



CONFERENCE PROGRAM

XXIV ANNUAL CONFERENCE ON
SENSORS AND MICROSYSTEMS

AISEM 2026

CATANIA - FEBRUARY 10-13, 2026



Università
di Catania



Università
degli Studi di
Messina

TABLE OF CONTENTS

AISEM 2026 Committee.....	2
AISEM 2026 Keynote Speakers.....	3
Keynote Lecture - Wednesday February 11 - H 14:30	3
Keynote Lecture - Thursday February 12 - H 09:00	4
Keynote Lecture - Thursday February 12 - H 14:00	5
AISEM 2026 Venue	6
AISEM 2026 Social Events.....	7
SOCIAL DINNER Wednesday February 11 - H 20:30.....	7
SOCIAL EVENT Thursday February 12 - H 19:00	7
School on Polymer-based and Flexible Sensors - Tuesday, February 10	8
Technical Program - Wednesday, February 11.....	9
Technical Program - Thursday, February 12	17
Technical Program - Friday, February 13	24

AISEM 2026 Committee

AISEM 2026 CONFERENCE CHAIRS

Bruno Andò, DIEEI, University of Catania, Italy

Giovanni Neri, Engineering Department, University of Messina, Italy

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AISEM 2026 Keynote Speakers

Keynote Lecture - Wednesday February 11 - H 14:30

Generative AI for sensors: from cloud to edge perspective



Ivana Guarnieri
STMicroelectronics



Enrico Alessi
STMicroelectronics

SPEAKERS BIOGRAPHIES

Ivana Guarnieri is a Senior AI Research Advisor at STMicroelectronics, advancing Artificial Intelligence at the Edge by developing innovative AI algorithms integrated with ST's proprietary hardware. She drives Edge AI solutions across sensors, microcontrollers, and Neural Processing Units, strengthening ST's technology leadership. Ivana also fosters academic collaboration through internships and PhD supervision. She is the author of numerous technical papers and AI patents, mainly in Automatic Speech Recognition at the Edge, and serves on the Computer Engineering Advisory Committee at the University of Enna Kore.

Enrico Alessi graduated from the University of Catania (Italy) in 1997 with a degree in Electronic Engineering. His professional career started with IBM and Wind Telecommunications working on ICT and telecommunication standards. In 2000 he joined ST to work on sensors for smart applications and later in the medical segment as R&D Manager and led a strategic project focused on human DNA analysis. During this time, he worked on building semiconductor chips and hybrid silicon-plastic devices, hardware, software and instrumentation for In Vitro Diagnostics, maturing experience in design for manufacturing, technical standards and medical certifications. Today, Enrico is contributing ST to develop the next wave of devices for vital signs monitoring. Focusing on both integrated and system-in-package solutions, he and his team are working on developing devices and methods, platforms and solutions for monitoring vital signs and human physiological parameters for transversal applications from medical field to mobile phones and wearable devices for virtual and augmented reality. Enrico holds a second degree in Computer Science at the University of Catania in 2006.

Keynote Lecture - Thursday February 12 - H 09:00



Plasmonic biosensors and their applications in molecular medicine

Jiří Homola

Institute of Photonics and Electronics, Czech Republic

SPEAKER BIOGRAPHY

Jiří Homola is Head of the Optical Biosensors research group at the Institute of Photonics and Electronics, Prague (Czech Republic). He is also Professor at Charles University in Prague. He received his MS (1988) from the Czech Technical University and PhD (1993) and DSc (2009) degrees from the Czech Academy of Sciences. His research interests are in photonics and biophotonics, in particular in optical sensors and biosensors. He investigates photonic and plasmonic phenomena and pursues the development of sensor instrumentation, microfluidic devices, and functional coatings for optical biosensors for molecular biology, medical diagnostics, food safety, and security. He edited 2 books and authored over 180 research papers in peer-reviewed journals with over 24,000 citations (h-index 64 according to Web of Science). He also holds 11 patents.

Prof. Homola has received numerous awards, including the Roche Diagnostics Prize for Sensor Technology, Award for Outstanding Research of the Ministry of Education, Youth and Sports of the Czech Republic, Premium Academiae of the Czech Academy of Sciences, and Czech Head. He has been elected a Fellow of the Learned Society of the Czech Republic and Fellow of the International Society for Optical Engineering (SPIE).

Keynote Lecture - Thursday February 12 - H 14:00



Sensing solutions for cultural heritage safeguard

Sabrina Grassini

Politecnico di Torino, Italy

SPEAKER BIOGRAPHY

Sabrina Grassini received the M.S. degree in Chemistry from the University of Torino in 1999, and the Ph.D. degree in Metallurgical Engineering from Politecnico di Torino, Italy, in 2004. She is Full Professor of Applied Physical Chemistry with the Department of Applied Science and Technology at Politecnico di Torino. She is the Coordinator of the PhD Program in Metrology of Politecnico di Torino.

Her research activities are devoted to plasma chemistry and thin films, materials and diagnostic techniques for cultural heritage safeguard, sensors, and medical measurements. During her career she has been involved in several international projects devoted to the conservation of cultural heritage in the Mediterranean Basin.

Currently, she is Vice-President Membership and chair of the TC-17 on Materials in Measurements of the IEEE Instrumentation and Measurement Society; she is Secretary of the Working Party 21 on Corrosion of Archaeological and Historical Artefacts of the European Federation of Corrosion, and member of the IMEKO-TC24 on Chemical Measurements. She is Associate Editor of the IEEE Transaction of Instrumentation and Measurement. She served as General Chair and of the International Instrumentation and Measurement Technology Conference in 2017 (I2MTC2017), and of the several editions of the IEEE International Symposium on Medical Measurements and Applications (MeMeA).

AISEM 2026 Venue



AISEM 2026 will be held at the **Museo Diocesano of Catania**. The Museum is adjacent to the Catania Cathedral dedicated to Saint Agatha, as part of the buildings that surround Piazza Duomo.



ADDRESS

Museo Diocesano di Catania
Via Etna, 8
Catania

Use the QRCode to open the location on *Google Maps*



The Diocesan Museum of Catania is located next to the Cathedral of Sant'Agata in the historic center of Catania. It preserves an important collection of liturgical furnishings, sacred art, reliquaries, paintings and relics from the cathedral and other churches of the diocese, including the ornate silver fercolo used in the annual Festival of Sant'Agata. Housed in the former Seminary of the Clerics, the museum is arranged over several floors and offers panoramic views of Piazza Duomo and the city from its terraces.

AISEM 2026 Social Events

SOCIAL DINNER

Wednesday February 11 - H 20:30

The AISEM 2026 **Social Dinner** will be held at “*Palazzo Manganelli*” on Wednesday, February 11 - 20:30. Palazzo Manganelli is one of the most important noble palaces in Catania, located in the heart of the historic city center. Built in the 18th century for the princely Manganelli family, it is a fine example of Sicilian Baroque architecture, featuring elegant frescoed halls, refined decorative details, and a monumental staircase. Today, the palace hosts cultural events, exhibitions, and artistic initiatives, continuing to play an active role in the cultural life of the city.

ADDRESS

Palazzo Manganelli
Piazza Manganelli, 16 - Catania



SOCIAL EVENT

Thursday February 12 - H 19:00

On Thursday, February 12, a special moment reserved for conference participants will take place at the Diocesan Museum, the venue of the congress.

At 19:00, an aperitif will be offered, followed by a viewing of the celebrations in honor of Saint Agatha.

School on Polymer-based and Flexible Sensors - Tuesday, February 10

10:00 - 17:30 *Museo Diocesano - Hall*
REGISTRATIONS

14:00 - 16:00 *Sala VII (Pinacoteca) - Floor 4*
Chair: Salvatore Graziani, *University of Catania, Italy*

14:00 Wearable sensors for physiological monitoring: from design and optimization to manufacturing and testing

Emiliano Schena, *Università Campus Bio-Medico di Roma, Italy*

This presentation explores the full lifecycle of wearable sensors for physiological monitoring, from design and optimization to fabrication, experimental characterization and application in real scenario. It covers emerging approaches combining theoretical modeling, with advanced materials and fabrication techniques to enhance wearables performance and accelerating their use in healthcare, occupational environments, sports science, and clinical scenario.

15:00 Flexible and Polymeric Motion sensors: sensing methodologies, materials and technologies

Salvatore Graziani, *University of Catania, Italy*

In next future, the diffusion of sensing systems will be required in strategic fields such as bio inspired robotics, aerospace, and medicine, just to mention a few. Polymer-based sensors will complement silicon-based solutions. More specifically, Ionic Electroactive Polymers (IEAPs) are nanocomposite materials, with electromechanical transduction capabilities, which have been demonstrated to be suitable for the realization of post-silicon smart systems, since they have sensing, power harvesting and acting capabilities. The lecture will focus on the evolution of solutions proposed for the realization of polymeric based motion sensors. Lab-scale prototypes developed with the aim of demonstrating the application potentialities of the proposed composites will be also shown.

