17:45	"Best Poster Award" Closing Ceremony *Pinacoteca*	

Wednesday, April 20

08:00 - 09:00
Registration

09:00 - 09:30
Opening Ceremony
Room: Pinacoteca

09:30 - 10:30
Keynote Presentation I: The sensor world beyond Motion MEMS
Ernesto Lasalandra, STMicroelectronics
Chair: Salvatore Baglio (University of Catania, Italy)
Room: Pinacoteca

10:30 - 11:00
Coffee Break/Exhibitors
Room: Cafeteria and terrace

11:00 - 12:20
SPECIAL SESSION: Magnetic sensors and applications 1
Chair: Claire Baraduc (Spintec (CEA/CNRS), France)
Room: Pinacoteca

11:00 **Modelling the inductance of a novel eddy-current position sensor for high-precision applications**
Johan Vogel (Delft University of Technology, The Netherlands)
Stoyan Nihtianov (Delft University of Technology, The Netherlands)

11:20 **A spinning current circuit for nanotesla range resolution in Hall measurements**
Vincent Mosser (Issy Technology Center & Itron France, France)
Nicolas Matringe (Alciom, France)

11:40 **A Particle Filter for 2D Indoor Localization Relying on Magnetic Disturbances and Magnetic-Inertial Measurement Units**
Gabriele Ligorio (Scuola Superiore Sant'Anna, Italy)
Angelo Sabatini (Scuola Superiore Sant'Anna, Italy)

12:00 **Noise Study of Open-loop Direct Current-Current Transformer using Magneto-Resistance Sensors**
Eman Soliman (German University in Cairo, Egypt, Germany)
Klaus Hofmann (TU Darmstadt, Germany)
Hansjörg Reeg (GSI, Germany)
Marcus Schwickert (GSI, Germany)

Wednesday, April 20

11:00 - 12:20
SPECIAL SESSION: Ultra Low power sensing for Internet of Things
Chairs: Davide Brunelli (University of Trento, Italy) & Michele Magno (ETH Zurich and University of Bologna, Switzerland)
Room: Sala Polifunzionale

11:00   **A wake-up receiver with ad-hoc antenna co-design for wearable applications**
Tommaso Polonelli (University of Bologna, Italy)
Trinh Le Huy (LEAT,Sophia Antipolis University of Nice, France)
Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France)
Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France)
Michele Magno (ETH Zurich and University of Bologna, Switzerland)

11:20   **Energy neutral 32-channels embedded readout system for IoT-ready fitness equipments**
Maurizio Rossi (University of Trento, Italy)
Aziz Khouia (University of Trento, Italy)
Leandro Lorenzelli (FBK-Center for Materials and Microsystems, Italy)
Davide Brunelli (University of Trento, Italy)

11:40   **Experimental Validation of Opportunistic Direct Interconnection between different Wireless Sensor Networks**
Krongboon Singhanat (University of Southampton, United Kingdom)
Nick Harris (University of Southampton, United Kingdom)
Geoff V Merrett (University of Southampton, United Kingdom)

12:00   **A Smart Sensor for Precision Agriculture Powered by Microbial Fuel Cells**
Davide Sartori (University of Trento, Italy)
Davide Brunelli (University of Trento, Italy)

12:20 - 14:00
Lunch/Exhibitors
Room: Cafeteria and terrace

14:00 - 15:20
Energy harvesting and low power sensing
Chair: Carlo Trigona (University of Catania, Italy)
Room: Sala Polifunzionale

14:00   **A Low Threshold Bistable Device for Energy Scavenging from Vibrations**
Bruno Andò (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)
Vincenzo Marletta (University of Catania, Italy)
Antonio Pistorio (University of Catania, Italy)
Adi R. Bulsara (Space and Naval Warfare Center (San Diego), USA)

14:20   **Vibration-based Transducer for Zero Energy standby applications**
Carlo Trigona (University of Catania, Italy)
Roberto La Rosa (St Microelectronics, Italy)
Giulio Zoppi (STMicroelectronics, Italy)
Bruno Andò (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)

14:40   **A self-powered WSAN for energy efficient heat distribution**
Alfredo D'Elia (University of Bologna, Italy)
Luca Perilli (University of Bologna, Italy)
Fabio Viola (University of Bologna, Italy)
Luca Roffia (University of Bologna, Italy)
Francesco Antoniazzi (University of Bologna, Italy)
Roberto Canegallo (ST Microelectronics, Italy)
Tullio Salmon Cinotti (University of Bologna, Italy)

15:00   **An All-Digital Voltage Sensor for Static Voltage Drop Measurements**
Ching-Che Chung (National Chung Cheng University, Taiwan)
Mei-I Sun (National Chung Cheng University, Taiwan)

14:00 - 15:20
Sensors for Medical, Biomedical, and Healthcare Systems 1
Chair: Alessandro Depari (University of Brescia, Italy)
Room: Pinacoteca

14:00   **Functional characterization of developing heart in embryos using Electric Potential Sensors**
Elizabeth Rendon-Morales (University of Sussex & Sensor Technology Research Center, United Kingdom)
Robert Prance (University of Sussex, United Kingdom)
Helen Prance (University of Sussex, United Kingdom)
Rodrigo Aviles-Espinosa (Institute of Photonic Sciences, Spain)

14:20   **Glucose sensing electrode system based on polymeric microneedles**
Principia Dardano (IMM-CNR, IMAST scarl, Italy)
Alessandro Caliò (IMM-CNR, IMAST scarl, University of Naples "Federico II" Italy)
Vincenza Di Palma (IMAST scarl, ST Microelectronics, Italy)
Maria Fortuna Bevilacqua (IMAST scarl, STMicroelectronics, Italy)
Andrea Di Matteo (IMAST scarl, ST Microelectronics, Italy)
Luca De Stefano (IMM-CNR, IMAST scarl, Italy)