16:00 - 16:30 *Caffetteria - Fercolo - Floor 1*
COFFEE BREAK

16:30 - 17:30 *Sala VII (Pinacoteca) - Floor 4*
Chair: Salvatore Graziani, *University of Catania, Italy*

16:30 Depth Profiling and Surface Analysis of Polymer-Based Sensors by ToF-SIMS with Giant Cluster Ion Beams

Nunzio Tuccitto, *University of Catania, Italy*

This course introduces the principles and applications of Time-of-Flight Secondary Ion Mass Spectrometry (ToF-SIMS) for the characterization of polymer-based sensors. Emphasis will be placed on the use of giant cluster ion beams (GCIB) for depth profiling and damage-free analysis of organic materials. Participants will learn how surface chemistry, molecular organization, and interfacial composition influence device performance. Theoretical lectures will be complemented by data interpretation and experimental case studies. The course aims to provide a comprehensive understanding of ToF-SIMS as a key tool in the development of next-generation flexible sensing technologies.

Technical Program - Wednesday, February 11

08:00 - 18:00 Museo Diocesano - Hall
REGISTRATIONS

08:30 - 09:30 Sala VII (Pinacoteca) - Floor 4
OPENING CEREMONY

09:30 - 10:30 Sala VII (Pinacoteca) - Floor 4
Session W1 - Electronic Nose/Tongue
Chairs: Corrado Di Natale, *University of Roma Tor Vergata, Italy*
Giovanna Marrazza, *University of Firenze, Italy*

09:30 Electronic Nose and Volatilomic Analysis in Diagnostics: Chronic Kidney Disease and Associated Cognitive Decline
Giulia My and Angiola Forleo (CNR-IMM, Italy); Antonio V Radogna and Giuseppe Grassi (University of Salento, Italy); Alessandra Aloisi (IMM CNR, Italy); Maria Teresa Cimmarusti, Marco Fiorentino, Alessandra Stasi, Rossana Franzin, Monica Campioni, Stefania Rotella and Loreto Gesualdo (University of Bari Aldo Moro, Italy); Pietro Siciliano and Simonetta Capone (CNR-IMM, Italy)

09:40 Porphyrin-Based SURMOFs for E-Nose Application
Ilaria Di Filippo, Gabriele Magna and Leonardo Duranti (University of Rome Tor Vergata, Italy); Gianlorenzo Bussetti (Politecnico di Milano, Italy); Roberto Paolesse, Corrado Di Natale and Manuela Stefanelli (University of Rome Tor Vergata, Italy)

09:50 Wine Analysis with a Flow Injection Electronic Tongue Based on Porphyrinoids Functionalized EGfET Sensors
Alessia Fata, Kishore Pushparaj, Valerio Allegra, Lorena Di Zazzo, Alexandro Catini, Rosamaria Capuano and Gabriele Magna (University of Rome Tor Vergata, Italy); Isabella Taglieri, Chiara Sanmartin and Francesca Venturi (Università di Pisa, Italy); Roberto Paolesse, Corrado Di Natale, Sara Nardis (University of Rome Tor Vergata, Italy)

10:00 Portable Single-Sensor Voltammetric Electronic Tongue for Classification of Bottled Water by Mineralization Level
Jesús Lozano, Víctor González, Álvaro Fernández, Patricia Arroyo and Eduardo Pinilla (University of Extremadura, Spain)

10:10 Evaluation of the Freshness of Cherry and Datterini Tomatoes Using a Miniaturized Electronic Thermal Nose
Jiayi Zhang (Politecnico di Torino & Università Degli Studi di Cagliari, Italy); Iulia Khomenko, Emanuela Betta, Franco Biasioli, Michele Pedrotti and Andrea Romano (Fondazione Edmund Mach, Italy); Rosamaria Capuano, Corrado Di Natale (University of Rome Tor Vergata, Italy); Matteo Tonezzer (University of Trento, Italy)

10:30 - 11:00 *Sala V (Cappella) and Sala VI - Floor 3*
COFFEE BREAK

11:00 - 12:00 *Sala VII (Pinacoteca) - Floor 4*
Session W2 - Emerging sensors technologies, Materials and Applications - PART 1
Chairs: Nunzio Cennamo, *University of Campania Luigi Vanvitelli, Italy*
Sara Tombelli, *CNR - Institute of Applied Physics, Firenze*

- 11:00 Characterization of Nb₂O₅ Film for MOX Sensors**
Luca Lombardo (Politecnico di Torino, Italy); Mariangela Latino (IPCF CNR, Italy); Giovanni Gugliandolo (University of Messina, Italy); Premysl Fitl and Martin Vrnata (Institute of Chemical Technology in Prague, Czech Republic); Sabrina Grassini (Politecnico di Torino, Italy); Nicola Donato and Laura Arruzzoli (University of Messina, Italy); Marco Parvis and Leonardo Iannucci (Politecnico di Torino, Italy)
- 11:20 Non-Enzymatic Glucose Sensor Based on Zeolite-Modified Electrode**
Laura Manin (University Magna Graecia of Catanzaro, Italy & University of Rijeka, Croatia); Elena Stuppia, Marta Greco, Filippo Laganà, Antonio Brunetti, Antonino S. Fiorillo and Salvatore Andrea Pullano (University Magna Graecia of Catanzaro, Italy)
- 11:30 Electrochemical Detection with Mn-Doped ZnO Nanostructured Sensors**
Dario Morganti, Giuseppe Nania, Sabine Chelly, Meryam Chelly, Carmelo Corsaro, Enza Fazio, Sabrina Conoci and Giovanni Neri (University of Messina, Italy)
- 11:40 Hybrid AgNP-Polymer Interfaces for VOC Detection in Museum Environment**
Greta Peruzzi and Alessandro Ciccola (Sapienza University of Rome, Italy); Francesca Costantini (CREA, Italy); Riccardo Salvio (University of Rome Tor Vergata, Italy); Mike Andersson and Donatella Puglisi (Linköping University, Sweden); Gabriele Favero (Sapienza University of Rome, Italy)
- 11:50 Experimental Validation of Textile-Integrated Dry Electrode for sEMG Monitoring as a Part of Unified Textile-Integrated Sensing Systems of Bio-Physiological Parameters**
Saman Kohnen-Poushi (Silicon Austria Labs GmbH, Austria); Florian Iglisch (QUS Body Connected, sanSirro GmbH, Austria); Georgios Kokkinis, Rudolf Heer and Jörg Schotter (Silicon Austria Labs GmbH, Austria)

12:00 - 13:00 *Sala VII (Pinacoteca) - Floor 4*
Session W3 - Optical sensors
Chairs: Francesco Baldini, *CNR - Institute of Applied Physics, Italy*
Rosalba Pitruzzella, *University of Campania Luigi Vanvitelli, Italy*

- 12:00 Tomato Plants Monitoring by Raman Spectroscopy**
Camilla Baratto and Lorenzo Pandolfi (INO-CNR, Italy); Niccolò Miotti (IPSP-CNR, Italy); Guido Faglia (University of Brescia, Italy); Carlo Pannacchio (University of Pavia, Italy); Andrea Ponzoni (INO-CNR, Italy); Marina Ciuffo (IPSP-CNR, Italy); Emanuela Gobbi

(University of Brescia, Italy); Massimo Turina, Sabrina Palmano and Martino Schillaci (IPSP -CNR, Italy)

12:10 Fluorescent Detection of Micro- and Nanoplastics in Crowded Environmental Water Samples Through a Co-Staining Approach

Chiara Capolungo, Eugenio Giovannetti, Damiano Genovese, Enrico Rampazzo, Nelsi Zaccheroni and Luca Prodi (University of Bologna, Italy)

12:20 A Molecular Fingerprint for Purity: Authenticating Carob Molasses with Raman Spectroscopy and Chemometrics

Fatima Dokmak (Lebanese University, Beirut, Lebanon); Anna G. Mignani, Andrea A. Mencaglia and Leonardo Ciaccheri (CNR - Istituto di Fisica Applicata, Italy)

12:30 Multiplexed Detection Using Two Serial Long Period Gratings in a Mach-Zehnder Interferometer Configuration

Niccolò Marcucci, Cosimo Trono, Francesco Baldini and Gabriele Frigenti (CNR - Istituto di Fisica Applicata, Italy)

12:40 Selective Sensors Based on Optical Fibers in a Reflection Scheme Combined with MIP-Microbeads

Rosalba Pitruzzella (University of Campania Luigi Vanvitelli, Italy); Filipa Sequeira (Instituto de Telecomunicações, Portugal); Alessandra Cutaia (University of Pavia, Italy); Chiara Marzano and Francesco Arcadio (University of Campania Luigi Vanvitelli, Italy); Catarina Cardoso Novo (Instituto de Telecomunicações, Portugal); Ricardo Oliveira (IT - Aveiro, Portugal); Maria Pesavento (University of Pavia, Italy); Luigi Zeni (University of Campania Luigi Vanvitelli, Italy); Giancarla Alberti (University of Pavia, Italy); Rogério N Nogueira (Instituto de Telecomunicações, Portugal); Nunzio Cennamo (University of Campania Luigi Vanvitelli, Italy)

13:00 - 14:30 *Caffetteria - Focolo - Floor 1*
LUNCH

14:30 - 15:30 *Sala VII (Pinacoteca) - Floor*
KEYNOTE LECTURE
Chair: Bruno Andò, *University of Catania, Italy*