14:40   **High-Sensitivity Polymer Fibre Bragg Grating Sensor for Biomedical Applications**
Kishore Bhowmik (University of New South Wales, Australia)
Eliathamby Ambikairajah (University of New South Wales, Australia)
Gang-Ding Peng (University of New South Wales, Australia)
Yanhua Luo (University of New South Wales, Australia)
Ginu Rajan (University of Wollongong, Australia)

15:00   **Finding Features for Premature Ventricular Contraction Classification Using Wavelet Transform**
Haolin Chong (Sensors Network and Applications Research Center, UCAS, P.R. China)
Yingfei Sun (Sensors Network and Applications Research Center, UCAS, P.R. China)
Lianying Ji (Sensors Network and Applications Research Center, UCAS, P.R. China)
Jiankang Wu (Sensors Network and Applications Research Center, UCAS, P.R. China)

Wednesday, April 20

15:20 - 16:00
Coffee Break/Exhibitors
Room: Cafeteria and terrace

16:00 - 17:20
New Sensing and Transduction Methodologies and Devices
Chair: Vedran Bilas (University of Zagreb, Croatia)
Room: Sala Polifunzionale

16:00   **Analog current-mode interfaces for differential capacitance sensing**
Giuseppe Ferri (University of L'Aquila, Italy)
Francesca Romana Parente (University of L'Aquila, Italy)
Vincenzo Stornelli (University of L'Aquila, Italy)

16:20   **A Modified RDC with an Auto-Adjustable SC Source Enabled Auto-Calibration Scheme**
Rohit Gupta (Indian Institute of Technology Madras, India)
Vijayakumar Sreenath (Indian Institute of Technology Madras, India)
Boby George (Indian Institute of Technology Madras India)

16:40   **A Precise Converter for Resolvers and Sinusoidal Encoders Based on a Novel Ratiometric Technique**
Asem Khattab (Qatar University, Qatar)
Sharief Saleh (Qatar University, Qatar)
Mohieddine Benammar (Qatar University, Qatar)
Faycal Bensaali (Qatar University, Qatar)

17:00   **A Single Magnetic Nanocomposite Cilia Force Sensor**
Ahmed Alfadhel (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)
Mohammed Asadullah Khan (King Abdullah University of Science and Technology, Saudi Arabia)
Susana Cardoso (INESC-Microsystems and Nanotechnologies (INESC-MN), Universidade de Lisboa, Lisbon, Saudi Arabia)
Jürgen Kosel (King Abdullah University of Science and Technology, Saudi Arabia)

Wednesday, April 20

16:00 - 17:20
Ultrasound sensors and fluid characterisation
Chair: Vincenzo Marletta (University of Catania, Italy)
Room: Pinacoteca

16:00   **Ultrasonic Level Sensors for Flowmetering of non-Newtonian Fluids in Open Venturi Channels**
Khim Chhantyal (University College of Southeast Norway, Norway)
Håkon Viumdal (University College of Southeast Norway, Norway)
Saba Mylvaganam (University College of Southeast Norway, Norway)
Geir Elseth (Statoil, Norway)

16:20   **Automated Detection of Compressed Air Leaks Using a Scanning Ultrasonic Sensor System**
Thomas Guenther (University of Kassel, Germany)
Andreas Kroll (University of Kassel, Germany)

16:40   **Ultrasonic Transducer Positioning System for Clamp-on Flowmeter Applications**
Anett Bailleu (HTW Berlin & University of Applied Science, Germany)

17:00   **Flow-Viz - An integrated digital in-line fluid characterization system for industrial applications**
Valentino Meacci (University of Florence, Italy)
Stefano Ricci (University of Florence, Italy)
Beat Birkhofer (Sika Services AG, Switzerland)
Reinhardt Kotzé (FPRC, Cape Peninsula University of Technology, South Africa)
Johan Wiklund (SP-Technical Research Institute of Sweden, Sweden)

18:30 - 21:30
Welcome Reception
Venue: Scenario Pubblico

08:00 - 08:30
Registration

08:30 - 09:30
Keynote Presentation II: Digital and Sensing Enterprise: Applying sensors in the Internet of Everything
Ricardo Jardim Gonçalves, Universidade Nova de Lisboa
Chair: Vedran Bilas (University of Zagreb, Croatia)
Room: Pinacoteca

08:30 - 09:30
Sensor Application Development Workshop

09:30 - 10:00
Coffee Break/Exhibitors
Room: Cafeteria and terrace

10:00 - 12:40
Sensor Application Development Workshop

10:00 - 11:20
SPECIAL SESSION: Magnetic sensors and applications 2
Chair: Vincent Mosser (Issy Technology Center, France)
Room: Pinacoteca

10:00   **Hybrid magnetic composite (HMC) materials for sensor applications**
Luca Ferraris (Politecnico di Torino, Italy)
Fausto Franchini (Politecnico di Torino, Italy)
Emir Pošković (Politecnico di Torino, Italy)

10:20   **Low-cost dual-axes fluxgate sensor with a flat field-annealed magnetic core**
Vojtech Petrucha (Czech Technical University in Prague & Faculty of Electrical Engineering, Czech Republic)

10:40   **Towards digital fundamental mode orthogonal fluxgate**
Mattia Butta (Czech Technical University in Prague, Faculty of Electrical Engineering, Czech Republic)

11:00   **High sensitivity magnetic field sensor for spatial applications**
Claire Baraduc (Spintec (CEA/CNRS), France)
Amandine Bocheux (LPC2E, CNRS, France)
Claude Cavoit (LPC2E, CNRS - Université D'Orléans, France)
Myckael Mouchel (Crocus Technology, France)
Clarisse Ducruet (Crocus Technology, France)
Romain Fons (Spintec, France)
Philippe Sabon (Spintec, France)
Ioan-Lucian Prejbeanu (Spintec, France)

Thursday, April 21

10:00 - 11:20
SPECIAL SESSION: Sensors and sensing system for Assistive Technology
Chair: Vincenzo Marletta (University of Catania, Italy)
Room: Sala Polifunzionale

10:00 **Contactless Fever Measurement based on Thermal Imagery Analysis**
Jörg Güttler (Technische Universität München, Faculty of Architecture, Germany)
Christos Georgoulas (Technische Universität München & Chair for Building Realization and Robotics, Germany)
Thomas Bock (Technische Universität München, Germany)

10:20 **The Application of Security Adaptive Framework for Sensor in Industrial Systems**
Bruno A. Mozzaquatro (Universidade Nova de Lisboa, Portugal)
Raquel Melo (UNINOVA, Portugal)
Carlos Agostinho (UNINOVA, Portugal)
Ricardo J Goncalves (Universidade Nova de Lisboa, Portugal)

10:40 **A Multisensor Approach to Perform Instrumented Postural Instability Tests for Patient with Parkinson Disease**
Bruno Andò (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)
Cristian O. Lombardo (University of Catania, Italy)
Vincenzo Marletta (University of Catania, Italy)
Valeria Dibilio (AOU Policlinico Vittorio Emanuele of Catania, Italy)
G. Mostile (AOU Policlinico Vittorio Emanuele of Catania, Italy)
Alessandra Nicoletti (AOU Policlinico Vittorio Emanuele of Catania, Italy)
Mario Zappia (AOU Policlinico Vittorio Emanuele of Catania, Italy)

11:00 **IPv6 WSN Solution for Integration and Interoperation Between Smart Home and AAL Systems**
Lorenzo Palma (Università Politecnica delle Marche, Italy)
Luca Pernini (Università Politecnica delle Marche, Italy)
Alberto Belli (Università Politecnica delle Marche, Italy)
Simone Valenti (Università Politecnica delle Marche, Italy)
Lorenzo Maurizi (Università Politecnica delle Marche, Italy)
Paola Pierleoni (Università Politecnica delle Marche, Italy)

Thursday, April 21

11:20 - 12:40
Capacitive and inductive sensing
Chair: Mattia Butta (Czech Technical University in Prague, Faculty of Electrical Engineering, Czech Republic)
Room: Sala Polifunzionale

11:20   **Finite Element Analysis of Differential Capacitive PUF Sensors**
Cyril Baby K (Technische Universität München, Germany)
Sithu Aung (Technische Universität München, Germany)
Norbert Schwesinger (Technische Universität München, Germany)

11:40   **Application of Capacitive-Based Contact Sensing for a new Medical Instrument**
Nazir Kamaldin (National University of Singapore, Singapore)
Kok Kiong Tan (National University of Singapore, Singapore)
Wenyu Liang (National University of Singapore, Singapore)
Chee Wee Gan (Yong Loo Lin School of Medicine, National University of Singapore, Singapore)
Hsueh Yee Lim (Yong Loo Lin School of Medicine, National University of Singapore, Singapore)

12:00   **Evaluation of the Thin-Skin Approximation Boundary Element Method for Electromagnetic Induction Scattering Problems**
Michael O'Toole (University of Manchester, United Kingdom)
John Davidson (University of Manchester, United Kingdom)
Liam Marsh (University of Manchester, United Kingdom)
Wuliang Yin (The University of Manchester, United Kingdom)
Anthony Peyton (University of Manchester, United Kingdom)

12:20   **Estimating Directional Magnetic Polarizabilities of Metallic Objects Using Planar Time-Domain Electromagnetic Induction Sensor**
Davorin Ambruš (University of Zagreb, Croatia)
Darko Vasić (University of Zagreb, Croatia)
Vedran Bilas (University of Zagreb, Croatia)

Thursday, April 21

11:20 - 12:40
Sensors for Medical, Biomedical, and Healthcare Systems 2
Chair: Gourab Sen Gupta (Massey University, New Zealand)
Room: Pinacoteca

11:20 **Detection of Allergen-IgE interaction in Allergic Children Through Impedance Measurements**
Simona Barni (Meyer, Italy)
Ada Fort (University of Siena, Italy)
Marco Mugnaini (University of Siena, Italy)
Neri Pucci (Meyer, Italy)
Valerio Vignoli (University of Siena, Italy)
Marco Tani (University of Siena, Italy)
Elio Novembre (University of Florence, Italy)

11:40 **Efficient R-peak Detection Algorithm for Real-time Analysis of ECG in Portable Devices**
Alessandro Depari (University of Brescia, Italy)
Claudio Crema (University of Brescia, Italy)
Angelo Vezzoli (University of Brescia, Italy)
Alessandra Flammini (University of Brescia, Italy)

12:00 **IoT-based Remote Facial Expression Monitoring System with sEMG Signal**
Mingzhe Jiang (University of Turku, Finland)
Tuan Nguyen Gia (University of Turku, Finland)
Arman Anzanpour (University of Turku, Finland)
Amir-Mohammad Rahmani (University of Turku & KTH Royal Institute of Technology, Finland)
Tomi Westerlund (University of Turku, Finland)
Sanna Salanterä (University of Turku, Finland)
Pasi Liljeberg (University of Turku, Finland)
Hannu Tenhunen (University of Turku & Royal Institute of Technology, Sweden)