Generative AI for sensors: from cloud to edge perspective

Ivana Guarneri, Enrico Alessi, *STMicroelectronics*

15:30 - 17:00 *Sala V (Cappella) and Sala VI - Floor 3*
COFFEE BREAK / POSTER SESSION
Chairs: Corrado Di Natale, *University of Roma Tor Vergata, Italy*
Anna Grazia Mignani, *CNR - Institute of Applied Physics, Italy*

- PS01 A Fast and Low-Cost Enzymatic Capacitive Sensor for Phenylalanine Detection in Point-of-Care Applications**
Ludovica Maugeri, Ester Butera and Giorgia Fangano (University of Catania, Italy); Marianna Messina (AOU Policlinico Rodolico - San Marco, Italy); Bruno Andò, Salvatore Castorina, Angelo Ferlazzo and Antonino Gulino (University of Catania, Italy); Giovanni Neri (University of Messina, Italy); Salvatore Petralia (University of Catania, Italy)
- PS02 Electrochemical Glucose Sensors Based on NiO-Activated Metal Oxide/SPCE Composites for the Fermentation Industry**
Zahra Akbari and Giovanni Neri (University of Messina, Italy)
- PS03 Inkjet-Printed Coplanar Ring Resonator for Non-Invasive Moisture Monitoring in Historical Books**
Laura Arruzzoli (University of Messina, Italy); Mariangela Latino (IPCF-CNR, Italy); Giovanni Gugliandolo, Giovanni Crupi and Nicola Donato (University of Messina, Italy)
- PS04 Deformation Effects on Fully Printed Trimmers for Strain Gauges**
Tiziano Fapanni, Edoardo Cantù and Emilio Sardini (University of Brescia, Italy)
- PS05 Printed Temperature Sensors for Smart Products: Metrological Characterization and Data-Driven Modeling**
Michela Borghetti (University of Brescia, Italy); Giovanni Calafiore, Loredana Cristaldi and Parisa Esmaili (Politecnico di Milano, Italy); Marco Ferrari (University of Brescia, Italy); Giambattista Grusso (Politecnico di Milano, Italy); Nadine La Salvia, Emilio Sardini and Sarah Tonello (University of Brescia, Italy)
- PS06 Translating Digital Breath Technology from the Lab to the Bedside: Three Key Experiments**
Ludovica La Monica, Alessandro Zompanti, Davide Ciarrocchi, Davide Cacciari, Martina Fonte, Simone Grasso, Lorenzo Mascarucci (Università Campus Bio-Medico di Roma, Italy); Gaetano Rocco (Memorial Sloan Kettering Cancer Center, USA); Marco Santonicò and Giorgio Pennazza (Università Campus Bio-Medico di Roma, Italy)
- PS07 Non-Dispersive Infrared Setup for VOCs Detection: A Non-Invasive Method for Diabetes Diagnosis and Monitoring**
Gabriele Giarrusso (Politecnico di Torino, Italy); Alessandro Gumiero and Luigi Della Torre (STMICROELECTRONICS, Italy); Gabriella Olmo (Politecnico di Torino, Italy)
- PS08 New Application of Qualitative Format to Analyze Some Pharma- and Bio-Molecules, Using Fuel Cell and Chemometrics**
Corrado Di Natale (University of Rome Tor Vergata, Italy); Mauro Tomassetti (University of Rome La Sapienza & University of Rome Tor Vergata, Italy)
- PS09 A Dual Emissive C-Nanodots/Red Nile Supramolecular System for the Non-Enzymatic Recognition of Phenylalanine**
Giorgia Fangano, Ester Butera, Corinna Lombardo and Ludovica Maugeri (University of Catania, Italy); Marianna Messina (AOU Policlinico Rodolico - San Marco, Italy); Grazia Maria Letizia Consoli (CNR Istituto di Chimica Biomolecolare, Italy); Antonino Consoli (University of Messina, Italy); Salvatore Petralia (University of Catania, Italy)

- PS10 Exploiting the Ionic Influence for microRNA Sensing by Surface Plasmon Resonance Imaging and Peptide Nucleic Acid Probes**
Roberta D'Agata, Vanessa Jungbluth, Noemi Bellasai and Giuseppe Spoto (University of Catania, Italy); Roberto Corradini and Stefano Volpi (University of Parma, Italy)
- PS11 Plasma Deposited Thin Films for Advanced Gas Sensing**
Emma Paola Angelini, Alberto Vallan, Guido Perrone, Luca Lombardo and Sabrina Grassini (Politecnico di Torino, Italy)
- PS12 Tuning Sensing Behavior Through Structural Modulation: The Case of N-Alkyl Corroles**
Francesco Pizzoli, Roberto Paolesse, Gabriele Magna, Sara Nardis, Corrado Di Natale (University of Rome Tor Vergata, Italy)
- PS13 Sensing Through Nature: Green Materials for Multifunctional Sensors Across Diverse Applications**
Meryam Chelly, Sarah Ben Haj Fraj and Sabine Chelly (University of Messina, Italy); Hanen Bouaziz-Ketata (University of Sfax, Tunisia); Giovanni Neri (University of Messina, Italy)
- PS14 Long-Term Structural Health Monitoring of Historic and Adjacent Secondary Structures via Dual-Fiber Bragg Grating Sensors and Cloud-Based Data Acquisition**
Niccolò Marcucci, Cosimo Trono, Francesco Baldini and Andrea Donati (CNR - Istituto di Fisica Applicata, Italy)
- PS15 Lightweight Unsupervised Analysis of Face Emotional Expression from Visual Sensors**
Giorgio Volta (CASD - School of Advanced Defense Studies, Italy); Gabriele Rosasco, Edoardo Oldrini and Rodolfo Zunino (University of Genova, Italy)
- PS16 A Single-Board NFC-Enabled Front-End for Wearable Wound Monitoring Sensors**
Pierpaolo Granello, Erika Pittella, Sahithi Sriramoju and Augusto Nascetti (Sapienza University of Rome, Italy)
- PS17 Design of a Current Feedback Autobalance Bridge for Impedance Sensors**
Elisa Montaldi, Gianluca Barile, Vincenzo Stornelli and Giuseppe Ferri (University of L'Aquila, Italy)
- PS18 Performance Characterization of a Novel Automatic Burst Detection Method**
Cecilia Provenzale, Gianfranco Miele and Domenico Capriglione (University of Cassino and Southern Lazio, Italy)
- PS19 Characterization of a Hybrid Hydrogenated Amorphous Silicon Detector for Dosimetry and Temporal Analysis of Clinical Beams**
Marta Ponzecchi (INFN (Florence), Italy); Keida Kanxheri (University of Perugia, INFN (Perugia), Italy); Elisa Gazzera and Maria Vittoria Rossi (University of Florence, AOUC, Italy); Giacomo Inero (University of Florence, INFN (Florence), Italy); Federico Cittadini and Leonello Servoli (INFN (Perugia), Italy); Nicolas Wyrsh (EPFL (PV-Lab),

Switzerland); Stefania Pallotta and Cinzia Talamonti (University of Florence, INFN (Florence), AOUC, Italy)

PS20 An Autonomous Wireless Sensor Network for a Landslide-Assessment Platform
Paolo Esposito, Arianna Ianaro, Giuseppe Ferri and Vincenzo Stornelli (University of L'Aquila, Italy)

PS21 Simulation-Driven High-Fidelity Dataset for Anomaly Detection in Hydrogen Pipeline System
Giovanni Acampora (University of Naples Federico II & INFN, Italy); Saverio De Vito, Girolamo Di Francia and Elena Esposito (ENEA, Italy); Antonia Longobardi (University of Salerno, Italy); Giulia Monteleone (ENEA, Italy); Andrea Senese (University of Naples Federico II, Italy); Michele Villari (University of Salerno, Italy)

PS22 Virtual Sensing for Photovoltaic and Wind Energy Yield Assessment: A Machine Learning Approach to Global Climate-Based Classification
Sofia Dutto (University of Naples Federico II, Italy); Gabriele Piantadosi (ENEA, Italy); Carlo Sansone (University of Naples Federico II, Italy); Girolamo Di Francia (ENEA, Italy); Olindo Isabella and Malte Ruben Vogt (Delft University of Technology, The Netherlands)

PS23 Miniaturized pH-Meter Based on a Versatile Single-Chip Sensor Interface
Andrea Ria (University of Pisa, Italy); Leonardo Giorgi (Sensichips S.r.l, Italy); Simone Contardi (University of Pisa, Italy & Sensichips Srl, Italy); Massimo Piotto and Paolo Bruschi (University of Pisa, Italy)

17:00 - 18:00 *Sala VII (Pinacoteca) - Floor 4*

Session W4 - Chemical, Electrochemical and Gas Sensors - PART 1

Chairs: Saverio De Vito, *ENEA, Italy*

Dario Compagnone, *University of Teramo, Italy*

17:00 Microdispensed Metal Oxide Mems-Based Chemiresistive Gas Sensors for Hydrogen Detection
Giada Bombardelli (Free University of Bolzano-Bozen, Italy); Antonio Orlando (Fondazione Bruno Kessler, Italy); Guglielmo Trentini (Free University of Bolzano-Bozen, Italy); Marco Magoni, Pietro Tosato and Matteo Valt (Fondazione Bruno Kessler, Italy); Sahira Vasquez and Luisa Petti (Free University of Bolzano-Bozen, Italy); Andrea Gaiardo (Fondazione Bruno Kessler, Italy)

17:10 Design and Characterisation of an UAV System for the Detection of Gaseous Biomarkers
Letizia Cantalini, Giuseppe Ferri, Carlo Cantalini, Vincenzo Stornelli, Marcello Di Risio, Valentina Paolucci and Mauro Casinghini (University of L'Aquila, Italy)

17:20 One Pot Laser-Driven Functionalization of Cu Nanoparticles and Optimization for Alpha-Synuclein Electrochemical Biosensing
Valentina Iacono (University of Catania, Italy); Helena Rabelo (Catalan Institute of Nanoscience and Nanotechnology (ICN2), Spain); Luca Pulvirenti and Maria Chiara

Spadaro (University of Catania, Italy); Jordi Arbiol (ICREA, Spain); Guglielmo Guido Condorelli, Francesco Ruffino and Salvo Mirabella (University of Catania, Italy)

17:30 Graphene-Platinum Chemiresistor for Long-Term Wireless Hydrogen Monitoring Based on Passive RFID Technology

Tiziana Polichetti, Ettore Massera, Brigida Alfano, Maria Lucia Miglietta (ENEA, Italy); Roberto Parente and Francesco P. Monaco (Centro Regionale Information Communication Technology, Italy); Marco Consales (University of Sannio, Italy); Angela Maria Cusano, Alberto Micco and Giuseppe Quero (Centro Regionale Information Communication Technology, Italy); Andrea Cusano (University of Sannio, Italy)

17:40 Functionalization of Carbon Electrodes for the Voltammetric Monitoring of Biomolecules

Angelo Ferlazzo, Salvatore Petralia and Antonino Gulino (University of Catania, Italy)

18:00 - 19:00

Sala VII (Pinacoteca) - Floor 4

Session W5 - Emerging sensors technologies, Materials and Applications - PART 2

Chairs: Giovanni Neri, *University of Messina, Italy*

Anna Grazia Mignani, *CNR - Institute of Applied Physics, Italy*

18:00 Manufacturing of Direct Electron-Transfer Type Laser-Nanostructured Bioelectrodes via Benchtop Technologies. Toward Paper-Based Third-Generation Biosensors

Flavio Della Pelle, Annalisa Scroccarello, Davide Paolini and Ida Valeria Di Cristoforo (University of Teramo, Italy); Paolo Bollella (University of Bari Aldo Moro, Italy); Dario Compagnone (University of Teramo, Italy); Keisei Sowa (Kyoto University)

18:10 Nanostructured Black Palladium Films Fabricated by Pulsed Laser Deposition for Ambient Chemiresistive Hydrogen Sensing

Martin Hruska and Jan Kejzlar (University of Chemistry and Technology, Czech Republic); Stefan Andrej Irimiciuc, Sergii Chertopalov and Martin Vondracek (Czech Academy of Sciences, Czech Republic); Premysl Fitl and Michal Novotny (University of Chemistry and Technology, Prague, Czech Republic); Jan Lancok (Czech Academy of Sciences, Czech Republic); Martin Vrnata (University of Chemistry and Technology, Czech Republic)

18:20 First Heterojunction-Based Gas Sensors Bearing Free-Base Phthalocyanines with Various Degree of Fluorination

Petr Bečvář, Martin Hruška, Eric Lesniewska and Rita Meunier-Prest (University of Burgundy, France); Marcel Bouvet (Universite de Bourgogne, France)

18:30 Low-Cost 3D-Printed Strain Gauge and Current-Mode Interface for Flexible Sensing Applications

Riccardo Olivieri, Paolo Esposito, Gianluca Barile, Vincenzo Stornelli and Giuseppe Ferri (University of L'Aquila, Italy)

18:40 Metal-Phenolic Networks Thin Films Based Humidity Sensors

Enza Panzardi, Ada Fort, Marco Mugnaini, Valerio Vignoli, Andrea Atrei and Maddalena Corsini (University of Siena, Italy)

20:30

Palazzo Manganelli - Piazza Manganelli, 16, Catania

SOCIAL DINNER

Technical Program - Thursday, February 12

08:00 - 18:00 *Museo Diocesano - Hall*
REGISTRATIONS

09:00 - 10:00 *Sala VII (Pinacoteca) - Floor*
KEYNOTE LECTURE
Chair: Francesco Baldini, *CNR - Institute of Applied Physics, Italy*

Plasmonic biosensors and their applications in molecular medicine

Jiří Homola, Institute of Photonics and Electronics, Czech Republic

10:00 - 10:30 *Sala V (Cappella) and Sala VI - Floor 3*
COFFEE BREAK

10:30 - 12:00 *Sala VII (Pinacoteca) - Floor 4*
Session T1 - Health applications - PART 1
Chairs: Sabrina Conoci, *University of Bologna, Italy*
 Mattia Manenti, *University of Catania, Italy*

- 10:30 An Integrated Point-of-Care System for the Self-Testing of Phenylalanine in Finger Prick Blood**
 Ludovica Maugeri (University of Catania, Italy); Marianna Messina (AOU Policlinico Rodolico - San Marco, Italy); Riccardo Puccio and Guido Spoto (InfoBiotech, Italy); Bruno Ando and Salvatore Petralia (University of Catania, Italy)
- 10:50 Inkjet-Printed Interdigitated Electrodes for Hydration Level Monitoring in Elderly Patients**
Lara Franchin (University of Padova, Italy); Sarah Tonello (University of Brescia, Italy); Leila Es Sebar and Loredana Cristaldi (Politecnico di Milano, Italy); Sabrina Grassini, Leonardo Iannucci and Luca Lombardo (Politecnico di Torino, Italy); Andrea Neviani (Università di Padova, Italy); Isabella Sannino (Politecnico di Torino, Italy); Cesare Svelto (Politecnico di Milano, Italy); Stefano Bonaldo (University of Padova, Italy)
- 11:00 Human Plasma Fingerprinting for the Assessment of an Autologous Orthopedic Product in Osteoarthritis**
 Alessandro Zompanti, Martina Fonte and Simone Grasso (Università Campus Bio-Medico di Roma, Italy); Chiara Gregorj (Fondazione Policlinico Campus Bio-Medico di Roma, Italy); Giorgio Pennazza (Università Campus Bio-Medico di Roma, Italy); Michele Vacca (Fondazione Policlinico Campus Bio-Medico di Roma, Italy); Marco Santonico and Davide Cacciari (Università Campus Bio-Medico di Roma, Italy)

- 11:10 Lab-on-Chip Device for Extracellular Vesicles Isolation and microRNA Cargo Analysis**
Cristina Potrich, Gloria Cont, Leandro Lorenzelli, Cecilia Pederzolli and Lorenzo Lunelli (Fondazione Bruno Kessler, Italy)
- 11:20 Development of Innovative MIP-Based Sensors for Liquid Biopsy**
Giulia Siciliano (CNR Nanotec, Italy)
- 11:30 A Fabry-Pérot Interferometer Realized on Optical Fiber Tips via Molecularly Imprinted Polymers for Albendazole Detection at a Nanomolar Level**
Ines Tavoletta (University of Campania Luigi Vanvitelli, Italy); Ricardo Oliveira, Filipa Sequeira, Catarina Cardoso Novo (Instituto de Telecomunicações, Portugal); Luigi Zeni (University of Campania Luigi Vanvitelli, Italy); Giancarla Alberti (University of Pavia, Italy); Rogério N Nogueira (Instituto de Telecomunicações, Portugal); Nunzio Cennamo (University of Campania Luigi Vanvitelli, Italy)

12:00 - 13:00 *Sala VII (Pinacoteca) - Floor 4*
ROUND TABLE - Sensors and Sensing Systems: Future trends and potential market
Chair: Bruno Andò, *University of Catania, Italy*

Confirmed Speakers

- Prof. Salvatore **Baglio**, *President, "SamoTRACE" Foundation*
- Eng. Arcangelo **Bruna**, *STMICROELECTRONICS*
- Eng. Salvatore **La Malfa**, *Ferrari S.p.A.*
- Prof. Daniela **Giordano**, *DIEEI, University of Catania*

13:00 - 14:00 *Caffetteria - Focolo - Floor 1*
LUNCH

14:00 - 15:00 *Sala VII (Pinacoteca) - Floor*
KEYNOTE LECTURE
Chair: Salvatore Graziani, *University of Catania, Italy*

Sensing solutions for cultural heritage safeguard

Sabrina Grassini, *Politecnico di Torino, Italy*

15:00 - 16:30 *Sala V (Cappella) and Sala VI - Floor 3*
COFFEE BREAK / POSTER SESSION
Chairs: Sabrina Conoci, *University of Bologna, Italy*
 Dario Compagnone, *University of Teramo, Italy*