12:20 **Towards A Personalised Rehabilitation System for Post Stroke Treatment**
Nick Harris (University of Southampton, United Kingdom)
Dinesh Sthapit (University of Southampton, United Kingdom)

12:40 - 14:00
Lunch/Exhibitors
Room: Cafeteria and terrace

Thursday, April 21

14:00 - 14:30
"Late Results" Poster Session
Chair: Lorenzo Scalise (Università Politecnica delle Marche, Italy) & Vincenzo Marletta (University of Catania, Italy)
Room: Sala IV

Modeling and design of micro piezoresistive pressure sensor to detect pore water pressure for landslide monitoring
Muthusamy Shanmugavalli (MAM College of Engineering, India)
K. A. Unnikrishna Menon (Amrita School of Engineering, India)
Maneesha V. Ramesh (Amrita School of Engineering, India)
Nithin P S (Amrita School of Engineering, India)

Bioluminescent Sensing Technologies.Review
Iryna Dzieciuch (SPAWAR, USA)

Sensors for Precision, Navigation, and Timing (PNT) of AUV Formations
Vladimir Djapic (SPAWAR Systems Center Pacific, USA)
Andrew Sabater (SPAWAR Systems Center Pacific, USA)
Adi Bulsara (SPAWAR Systems Center Pacific, USA)

MEMS Tunable Aperture Driven by Electro-thermal Actuators
Kyuhyun Kwack (Seoul National University, Korea)
Kukjin Chun (Seoul National University, Korea)

INTMARSIS: A Real Time Seafloor Seismic Observatory
Enric Trullols (Universitat Politecnica de Catalunya, Spain)
Xavier Roset (Universitat Politecnica de Catalunya, Spain)

Flexible microwire RTD-Fluxgate magnetometers
Carlo Trigona (University of Catania, Italy)
A. Beninato (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)
Bruno Andò (University of Catania, Italy)
Valentina Sinatra (University of Catania, Italy)
A.R. Bulsara (Space and Naval Warfare Systems Center Pacific, USA)

NeXOS A1 Smart Hydrophone Integration into the Sensor Web Enablement Framework
Enoc Martinez (Universitat Politecnica de Catalunya, Spain)
Daniel M Toma (Technical University of Catalonia, Spain)
Enric Trullols (Universitat Politecnica de Catalunya, Spain)
Joaquin del Rio (Universitat Politecnica de Catalunya, Spain)
Eric Delory (Oceanic Platform of the Canary Islands, Spain)
Diego Pinzani (SMID Technology)
Simon Jirka (52°North GmbH, Germany)
Jay (IEEE France Section, France)

Obstacle detection and avoidance system for GuanayII AUV
Cesar Galarza, C (Universitat Politècnica de Catalunya (UPC), Spain)
Ivan Masmitja (Universitat Politècnica de Catalunya (UPC), Spain)
Jordi Prat (Universitat Politècnica de Catalunya (UPC), Spain)
Enric Trullols (Universitat Politècnica de Catalunya (UPC), Spain)
Spartacus Gomariz (Universitat Politècnica de Catalunya (UPC), Spain)

Thursday, April 21

14:00 - 15:40
Sensor Application Development Workshop

14:30 - 15:30
Keynote Presentation III: Sensors architectures for safety critical applications
Vincenzo Sacco, Melexis
Chair: Gourab Sen Gupta (Massey University, New Zealand)
Room: Pinacoteca

15:30 - 15:40
IEEE SAS 2017 Presentation

15:40 - 16:10
Coffee Break/Exhibitors
Room: Cafeteria and terrace

16:10 - 17:30
Fiber optic sensors
Chair: Carlo Trigona (University of Catania, Italy)
Room: Sala Polifunzionale

16:10 **Optical fiber Bragg grating sensors for process monitoring in advanced composites**
Ebrahim Oromiehie (University of New South Wales, Australia)
Gangadhara Prusty (University of New South Wales, Australia)
Paul Compston (Australian National University, Australia)
Ginu Rajan (University of Wollongong, Australia)

16:30 **Surface plasmon resonance in a D-shaped plastic optical fibre: influence of gold layer thickness in monitoring molecularly imprinted polymers**
Nunzio Cennamo (Second University of Naples, Italy)
Letizia De Maria (RSE Research on Energetic System SpA, Italy)
Maria Pesavento (University of Pavia, Italy)
Antonella Profumo (University of Pavia, Italy)
Cristina Chemelli (RSE Research on Energetic System SpA, Italy)
Luigi Zeni (Second University of Naples, Italy)

16:50 **Fibre Optic Acoustic Emission Measurement Technique for Crack Activity Monitoring in Civil Engineering Applications**
Ginu Rajan (University of Wollongong, Australia)
Sagar Jinachandran (University of Wollongong, Australia)
Jiangtao Xi (University of Wollongong, Australia)
Jayan S. Vinod (University of Wollongong, Australia)
Shivakumar Karekal Karekal (University of Wollongong, Australia)
Huijun Li (University of Wollongong, Australia)
Gangadhara Prusty (UNSW Australia, Australia)

17:10 **Augmented workplace for SPR sensor application**
Ramona V. Galatus (Technical University of Cluj-Napoca, Romania)
Nunzio Cennamo (Second University of Naples, Italy)
Luigi Luongo (Second University of Naples, Italy)
Emil Voiculescu (Technical University of Cluj Napoca, Romania)
Luigi Zeni (Second University of Naples, Italy)

16:10 - 17:30
Sensor Application Development Workshop

Thursday, April 21

16:10 - 17:30
Sensors for Industrial Applications and Processes Monitoring 1
Chair: Gourab Sen Gupta (Massey University, New Zealand)
Room: Pinacoteca