- PS01 Electrochemical Sensor Based on an Organic-Inorganic Material for Tyrosine Detection in Serum**
Silvia Cappadonna (University of Roma Tor Vergata, Italy); Meryam Chelly and Giovanni Neri (University of Messina, Italy); Gabriele Magna, Roberto Paolesse and Corrado Di Natale (University of Roma Tor Vergata, Italy)
- PS02 Electrochemical Sensor for Carbon Dioxide Detection in Blood**
Claudio Firetto, Bernardo Patella, Chiara Curiale, Nadia Moukri, Maria Testa, Francesco Lopresti, Vincenzo La Carrubba, Rosalinda Inguanta (University of Palermo, Italy)
- PS03 Impedance Spectroscopy of WO₃-Pt Films for Hydrogen Sensing**
Tiziana Polichetti, Brigida Alfano, Ettore Massera, Maria Lucia Miglietta and Anna De Girolamo Del Mauro (ENEA, Italy); Luigi Di Benedetto, Rosalba Liguori, Nicola Rinaldi, Gian Domenico Licciardo and Alfredo Rubino (University of Salerno, Italy)
- PS04 Simulation and Experimental Analysis of the Electrowetting Behavior of an EWOD Device Coated with Parylene-C**
Mukesh Pokala (Fondazione Bruno Kessler, Italy); Andrea Adami and Alvisè Bagolini (FBK - Center for Materials and Microsystems, Italy); Maria F Pantano (University of Trento, Italy); Leandro Lorenzelli (FBK-Center for Materials and Microsystems, Italy); Fabio Terranova and Andrea Spanu (Scuola Universitaria Superiore IUSS, Italy); Ruben Bartali (Fondazione Bruno Kessler, Italy)
- PS05 AuNCs-Antibody Nanosystem a Potential Tool for IL6 Sensing**
Saad Akeel and Ester Butera (University of Catania, Italy); Albino Carrizzo (University of Salerno, Italy); Salvatore Petralia (University of Catania, Italy)
- PS06 Development of a Miniaturized Thermal Electronic Nose Illustrated Through a Shrimp Drying Case Study**
Jiayi Zhang (Politecnico di Torino & University of Cagliari, Italy); Elena Santoro (University of Padova, Italy); Faezeh Khoobakht (University of Trento, Italy); Flavia Gasperi (Fondazione Edmund Mach, Italy); Sara Spilimbergo (University of Padova, Italy); Alessandro Zambon (University of Bologna, Italy); Riccardo Zulli and Margherita Guidi (University of Padova, Italy); Eugenio Aprea and Matteo Tonezzer (University of Trento, Italy)
- PS07 Electronic Nose Technologies for Quality Control of Agricultural Products: A Case Study**
 Cristina Brugera, Angel López, Alejandro Bernal, José M. Perea-Ortega, José Ignacio Suárez and José Luis Herrero (University of Extremadura, Spain); José Pedro Santos (Consejo Superior de Investigaciones Científicas, Spain); Jesús Lozano (University of Extremadura, Spain)
- PS08 Detection of Aromatic Defects in Lycopene-Enriched Olive Oil Using an Electronic Nose**
José Pedro Santos (Consejo Superior de Investigaciones Científicas, Spain)

- PS09 Electronic Nose and Volatilomic Analysis in Exposomics: Human Biosample Profiling Across Regions**
Giulia My and Angiola Forleo (CNR-IMM, Italy); Antonio V Radogna (University of Salento, Italy); Andrea Gaiardo and Matteo Valt (Fondazione Bruno Kessler, Italy); Tiziana Notari (Reproductive Medicine Unit of Check Up Polydiagnostic Center, Italy); Giuseppe Grassi (University of Salento, Italy); Pietro Siciliano (CNR-IMM, Italy); Luigi Montano (Local Health Authority (ASL), Italy); Simonetta Capone (CNR-IMM, Italy)
- PS10 Long Period Grating Biosensors Based on Imprinted Biopolymers**
Cosimo Trono (CNR - Istituto di Fisica Applicata, Italy); Davide Sestaioni (University of Florence, Italy); Mostafa Fytory, Niccolò Marcucci, Francesco Baldini and Sara Tombelli (CNR - Istituto di Fisica Applicata, Italy); Simona Scarano (University of Florence, Italy)
- PS11 Selective Sensors Based on Sensing Lenses on Optical Fiber Tips via Molecularly Imprinted Polymers**
Luca Pasquale Renzullo, Raffaele Vallifuoco, Aldo Minardo, Luigi Zeni and Francesco Arcadio (University of Campania Luigi Vanvitelli, Italy); Filipa Sequeira, Catarina Cardoso Novo, Ricardo Oliveira (Instituto de Telecomunicações, Portugal); Giancarla Alberti (University of Pavia, Italy); Rogério N Nogueira (Instituto de Telecomunicações, Portugal); Nunzio Cennamo (University of Campania Luigi Vanvitelli, Italy)
- PS12 Dual-Channel Fluorescence Optoelectronic Approach for Microplastic Detection and Polymer Typing**
Luca Buratti (UniCamillus-Saint Camillus International University of Health Sciences, Italy); Valerio Allegra (University of Rome Tor Vergata, Italy); Eleonora Nicolai (UniCamillus-Saint Camillus International University of Health and Medical Science, Italy); Roberto Pizzoferrato, Corrado Di Natale and Alexandro Catini (University of Roma Tor Vergata, Italy)
- PS13 The Detection of the FKBP12 Biomarker at a Single-Molecule Level via a Plasmonic-Based Point-of-Care Test**
Chiara Marzano and Rosalba Pitruzzella (University of Campania Luigi Vanvitelli, Italy); Cosimo Bartolini (University of Florence, Italy); Laura Pasquardini (Indivenire Srl, Italy); Annabella la Grasta (Politecnico di Bari, Italy); Martina Tozzetti (University of Florence, Italy); Raffaella Germinario and Teresa Natale (Politecnico di Bari, Italy); Ahtsham Ishaq and Stefano Menichetti (University of Florence, Italy); Francesco Arcadio and Luigi Zeni (University of Campania Luigi Vanvitelli, Italy); Francesco Dell'Olio (Politecnico di Bari, Italy); Gabriella Caminati (University of Florence, Italy); Nunzio Cennamo (University of Campania Luigi Vanvitelli, Italy)
- PS14 SpikeCubeSatNet: Lightweight Depthwise Separable SNNs for Efficient Onboard Earth Observation**
Luigi Capogrosso and Jie Mei (Interdisciplinary Transformation University of Austria, Austria); Michele Magno (ETH Zurich, Switzerland)
- PS15 Pole Integrity Monitoring System (PIMS): An Autonomous Solution for Utility Pole Maintenance**

Abdelsalam Masoud and Julio C Proano Proano (Metropolitan State University of Denver, USA)

- PS16 Development and Characterization of a Lab-on-Chip System for 3D Cell Culture with Microfluidic in Simulated Microgravity**
 Michela Cutigni, Vahid Omrani, VS Siva Sankaram Emani, Giulia Petrucci, Augusto Nascetti, M. Bizzarri (Sapienza University of Rome, Italy)
- PS17 Temperature Sensors on Flexible Substrate for Microwave Thermal Ablation**
Fabio Cappelli, Giulia Petrucci, Nicola Lovecchio, Giampiero De Cesare, Augusto Nascetti, Marta Cavagnaro and Caputo Domenico (Sapienza University of Rome, Italy)
- PS18 Economic Sustainability of Photovoltaic Systems**
Musa Bakarr (Technological University Dublin, Ireland); Sofia Dutto (University of Naples Federico II, Italy); Gabriele Piantadosi (ENEA, Italy); Abdelsalam Busalim (Technological University Dublin, Ireland); Carlo Sansone (University of Naples Federico II, Italy); Girolamo Di Francia (ENEA, Italy)
- PS19 Accurate BOFDA Measurements by Secondary Effects Compensation**
Raffaele Vallifuoco, Luigi Zeni and Aldo Minardo (University of Campania Luigi Vanvitelli, Italy)
- PS20 Microplastics Detection by Impact Electrochemistry**
Angelo Di Mauro and Mario Urso (University of Catania, Italy); Taoufik Slimani Tlemcani (University of Tours, France); Emmanuel Dumons (INSA Centre Val de Loire, France); Dimitri Bébien and Guylaine Poulin-Vittrant (University of Tours, France); Salvo Mirabella (University of Catania, Italy)
- PS21 Development of Colorimetric Sensing for Selective Detection of Cadmium in Aquatic Products**
Giovanna Marrazza (University of Florence, Italy); Mengyue Liu (University Dezhou, China); Marina Macchiagodena, Mattia Carbone and Marco Pagliai (University of Florence, Italy)
- PS22 A Current-Mode Front-End for Electromyographic Signal Acquisition**
Riccardo Olivieri, Gianluca Barile, Vincenzo Stornelli and Giuseppe Ferri (University of L'Aquila, Italy)
- PS23 Federated Learning for Anomaly Detection in Photovoltaic Systems**
 Sofia Dutto (University of Naples Federico II, Italy); Gabriele Piantadosi and Saverio De Vito (ENEA, Italy); Carlo Sansone (University of Naples Federico II, Italy); Girolamo Di Francia (ENEA, Italy)
- PS24 From Colorimetric Analytical Assays to Paper-Based Analytical Kits (PAK) for Agrifood Targets Evaluation**
Annalisa Scroccarello, Paolo Di Battista, Dounia El Fafil, Flavio Della Pelle and Dario Compagnone (University of Teramo, Italy)