16:10 **A Software-Defined Coherent Fiber Optic Sensor for Manufacturing Machine Diagnostic**
Maddalena Ferrario (Politecnico di Milano & Cohaerentia - start up of the Politecnico di Milano, Italy)
Marco Mattarei (Politecnico di Milano & Cohaerentia - start up of the Politecnico di Milano, Italy)
Pierpaolo Boffi (Politecnico di Milano, Italy)
Mario Martinelli (Politecnico di Milano, Italy)

16:30 **Supervision of the Rotor Bars Breakage Evolution through the Output Voltage of Coil Sensors Placed Outside Induction Motors**
Virgiliu Fireteanu (Politehnica University of Bucharest, Romania)
Alexandru-Ionel Constantin (Politehnica University of Bucharest, Romania)

16:50 **Sensors applications within the research framework of the PACMAN Project on metrology for particle accelerators at CERN**
Pasquale Arpaia (University of Naples Federico II, Italy)
K. Artoos (CERN, Switzerland)
M. Buzio (CERN, Switzerland)
D. Caiazza (CERN, Switzerland & University of Sannio, Italy)
N. Catalan Lasheras (CERN, Switzerland)
A. Cherif (CERN, Switzerland)
I. Doytchinov (CERN, Switzerland)
J.F. Fuchs (CERN, Switzerland)
A. Gaddi (CERN, Switzerland)
N. Galindo Munoz (CERN, Switzerland & University of Naples Federico II, Italy)
J.C. Gayde (CERN, Switzerland)
S. W. Kamugasa (CERN, Switzerland)
H. Mainaud Durand (CERN, Switzerland)
M. Modena (CERN, Switzerland)
P. Novotny (CERN, Switzerland)
S. Russenschuck (CERN, Switzerland)
C. Sanz (CERN, Switzerland)
G. Severino (CERN, Switzerland & University of Sannio, Italy)
D. Tshilumba (CERN, Switzerland)
V. Vlachakis (CERN, Switzerland)
M. Wendt (CERN, Switzerland)
S. Zorzetti (CERN, Switzerland)

17:10 **Novel Sensor Concepts for the Compliance with the EMF Directive 2013/35/EU**
Valerio De Santis (University of L'Aquila, Italy)
Tommaso Campi (University of L'Aquila, Italy)
Silvano Cruciani (University of L'Aquila, Italy)
Mauro Feliziani (University of L'Aquila, Italy)

19:00 - 23:00
Gala Dinner & Award Ceremony
Venue: Palazzo Manganelli

Friday, April 22

08:00 - 08:30
Registration

08:30 - 09:30
Localization Challenge

08:30 - 09:30
Poster Session I
Chair: Pasquale Arpaia (University of Naples Federico II, Italy) & Nicola Donato (University of Messina, Italy)
Room: Sala IV

Radon Monitor Using Alpha-Detecting CMOS IC
  Alexander J.H. Ross (Carleton University, Canada)
  Ryan Griffin (Carleton University, Canada)
  N. Garry Tarr (Carleton University, Canada)

A cooperative monitoring and diagnostic architecture for PV systems
  Loredana Cristaldi (Politecnico di Milano, Italy)
  Marco Faifer (Politecnico di Milano, Italy)
  Massimo Lazzaroni (Università degli Studi di Milano, Italy)

A Study of Efficient Speaklet Driving Mechanisms for Use in a Digital Loudspeaker Array Based on PZT Actuators
  Sangchai Monkronthong (University of Southampton, United Kingdom)
  Neil M White (University of Southampton, United Kingdom)
  Nick Harris (University of Southampton, United Kingdom)

FPGA Based Emulation of Multiple 1-Wire Sensors for Hardware in the Loop Tests
  Markus Eider (Deggendorf Institute of Technology, Germany)
  Stefan Kunze (Deggendorf Institute of Technology, Germany)
  Rainer Poeschl (Deggendorf Institute of Technology, Germany)

Estimating Viscosity of non-Newtonian Fluids using Support Vector Regression Method
  Khim Chhantyal (University College of Southeast Norway, Norway)
  Saba Mylvaganam (University College of Southeast Norway, Norway)
  Håkon Viumdal (University College of Southeast Norway, Norway)
  Geir Elseth (Statoil, Norway)

A multidisciplinary strategy for in-situ and remote sensing monitoring of areas affected by pressurized fluids: application to mud volcanoes
  Filippo Greco (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Giuseppe Salerno (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Salvatore Giammanco (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Letizia Spampinato (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Rosalba Napoli (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Alfio Amantia (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Gilda Currenti (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Massimo Cantarero (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Annamaria Vicari (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Alfio Messina (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Alessandro La Spina (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
  Antonino Sicali (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

Friday, April 22

A Neural Network Approach for Safety Monitoring Applications
Zlatica Marinković (University of Niš, Serbia)
Aleksandar Atanasković (Faculty of Electronic Engineering, University of Niš, Serbia)
Maria Gabriella Xibilia (University of Messina, Italy)
Calogero Pace (University of Calabria, Italy)
Mariangela Latino (University of Messina, Italy)
Nicola Donato (University of Messina, Italy)

FPGA-based embedded system for the wind tunnel variable-geometry nozzle positioning
Biljana Ilić (Military Technical Institute, Serbia)
Mirko Milosavljević (Military Technical Institute, Serbia)
Dušan Ćurčić (Military Technical Institute, Serbia)
Jovan Isaković (College of Applied Engineering Studies, Tehnikum-Taurunum, Serbia)