- PS25 A Low-Resistance Switched-Capacitors Bandgap Reference Circuit with -40°C to 175°C Operative Range**
Lorenzo Pulcini (University of Milano Bicocca, Italy); Paolo Del Croce (Infineon Technologies, Austria); Andrea Baschirotto (University of Milano Bicocca, Italy)

16:30 - 17:20 *Sala VII (Pinacoteca) - Floor 4*

Session T2 - Chemical, Electrochemical and Gas Sensors - PART 2

Chairs: Sabrina Grassini, *Politecnico di Torino, Italy*

Salvatore Graziani, *University of Catania, Italy*

- 16:30 Colorimetric Smart Sensor for Volatile Amines and Sulfides Monitoring in Foods**
Mattia Carbone, Giulia Selvolini, Pasquale Palladino and Giovanna Marrazza (University of Florence, Italy)

- 16:40 Highly-Sensitivity and Reliability Gas Sensor by Hybridizing Laser-Induced Graphene and Molybdenum Trioxide with Metal-Organic Decomposition**
Akihiro Katsura, Otoya Okanishi, Yukiko Hirose, Yuma Miura, Wenliang Zhu and Tohru Sugahara (Kyoto Institute of Technology, Japan)

- 16:50 Porphyrin Non-Covalent Immobilization on Polymer Substrate for Mercury Detection in Water**
Cristiana Longo (Consiglio Nazionale delle Ricerche, Italy); Ivana Di Bari (CNR-IMM, Italy); Giusy Curcuruto and Emanuela T.A. Spina (Consiglio Nazionale delle Ricerche, Italy); Grazia M. L. Messina (University of Catania, Italy); Antonella Sciuto and Giuseppe A.M. D'Arrigo (Consiglio Nazionale delle Ricerche, Italy); Sabrina C Carroccio (CNR - IPCB Catania, Italy)

- 17:00 Atomic Layer Deposition to Gas Sensing Materials**
Nicola Pinna (Humboldt-Universität zu Berlin, Germany)

17:20 - 18:40 *Sala VII (Pinacoteca) - Floor 4*

Session T3 - Physical (micro) sensors and sensor systems - PART 1

Chairs: Leandro Lorenzelli, *FBK, Trento, Italy*

Saverio De Vito, *ENEA, Italy*

- 17:20 Acoustic Vehicle Classification Using Integrated Spectral and Statistical Feature Sets**
Damjan Pecioski, Viktor Gavriloski, Simona Domazetovska Markovska and Anastasija Ignjatovska (Cyril and Methodius University, Macedonia)

- 17:30 Frequency Tuning and Performance Enhancement of a Piezoelectric Cantilever Harvester for Industrial Vibrations**
Dejan Shishkovski and Damjan Pecioski (Ss Cyril and Methodius University in Skopje, Macedonia, the former Yugoslav Republic of)

- 17:40 Preliminary Evaluation of a Piezoelectric Energy Harvester for Structural Health Monitoring in Wind Turbines**
Mikel Hualde-Otamendi (Public University of Navarre, Spain); Alessandro Nastro, Marco Baù and Marco Ferrari (University of Brescia, Italy); Carlos Castellano-Aldave, José M. Algueta Miguel, Alfonso Carloseña (Public University of Navarre, Spain); Vittorio Ferrari (University of Brescia, Italy)
- 17:50 Threshold-Based Detection of Standing Still Condition for Postural Sway Monitoring**
 Bruno Andò and Mattia Manenti (University of Catania, Italy); Sebastian Bader (Mid Sweden University, Sweden)
- 18:00 Investigation of a Power Saving Mode in a Space-Qualified MEMS Mass Flow Sensor**
Carlo Pennacchio (University of Pavia, Italy & University of Brescia, Italy); Andrea Adami and Leandro Lorenzelli (FBK-Center for Materials and Microsystems, Italy); Piero Malcovati (University of Pavia, Italy); Vittorio Ferrari (University of Brescia, Italy)
- 18:10 Time-Resolved Study of Electron Beams from Conventional to FLASH Regimes Using a-Si: H Detectors**
 Elisa Gazzera and Maria Vittoria Rossi (University of Florence, Azienda Ospedaliero-Universitaria Careggi (AOUC), Italy); Marta Ponzecchi and Giacomo Insero (University of Florence, INFN (Florence), Italy); Keida Kanxheri and Caputo Domenico (University of Perugia, INFN (Perugia), Italy); Giampiero De Cesare (Sapienza University of Rome, INFN (Rome), Italy); Nicolas Wyrsh (EPFL (PV-Lab), Switzerland); Federico Cittadini and Leonello Servoli (INFN (Perugia), Italy); Umberto Deut and Diango Manuel Montalvan Olivares (University of Turin, INFN (Turin), Italy); Simona Giordanengo (INFN (Turin), Italy); Anna Vignati (University of Turin, INFN (Turin), Italy); Stefania Pallotta and Cinzia Talamonti (University of Florence, INFN (Florence), Azienda Ospedaliero-Universitaria Careggi (AOUC), Italy)
- 18:20 A Novel Impedance-Based Technology for MiRNA Detection**
Emanuele Luigi Sciuto, Vincenzo Paratore, Bianca Martins Esteveao, Giovanni Bella, Maria Laura De Plano and Salvatore Oddo (University of Messina, Italy); Neeraj Yadav (FBK - Foundation Bruno Kessler & University of Trento, Italy); Leandro Lorenzelli (FBK-Center for Materials and Microsystems, Italy); Sabrina Conoci (University of Bologna, Italy)

<i>18:40 - 21:30</i>	<i>Sala V (Cappella) - Floor 3</i>
SOCIAL EVENT	

19:00 Happy Hour

20:00 View of the celebration in honor of Saint Agatha

Technical Program - Friday, February 13

08:00 - 14:00	<i>Museo Diocesano - Hall</i> REGISTRATIONS
08:30 - 10:00	<i>Sala VII (Pinacoteca) - Floor 4</i> Session F1 - Physical (micro) sensors and sensor systems - PART 2 Chairs: Pietro Siciliano, CNR - <i>Institute of Microelectronics and Microsystems, Italy</i> Leandro Lorenzelli, FBK, Trento, Italy
08:30	A Novel Compact Low-Cost Method to Measure the Flow of a Fluid Withing a Peristaltic Pump <u>Michele Dellutri</u> , Enrico Alessi and Fabio Passaniti (STMicroelectronics, Italy)
08:50	Design and Colorimetric Performance of Schiff Base Probes for Selective Metal Ion Detection in Aqueous Media <u>Sarah Ben Haj Fraj</u> , Meryam Chelly, Sabine Chelly and Giovanni Neri (University of Messina, Italy)
09:00	Efficient Onboard Earth Observation: A Hardware-Aware Optimization Pipeline for CubeSat Systems <u>Luigi Capogrosso</u> (Interdisciplinary Transformation University of Austria, Austria); Michele Magno (ETH Zurich, Switzerland)
09:10	Construction and Demolition Waste-Based Smart Alkali-Activated Foam for Structural Monitoring <u>Rosa De Michele</u> (University of Naples Federico II, Italy); Giuseppe Cesare Lama (Institute of Polymers, Composite and Biomaterials, National Research Council, Italy); Barbara Liguori and Domenico Caputo (Università di Napoli Federico II, Italy); Letizia Verdolotti (Institute of Polymers, Composite and Biomaterials, National Research Council, Italy)
09:20	A Solar-Powered Hybrid UHF RFID-NFC Sensor Tag for Environmental Monitoring and Digital Twin Applications Andrea Ria, <u>Andrea Motroni</u> , Glauco Cecchi and Paolo Nepa (University of Pisa, Italy)
09:30	A Non-Invasive Radiofrequency Technique for Liquids Analysis <u>Viviana Mulloni</u> and Giada Marchi (Fondazione Bruno Kessler, Italy); Massimo Donelli (University of Trento, Italy); Tomas Roman Villegas (Fondazione Edmund Mach, Italy)
09:40	Enhancing LAB-ON-CHIP Re-Usability for BESIDE Space Bio-Sensing Payload Through Magnetic Field Optimization and Multi Physics Simulation Parsa Abbaszadee, <u>Yahid Omrani</u> , VS Siva Sankaram Emani, Lorenzo Nardi, Zahra Mazidi, Sahithi Sriramoju, Alessio Di Serafino, Lorenzo Thomas Contessa, Nicola Lovecchio and Giulia Petrucci (Sapienza University of Rome, Italy); Serena Perilli

(Italian Space Agency, Italy); Aleandro Norfini (Kayser Italia, Italy); Laura Anfossi (University of Turin, Italy); Mara Mirasoli (University of Bologna, Italy); Augusto Nascetti (Sapienza University of Rome, Italy)

10:00 - 11:00 *Sala VII (Pinacoteca) - Floor 4*
Session F2 - (AI/ML powered) Signal processing for sensing systems
Chairs: Salvatore Graziani, *University of Catania, Italy*
 Mattia Manenti, *University of Catania, Italy*

10:00 **Smartwatch Gesture Recognition for Enhancing Personal Security**
Lorenzo Giarè, Silvio Sorace, Ernesto La Mattina and Vito Morreale (Engineering Ingegneria Informatica SPA, Italy)

10:10 **Odour Metrology with Artificial Systems: Definition and Experimental Procedures**
Ettore Massera (ENEA, Italy); James Covington (University of Warwick, United Kingdom); Emanuele Caccavo and Ernesto Soldovieri (Neotes Srl, Italy); Troy Nagle (NC State University, USA)

10:20 **Real-Time Muscle Activation Detection via Joint Frequency-Amplitude Machine Learning Approach Towards Online Wearable FES-Treatment Control**
Maurizio Pellegrini, Giuseppe Coviello, Giuseppe Brunetti and Caterina Ciminelli (Politecnico di Bari, Italy)

10:30 **Temperature-Corrected Performance Ratio for Signal-Based PV Diagnostics**
Gabriele Piantadosi (ENEA, Italy); Sofia Dutto (University of Naples Federico II, Italy); Girolamo Di Francia (ENEA, Italy); Carlo Sansone (University of Naples Federico II, Italy)

10:40 **Electronic Nose and Machine Learning for Postmortem Human Biomatrix Classification**
Donatella Puglisi (Linköping University, Sweden); Kerstin Montelius (National Board of Forensic Medicine, Sweden); Carolina Ahrén (Linköping University, Sweden); Emanuela Tavaglione (University of Ferrara, Italy); Sumika Tsubota (Hokkaido University, Japan & Linköping University, Sweden); Rebecca Stenberg, Jens Eriksson and Ivan Shtepliuk (Linköping University, Sweden)

11:00 - 12:00 *Sala VII (Pinacoteca) - Floor 4*
Session F3 - Health applications - PART 2
Chairs: Sara Tombelli, *CNR - Institute of Applied Physics, Italy*
 Sabrina Conoci, *University of Bologna, Italy*

11:00 **Multiplex Electrochemical Platform for Airway Inflammation Biomarkers Analysis**
Nadia Moukri (University of Palermo, Italy); Vuslat Juska (Tyndall National Institute University, Ireland); Bernardo Patella (Università di Palermo, Italy); Elisabetta Pace (Institute of Translational Pharmacology (IFT), Italy); Chiara Cipollina (Ri.MED Foundation, Italy); Alan O'Riordan (Tyndall National Institute, Ireland); Rosalinda Inguanta (University of Palermo, Italy)

- 11:10 Design of Impedimetric Sensors for the Sensing of Creatinine in Aqueous Solution**
Vincenzo Piscopo, Giorgia Puleo, Giuseppe Arrabito and Bruno Pignataro (University of Palermo, Italy)
- 11:20 Multi Electrode Array Based Graph Deviation Network for Early Autism Syndrome Signatures in Human Forebrain Organoids**
Alessia Riccardi, Arianna Mencattini, Giorgia Curci, Paola Casti, Michele D'Orazio, Joanna Filippi, Gianni Antonelli, Erica Debbi, Elena Daprati and Eugenio Martinelli (University of Rome Tor Vergata, Italy)
- 11:30 Multiscale Optical Sensing Platforms for Tracking Extracellular and Intracellular Acidification Dynamics in Tumor Models**
Anna Chiara Siciliano (CNR-Nanotec, Italy)

12:00 - 13:00 *Caffetteria - Focolo - Floor 1*
BRUNCH

13:00 - 14:00 *Sala V (Cappella) and Sala VI - Floor 3*
POSTER SESSION
Chairs: Corrado Di Natale, *University of Roma Tor Vergata, Italy*
 Sabrina Conoci, *University of Bologna, Italy*

- PS01 Electrochemical Sensors for the Detection of Chloride in Sweat**
Lorella Lo Giudice (University of Enna Kore, Italy); Bernardo Patella and Nadia Moukri (University of Palermo, Italy); Maurizio Volpe and Antonio Messineo (University of Enna Kore, Italy); Rosalinda Inguanta (University of Palermo, Italy)
- PS02 Carbon Nano-Dots Based on L-Proline for Non Enzymatic Electrochemical Tyrosine Sensing**
 Ester Butera and Giorgia Fangano (University of Catania, Italy); Grazia Maria Letizia Consoli (CNR Istituto di Chimica Biomolecolare, Italy); Ivana Maria Caruso and Corinna Lombardo and Salvatore Petralia (University of Catania, Italy)
- PS03 Label-Free Impedimetric Sensor Based on Ag-Mip/Spce for the Nanomolar Detection of Aspirin in Water**
Meryam Chelly (University of Messina, Italy); Roumaissa Laieb (BADJI Mokhtar University of Annaba, Algeria); Sabine Chelly and Giovanni Neri (University of Messina, Italy)
- PS04 2D Molybdenum-Based Electrochemical Sensor for Environmental Monitoring**
 Rayhane Zribi (University of Messina, Italy); Ratiba Wali (Sciences University, Route Soukra km 3, Sfax, Tunisia); Antonino Foti and Pietro Giuseppe Gucciardi (IPCF-CNR, Italy); Giovanni Neri (University of Messina, Italy)

- PS05 Investigation Interfacial Polarization by Electrochemical Impedance: From Microplastics to Cellulose**
Giuseppe Arrabito, Giorgia Puleo, Davide Lascari, Silvia Orecchio, Salvatore Cataldo and Nicola Muratore (University of Palermo, Italy); Federica Meringolo, Paola Costanzo and Loredana Maiuolo (University of Calabria, Italy); Alberto Pettignano and Bruno Pignataro (University of Palermo, Italy)
- PS06 Smart Multi-Analyte Electrochemical Sensor for Real-Time Management of Chronic Respiratory Diseases**
Federico Massaro, Nadia Moukri, Bernardo Patella and Giuseppe Aiello (University of Palermo, Italy); Chiara Cipollina (Ri.MED Foundation, Italy); Serena Di Vincenzo and Maria Ferraro and Elisabetta Pace (Institute of Translational Pharmacology, Italy); Rosalinda Inguanta (University of Palermo, Italy)
- PS07 Electrochemical and Spectroscopical Characterization of Functionalized Biosensor for Detection of Human E-Cadherin**
 Laura Martina, Giuseppe Lamberti, Anna Rita De Bartolomeo and Maria Rachele Guascito (University of Salento, Italy)
- PS08 Non-Enzymatic Electrochemical Biosensing of Dopamine by Glucose-Derived Carbon Nanodots**
Antonino Consoli and Meryam Chelly (University of Messina, Italy); Giorgia Fangano, Ludovica Maugeri, Ester Butera and Corinna Lombardo (University of Catania, Italy); Luigi Monsù Scolaro and Giovanni Neri (University of Messina, Italy); Salvatore Petralia (University of Catania, Italy)
- PS09 A Compact Volatile Organic Compound Detection System Using Impedance Measurement and a Carbon Nanotube-Functionalized Textile Sensor**
 Carmine Villani Delle Vergini and Silvia Casalnuovo (Sapienza University of Rome, Italy); Daniela Caschera (National Research Council, Italy); Simone Quaranta (CNR-ISMN, Italy); Domenico Caputo (Sapienza University of Rome, Italy); Pisana Placidi (University of Perugia, Italy)
- PS10 Development and Optimization of an Electrochemical Sensor for SO₂ Detection in Wine**
Riccardo Pedone, Bernardo Patella, Nadia Moukri, Giuseppe Aiello, Antonino Parisi and Rosalinda Inguanta (University of Palermo, Italy)
- PS11 Sub-Ppm Gas Detection with Metal Organic Frameworks Functionalized Quartz Microbalances**
Corrado Di Natale, Rosamaria Capuano, Gabriele Magna, Manuela Stefanelli, Alexandro Catini, Kishore Pushparaj, Valerio Allegra and Roberto Paolesse (University of Rome Tor Vergata, Italy)
- PS12 Low-Cost Metrology-Oriented Architecture for Mos Gas Sensors: Ratiometric Readout and Oversampling Enhancement**
Juan David Vega Jurado, Astrid Liliana Contreras and Carlos Arturo Salas (Universidad Autónoma de Bucaramanga, Colombia)