In-flight roll angle estimation for a guided high spin projectile
Ronan Adam (French-German Research Institute of Saint-Louis, France)
Emmanuel Pecheur (French-German Research Institute of Saint-Louis, France)
Loïc Bernard (French-German Research Institute of Saint-Louis, France)
Sébastien Changey (French-German Research Institute of Saint-Louis, France)

Real-Time Sensor Data Integration in Vertical Transport Systems
Jaroslaw M. Francik (Kingston University, United Kingdom)
Vesna Brujic-Okretic (Kingston University, United Kingdom)
Mirko Menegazzo (Imperial College, United Kingdom)
Adrian Godwin (Movvéo Ltd., United Kingdom)
Krzysztof Zienowicz (Movféo Ltd., United Kingdom)

COSA: An Approach to Classifying Uncertainty in an Ontology Tree for Sensor Data Fusion
Aditya Gaur (University of Ulster, United Kingdom)
Bryan Scotney (University of Ulster, United Kingdom)
Gerard Parr (University of Ulster, United Kingdom)
Sally McClean (University of Ulster, United Kingdom)

Methodologies for continuous activity classification of user through wearable devices Feasibility and preliminary investigation
Filippo Pietroni (Università Politecnica delle Marche, Italy)
Sara Casaccia (Università Politecnica delle Marche, Italy)
Gian Marco Revel (Università Politecnica delle Marche, Italy)
Lorenzo Scalise (Università Politecnica delle Marche, Italy)

09:30 - 10:00
Coffee Break/Exhibitors
Room: Cafeteria and terrace

Friday, April 22

10:00 - 11:20
Flexible sensors and sensor characterisation
Chair: Bruno Andò (University of Catania, Italy)
Room: Sala Polifunzionale

10:00 **Innovative Large Area Touch Sensor: Design and Tests of a Compact Acquisition System**
Nissem Selmene (Ecole des Mines de Saint Etienne & Telecom Sud Paris, France)
Sylvain Blayac (Ecole des Mines de saint Etienne - Center for Microelectronics in Provence, France)
Muriel Muller (Institut Mines-Telecom / Telecom SudParis, France)
Ghalid Abib (Institut Mines Telecom / Télécom SudParis, France)

10:20 **Study on a Telemetric System that Works with an Inkjet-printed Resistive Strain Gauge**
Michele Bona (University of Brescia, Italy)
Emilio Sardini (University of Brescia, Italy)
Mauro Serpelloni (University of Brescia, Italy)
Bruno Andò (University of Catania, Italy)
Cristian Orazio Lombardo (University of Catania, Italy)

10:40 **Resistive Characterization of Soft Conductive PDMS Membranes for Sensor Applications**
Cyril Baby K (Technische Universität München, Germany)
Ubaidul Fikri (Technical University of Munich, Singapore)
Norbert Schwesinger (Technische Universität München, Germany)

11:00 **Fabrication and Characterization of Magnetic Composite Membrane Pressure Sensor**
Mohammed Asadullah Khan (King Abdullah University of Science and Technology, Saudi Arabia)
Ahmed Alfadhel (King Abdullah University of Science and Technology, Saudi Arabia)
Mashail Bakolka (Effat University, Saudi Arabia)
Jürgen Kosel (King Abdullah University of Science and Technology, Saudi Arabia)

10:00 - 12:40
Localization Challenge

10:00 - 11:20
SPECIAL SESSION: Wireless sensor networks for distributed measurement applications
Chair: Alessandro Depari (University of Brescia, Italy)
Room: Pinacoteca

10:00 **Accelerating Distributed Averaging in Sensor Networks: Randomized Gossip over Virtual Coordinates**
Valerio Freschi (University of Urbino, Italy)
Emanuele Lattanzi (University of Urbino, Italy)
Alessandro Bogliolo (University of Urbino, Italy)

Friday, April 22

10:20 **A wireless cloud network platform for critical data publishing in industrial process automation**
Leonardo Ascorti (Pepper+Fuchs srl, Italy)
Stefano Savazzi (National Research Council of Italy (CNR) & Politecnico di Milano, Italy)
Emiliano Sisinni (University of Brescia, Italy)
Stefano Galimberti (Pepperl+Fuchs srl, Italy)

10:40 **Automatic Detection of Radio Signal Obstruction in Wireless Sensor Networks' on-Demand Deployment**
Tajudeen Olasupo (Florida Institute of Technology, USA)
Carlos Otero (Florida Institute of Technology, USA)
Abrar Qureshi (The University of Virginia - College at Wise, USA)
Kehinde O. Olasupo (Florida Institute of Technology, USA)

11:00 **A Low-Power MEMS Microphone Array for Wireless Acoustic Sensors**
Geoffrey Ottoy (KU Leuven & Technology Campus Ghent, Belgium)
Bart Thoen (KU Leuven, Belgium)
Lieven De Strycker (KU Leuven, Belgium)

11:20 - 12:40
Automotive and Transportations
Chair: Michael O'Toole (University of Manchester, United Kingdom)
Room: Sala Polifunzionale

11:20 **Performance Measurements of Energy Storage Systems and Control Strategies in Real-world e-bikes**
Sergio Saponara (University of Pisa, Italy)
Riccardo Moras (University of Pisa, Italy)
Roberto Roncella (University of Pisa, Italy)
Roberto Saletti (University of Pisa, Italy)
Davide Benedetti (Carbon Dream, Italy)

11:40 **Ship Motion Sensor Isolation System Development and Testing for use with Low Cost IMUs**
Eddy Trinklein (Michigan Technological University, USA)
Gordon Parker (Michigan Technological University, USA)