- PS13 Development and Validation of a Portable Gas Detector for Enhanced H₂S and NH₃ Sensors Based on Metal-Doped h-WO₃ Nanorods**
Sarah Ben Haj Fraj (University of Messina, Italy); Roman Viter (19, Raina blvd & Roman Viter, University of Latvia, Institute of Atomic Physics and Spectroscopy, Latvia); Antonio Cannuli (University of Messina, Italy); Andrea Donato (University Mediterranean of Reggio Calabria, Italy); Andrea Torchia, Umberto Emanuele and Stefano Sinopoli (BioAge Srl, Italy)
- PS14 Enhanced Hydrogen Sensing Performance of Europium-Doped Zinc Oxide Nanomaterials**
Hafiene Nesrine (University of Messina, Italy)
- PS15 Transfer-Free Integration of Laser Induced Graphene Electrodes on Polystyrene for Functional Monitoring of Skeletal Muscle on Chip**
Giorgia Curci, Mario Marini, Alessia Riccardi, Arianna Mencattini, Gianni Antonelli, Eugenio Martinelli, Joanna Filippi, Michele D'Orazio, Erica Debbi, Paola Casti, Sara Pescetelli, Antonio Agresti (University of Rome Tor Vergata, Italy)
- PS16 Recombinant Phage-Based "Sandwich Method for the Detection of Pseudomonas Aeruginosa**
Marco Sebastiano Nicolò, Giovanni Bella, Vincenzo Paratore, Dario Morganti, Salvatore Guglielmino, Emanuele Luigi Sciuto and Sabrina Conoci (University of Messina, Italy)
- PS17 Integration of Long Period Fiber Gratings with Photopolymerized Hydrogels for Bacteria Detection**
Mostafa Fytory (CNR - Istituto di Fisica Applicata, Italy); Maria Alejandra Tapia Montesinos (University of Bologna, Italy); Niccolò Marcucci, Ambra Giannetti and Francesco Baldini (CNR - Istituto di Fisica Applicata, Italy); Alejandro Hochkoeppler and Andreas Lesch (University of Bologna, Italy); Cosimo Trono and Sara Tombelli (CNR - Istituto di Fisica Applicata, Italy)
- PS18 On-Fiber Optical and Electrochemical Hybrid Biosensor**
Cosimo Trono (CNR - Istituto di Fisica Applicata, Italy); Francesco Arcadio (University of Campania Luigi Vanvitelli, Italy); Niccolò Marcucci and Sara Tombelli (CNR - Istituto di Fisica Applicata, Italy); Nunzio Cennamo and Luigi Zeni (University of Campania Luigi Vanvitelli, Italy); Maria Rachele Guascito, Laura Martina and Giuseppe Lamberti (University of Salento, Italy); Bruno Ando and Danilo Greco (University of Catania, Italy); Laura Pasquardini (Indivenire Srl, Italy); Francesco Baldini (CNR - Istituto di Fisica Applicata, Italy)
- PS19 Investigation of Loss Compensation in High-Q Ring Resonators Using a Semiconductor Optical Amplifier**
Giuseppe Brunetti and Caterina Ciminelli (Politecnico di Bari, Italy)

- PS20 Development of a Reliable Dual-Channel USB Communication Framework for the ALCYONE Ground Model Microincubator**
Alessio Di Serafino, Lorenzo Thomas Contessa, Lorenzo Nardi, Vahid Omrani, Parsa Abbasrezaee, VS Siva Sankaram Emani, Zahra Mazidi, [Sahithi Sriramoju](#) (Sapienza University of Rome, Italy); Mara Mirasoli (University of Bologna, Italy); Nicola Lovecchio, Domenico Caputo and Giulia Petrucci (Sapienza University of Rome, Italy); Han Gardeniers (University of Twente, The Netherlands); Michele Caselle (Karlsruhe Institute of Technology, Germany); Fabio Lorenzini (Kayser Italia Srl, Italy); Daniella Billi (University of Rome Tor Vergata, Italy); Augusto Nascetti (Sapienza University of Rome, Italy)
- PS21 Temperature Compensation on IDC-Based Proximity Sensors**
Danilo Greco, Gabriele Battezzato and [Bruno Andò](#) (University of Catania, Italy)
- PS22 Numerical Modeling of Fluidic and Thermal Dynamics in a Modular Lab-on-Chip Platform for Microgravity Bioreactor Applications**
[Vahid Omrani](#) and Alessio Di Serafino, Parsa Abbasrezaee, Lorenzo Thomas Contessa, VS Siva Sankaram Emani, Lorenzo Nardi, Zahra Mazidi and Sahithi Sriramoju (Sapienza University of Rome, Italy); Mara Mirasoli (University of Bologna, Italy); Nicola Lovecchio, Domenico Caputo and Giulia Petrucci (Sapienza University of Rome, Italy); Han Gardeniers (University of Twente, The Netherlands); Michele Caselle (Karlsruhe Institute of Technology, Germany); Fabio Lorenzini (Kayser Italia Srl, Italy); Daniella Billi (University of Rome Tor Vergata, Italy); Augusto Nascetti (Sapienza University of Rome, Italy)
- PS23 A Coupled-Coil Wireless Interrogation System for IDC Capacitive Sensors**
Danilo Greco, Giordana Assunta Torrisi and [Bruno Andò](#) (University of Catania, Italy)
- PS24 Assessing Criteria for Remote Reference Selection in the Calibration of Low-Cost Air Quality Sensors**
Lorenzo Manco and Ilker Erunsal (University of Naples Federico II, Italy); Gabriele Piantadosi, [Saverio De Vito](#) and Girolamo Di Francia (ENEA, Italy)
- PS25 Multimodal AI-IOT Setup for Advanced Integrated Pv Plants Operation and Maintenance**
[Ilker Erunsal](#) (University of Naples Federico II, Italy); Saverio De Vito (ENEA, Italy); Antonio Del Giudice, Giuseppe Loffredo, Gianni Leanza and Girolamo Di Francia (ENEA, Italy)
- PS26 Multivariate Machine Learning Classifiers for Utility-Scale PV Fault Detection**
[Gabriele Piantadosi](#) (ENEA, Italy); Sofia Dutto (University of Naples Federico II, Italy); Girolamo Di Francia (ENEA, Italy); Carlo Sansone (University of Naples Federico II, Italy)

14:00 - 15:00 *Sala VII (Pinacoteca) - Floor 4*
Session F4 - Emerging sensors technologies, Materials and Applications - PART 3
Chairs: Dario Compagnone, *University of Teramo, Italy*
Giovanni Neri, *University of Messina, Italy*

14:00 Dual-Frequency Capacitive Sensing for Sub-Millimeter Layer Thickness: A Numerical Design Study

Parisa Esmaili, Federico Cavedo and Michele Norgia (Politecnico di Milano, Italy)

14:10 Sustainable Nanocellulose from Industrial Waste for Advanced Electrochemical Technologies

Jihene Belhaj and Rayhane Zribi (University of Messina, Italy); Ramzi Khiari (University of Monastir, France); Claudia Espro (University of Messina, Italy)

14:20 Hydrogenated Amorphous Silicon Thin-Film Sensor Chip with Integrated Dielectric Interference Filtering for Real-Time Fluorescence Monitoring of Biofilms in the Borealis LoC Payload

Giulia Petrucci, Lorenzo Nardi, Alessio Di Serafino, Lorenzo Thomas Contessa, Parsa Abbasrezaee, Vahid Omrani, VS Siva Sankaram Emani, Zahra Mazidi, Sahithi Sriramoju, Nicola Lovecchio and Caputo Domenico (Sapienza University of Rome, Italy); Fabio Lorenzini (Kayser Italia Srl, Italy); Mara Mirasoli (University of Bologna, Italy); Augusto Nascetti (Sapienza University of Rome, Italy)

14:30 Impedimetric DNA Sensor Based on Gold-Modified NiO Nanostructures for PCR-Free Real-Time Detection of Antibiotic-Resistance Genes in Wastewater

Mario Urso, Nabiollah Gholamiarjenaki, Antonino Scandurra, Roberta Magnano San Lio, Andrea Maugeri, Martina Barchitta, Antonella Agodi and Salvo Mirabella (University of Catania, Italy)

14:40 A Comprehensive Electrochemical Characterization of a Novel High-Entropy Oxide as a Possible Solid Electrolyte

Antonio Vendittelli and Filippo Milano (University of Cassino and Southern Lazio, Italy); Luca Spiridigliozzi (Universitas Mercatorum, Italy); Gianfranco Dell'Agli and Luigi Ferrigno (University of Cassino and Southern Lazio, Italy)

15:00 - 16:00 *Sala VII (Pinacoteca) - Floor 4*
Session F5 - Emerging sensors technologies, Materials and Applications - PART 4
Chairs: Corrado Di Natale, *University of Roma Tor Vergata, Italy*
Bruno Andò, *University of Catania, Italy*

15:00 Sustainable Fluorescent Materials from Mediterranean Botanical Extracts for (Bio)Chemical Sensing

Sabrina Chelly and Meryam Chelly (University of Messina, Italy); Hanen Bouaziz-Ketata (University of Sfax, Tunisia); Giovanni Neri (University of Messina, Italy)

15:10 Porphyrin-Conductive Polymer Hybrids Flexible Sensor Array for Sensitive and Selective Detection of Volatile Compounds

Rosamaria Capuano, Valerio Allegra, Alexandro Catini, Valerio Trosini, Gabriele Magna, Roberto Paolesse, Corrado Di Natale (University of Rome Tor Vergata, Italy)

15:20 Tracing the Development of Modern Biopolymers Based Motion Transducers

Salvatore Graziani, Sara Sadat Hosseini, Giovanna Di Pasquale, Antonino Pollicino and Carlo Trigona (University of Catania, Italy)

15:30 Low Cost and Sustainable Substrate for Electrochemical Sensors Valorising Posidonia Oceanica Egagropili

Lorella Lo Giudice (University of Enna Kore, Italy); Nadia Moukri and Bernardo Patella (University of Palermo, Italy); Maurizio Volpe and Antonio Messineo (University of Enna Kore, Italy); Rosalinda Inguanta (University of Palermo, Italy)

16:00 - 16:30 *Sala VII (Pinacoteca) - Floor 4*

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