12:00 **A Wireless Steering Wheel Gripping Sensor for Hands On/Off Detection**
Stephan Mühlbacher-Karrer (Alpen-Adria Universität, Austria)
Lisa-Marie Faller (Alpen-Adria Universität, Austria)
Raiyan Hamid (Alpen-Adria Universität, Austria)
Hubert Zangl (Alpen-Adria Universität, Austria)

12:20 **Flexible Architecture to Automate Farm Machinery Operation: Preliminary Results**
Brendan Taylor (Massey University, New Zealand)
Gourab Sen Gupta (Massey University, New Zealand)
Ken Mercer (Massey University, New Zealand)

Friday, April 22

11:20 - 12:40
Smartphone applications and RF sensing
Chair: Emiliano Sisinni (University of Brescia, Italy)
Room: Pinacoteca

11:20   **Smart fLAIr: a Smartphone Application for Fast LAI Retrieval using Ambient Light Sensors**
Jan Bauer (University of Osnabrück & Institute of Computer Science, Germany)
Bastian Siegmann (University of Osnabrück, Germany)
Thomas Jarmer (University of Osnabrück, Germany)
Nils Aschenbruck (University of Osnabrück & Institute of Computer Science, Germany)

11:40   **Microwave-based leaf wetness detection in agricultural wireless sensor networks**
Elisa Pievanelli (Politecnico di Torino - iXem Labs, Italy)
Riccardo Stefanelli (Politecnico di Torino - iXem Labs, Italy)
Daniele Trinchero (Politecnico di Torino & iXem Labs, Italy)

12:00   **Physical and Virtual Cell Phone Sensors for Traffic Control: Algorithms and Deployment Impact**
Shumeet Baluja (Google, USA)
Michele Covell (Google, USA)
Rahul Sukthankar (Google, USA)

12:20   **Radar Sensor Signal Acquisition and 3D FFT Processing for Smart Mobility Surveillance Systems**
Sergio Saponara (University of Pisa, Italy)
Bruno Neri (University of Pisa, Italy)

12:40 - 14:00
Lunch/Exhibitors
Room: Cafeteria and terrace

14:00 - 14:30
Demo Session
Room: Sala IV

14:30 - 15:30
Poster Session II
Chair: Michele Bona (University of Brescia, Italy) & Loredana Cristaldi (Politecnico di Milano, Italy)
Room: Sala IV

Mathematical Process of Transforming RF Signal to Position Information for Tracking Ingestible Capsules
Francis Adepoju (American University of Nigeria, Nigeria)
Khalil Arshak (University of Limerick, Ireland)

A compact electronic interface for electrochemical sensors
Luca Lombardo (University of Messina, Italy)
Silvia Generelli (Centre Suisse D'Electronique et de Microtechnique SA, Italy)
Noe Tscharner (Centre Suisse D'Electronique et de Microtechnique SA, Italy)
Davide Migliorelli (Centre Suisse D'Electronique et de Microtechnique SA, Switzerland)
Nicola Donato (University of Messina, Italy)

Friday, April 22

Auto Calibrated Head Orientation Controller for Robotic-Wheelchair Using MEMS Sensors and Embedded Technologies

Mohammed Faeik Ruzaij (Center for Life Science Automation (Celisca), University of Rostock & Technical Institute of Babylon, Al-Furat Al-Awsat Technical University (ATU), Germany)
Sebastian Neubert (University of Rostock, Germany)
Norbert Stoll (University of Rostock & Institute of Automation, Germany)
Kerstin Thurow (Center for Life Science Automation - CELISCA, Germany)

Simulation-based Approach to Application Fitness for an E-Bike

Alexandra Iosub (Gheorghe Asachi Technical University of Iasi, Romania & Infineon AG Neubiberg, Germany)
Jerome Kirscher (Infineon AG Neubiberg, Germany)
Monica Rafaila (Infineon AG Neubiberg, Germany)
Andi Buzo (Infineon Technologies Romania & Co SCS, Romania)
Georg Pelz (Infineon Technologies AG, Germany)
Liviu Goras (Technical University of Iasi, Romania)

Multisensor Electrostatic Detection of Moving Charged Particles

Tommaso Addabbo (University of Siena, Italy)
Ada Fort (University of Siena, Italy)
Marco Mugnaini (University of Siena, Italy)
Enza Panzardi (University of Siena, Italy)
Santina Rocchi (University of Siena, Italy)
Valerio Vignoli (University of Siena, Italy)

Milk quality analysis based on a novel ultrasound spectroscopy method

Emanuele Viviani (University of Trieste, Italy)
Daniele Salvalaggio (University of Trieste, Italy)
Cristina Bertoni (University of Trieste, Italy)
Antonio Boscolo (University of Trieste, Italy)

Weather Stations-Assisted Barometric Altimeter for Android: Interpolation Techniques for Improved Accuracy

João Azevedo (Universidade do Porto, Portugal)
Sérgio Crisóstomo (University of Porto & Instituto de Telecomunicações, Portugal)

Stability evaluation of YCoO3 based perovskites used for NO2 detection

Francesco Bertocci (University of Siena, Italy)
Ada Fort (University of Siena, Italy)
Marco Mugnaini (University of Siena, Italy)
Valerio Vignoli (University of Siena, Italy)

Integrating Remote Sensors in a Smartphone: the project "Sensors for ANDROID in Embedded systems"

Angelo Vezzoli (University of Brescia, Italy)
Alessandra Flammini (University of Brescia, Italy)
Stefano Rinaldi (University of Brescia, Italy)
Alessandro Depari (University of Brescia, Italy)

A Multi-Perspective Virtual Reality Visualization of Unmanned Aerial Systems in the U.S. National Airspace

Michael Bucceroni (Rowan University, USA)
George D. Lecakes, Jr. (Rowan University, USA)
Mira Lalovic-Hand (Rowan University, USA)
Shreekanth Mandayam (Rowan University, USA)

Friday, April 22

Methods for Improving the Accuracy of Sensors with a Significant Influence of Non-Informative Factors
> *Nataliia Roshchupkina (Chernivtsi National University, Ukraine)*
> *Volodymyr Kochan (Ternopil National Economic University, Ukraine)*
> *Oleksiy Roshchupkin (Czech Technical University in Prague, Ukraine)*
> *Anatoliy Sachenko (Silesian University of Technology, Poland & Ternopil National Economic University, Ukraine)*
> *Jun Su (Hubei University of Technology, P.R. China)*

A Rugged Sensor System for Real-time Bridge Safety Monitoring in Taiwan
> *Chih-Chyau Yang (National Chip Implementation Center, Taiwan)*
> *Ssu-Ying Chen (National Chip Implementation Center, Taiwan)*
> *Yi-Jie Hsieh (National Chip Implementation Center, Taiwan)*
> *Fu-Chen Cheng (National Chip Implementation Center, Taiwan)*
> *Chih-Ting Kuo (National Chip Implementation Center, Taiwan)*
> *Jin-Ju Chue (National Chip Implementation Center, Taiwan)*
> *Chien-Ming Wu (National Chip Implementation Center, Taiwan)*
> *Chun-Ming Huang (National Chip Implementation Center, Taiwan)*
> *Yu-Cheng Huang (National Chip Implementation Center, Taiwan)*

Fibre Optic Acoustic Emission Sensor System for Hydrogen Induced Cold Crack Monitoring in Welding Applications
> *Sagar Jinachandran (University of Wollongong, Australia)*
> *Chen Shen (School of Mechanical, Materials and Mechatronics, Australia)*
> *Huijun Li (University of Wollongong, Australia)*
> *Jiangtao Xi (University of Wollongong, Australia)*
> *Gangadhara Prusty (UNSW Australia, Australia)*
> *Ginu Rajan (University of Wollongong, Australia)*

15:30 - 16:00
Coffee Break/Exhibitors
Room: Cafeteria and terrace

16:00 - 17:20
Localisation and position sensing
Chair: Bruno Andò (University of Catania, Italy)
Room: Sala Polifunzionale

16:00   **Accessible Synthetic Aperture Radar System for Autonomous Vehicle Sensing**
> *Seongha Park (Purdue University, USA)*
> *Yongho Kim (Purdue University, USA)*
> *Eric Matson (Purdue University, USA)*
> *Anthony Smith (Purdue University, USA)*

16:20   **Evaluation of the accuracy in the determination of the center of rotation by magneto-inertial sensors**
> *Michele Crabolu (University of Cagliari, Italy)*
> *Danilo Pani (University of Cagliari, Italy)*
> *Andrea Cereatti (University of Sassari, Italy)*

16:40 **Indoor distance estimated from Bluetooth Low Energy signal strength: comparison of regression models**
Stefano Bertuletti (University of Sassari, Italy)
Andrea Cereatti (University of Sassari, Italy)
Ugo Della Croce (University of Sassari, Italy)
Michele Caldara (University of Bergamo, Italy)
Michael Galizzi (STMicroelectronics, USA)

17:00 **Breadcrumb: An Indoor Simultaneous Localization and Mapping System for Mobile Devices**
Duke Danielle Delos Santos (De La Salle University, Philippines)
Alron Jan Lam (De La Salle University, Philippines)
Jules Macatangay (De La Salle University, Philippines)
Ivan Paner (De La Salle University, Philippines)
Courtney Anne Ngo (De La Salle University, Philippines)

16:00 - 17:20
Sensors for Industrial Applications and Processes Monitoring 2
Chair: Gourab Sen Gupta (Massey University, New Zealand)
Room: Pinacoteca

16:00 **The error compensation for static hysteresis characteristics of Giant Magneto-Resistance sensor**
Zhao Xiaodong (Beihang University, P.R. China)
Qian Zheng (Beihang University, P.R. China)
Tian Yuan (Beihang University, P.R. China)
Wang Jingyi (Beihang University, P.R. China)
Yu Hao (Beihang University, P.R. China)

16:20 **Dielectric spectroscopy of artificial faeces for smouldering applications**
Thierry Bore (The University of Queensland, Australia)
Luis Yermán (The University of Queensland, Australia)
Marcelo Llano Serna (The University of Queensland, Australia)
Harrison Wall (The University of Queensland, Australia)
Jose Torero (The University of Queensland, Australia)
Alexander Scheuermann (The University of Queensland, Australia)

16:40 **A Counting Sensor for Inbound and Outbound People Using IR-UWB Radar Sensors**
Jeong Woo Choi (Hanyang University, Korea)
Sung Ho Cho (Hanyang University, Korea)
Young Soo Kim (Seoul-Metro Urban Railway R&D Center, Korea)
No Joong Kim (Seoul-Metro Urban Railway R&D Center, Korea)
Soon Sung Kwon (Seoul-Metro Urban Railway R&D Center, Korea)
Jae Suk Shim (Seoul-Metro Urban Railway R&D Center, Korea)

17:00 **Imaging Sensor and Imaging Algorithms for Quality Inspection of flexible Materials**
Maik Rosenberger (Ilmenau University of Technology, Germany)
Chen Zhang (Ilmenau University of Technology, Germany)
Gunther Notni (Ilmenau University of Technology, Germany)
Mike Bartmuß (Ilmenau University of Technology, Germany)

17:20 - 18:00
Closing Ceremony & Best Poster Award
Room: Pinacoteca