

# Research and Technologies for Society and Industry RTSI 2015

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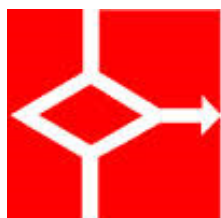


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# Program

## Wednesday, Sep 16

9:00-12:00

Joint event with the annual meeting of CMAEL- GUSEE annual meeting (in Italian)

Round table on "Politica Universitaria", Sala Consiglio di Facoltà, Politecnico di Torino, Corso Duca degli Abruzzi, 24

14:00-14:30

**Welcome Session**

**Room:** Aula Magna

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14:30-16:15

**Panel 1: Smart Energy Systems**

**Chairs:** Roberto Caldon, Carlo Alberto Nucci

**Room:** Aula Magna

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16:15-16:45

**Coffee Break**

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16:45-18:30

**Panel 2: Smart Mobility: Innovative Technical Solutions and Challenges Ahead**

**Chairs:** Marco Ajmone Marsan, Dajana Cassioli

**Room:** Aula Magna

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19:00-20:00

**Welcome Reception**

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## Thursday, Sep 17

8:30-10:00

**Panel 3: IoT as Enabling Technology for Smart Cities**

**Chair:** Enrico Macii

**Room:** Aula Magna

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10:00-10:30

**Coffee Break**

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10:30-12:15

**S1-1: IoT-based solutions for Smart Societies (1)**

**Chair:** Carla Chiasserini

**Room:** Aula Magna

**An Android-based testbed for Hybrid Wireless Mesh Networks in the IoT perspective**

Marco Pratesi and Francesco Valentini (University of L'Aquila, Italy); Fortunato Santucci (University of L'Aquila, Italy)

**Deseeding Energy Consumption of Network Stacks**

Iñaki Ucar (University Carlos III of Madrid, Spain); Arturo Azcorra (University Carlos III of Madrid; IMDEA Networks, Spain)

**ALL4ALL: IoT and Telecare project for social inclusion**

Elisa Marchioro (CSP-Innovazione nelle ICT, Italy); Claudia Vicari (Engineering Ingegneria Informatica S.p.A., Italy); Sergio Duretti (CSP-Innovazione nelle ICT, Italy); Lanfranco Marasso (Engineering Ingegneria Informatica S.p.A.,

Italy); Luca Fiorano and Erica Giacoletto Papas (iSimply Learning Srl – iSimply Srl, Italy); Valerio Dimonte and Arianna Radin (Università di Torino, Italy); Fabrizio Gaveglione and Stefano Falda (SINCOS Applications Srl, Italy)

### **Software Defined Wireless Network (SDWN): an evolvable architecture for W-PANs**

Salvatore Costanzo (University of Athens, Greece); Laura Galluccio (DIEEI, Italy); Giacomo Morabito and Sergio Palazzo (University of Catania, Italy)

### **On the Synchronization of Co-Located IEEE 802.15.4 Networks for IoT Applications**

Falko Dressler (University of Paderborn, Germany); Noorsalwati Nordin (University of Innsbruck, Austria)

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**10:30-12:15**

### **S1-2: High Availability electrical components and systems: fault-tolerant design and operation; failure detection and diagnosis (1)**

**Chairs:** Radu Bojoi, Alfredo Testa

**Room:** Room 201

### **Design, characterization and signal integrity analysis of a 2.5 Gb/s high-speed serial interface for automotive applications overarching the chip/PCB wall**

Andrea Cossettini (University of Udine, Italy); Andrea Cristofoli, Werner Grollitsch, Lino Alves, Roberto Nonis and Luca Della Ricca (Infineon Technologies, Austria); Pierpaolo Palestri and Luca Selmi (University of Udine, Italy)

### **Long time stability of electrical contact base on ruthenium nanoscale films at various coating roughness**

Gennady Gololobov, Sergey Karabanov, Dmitry Suvorov, Victor Gurov, Dmitry Tarabrin and Evgeny Slivkin (Ryazan State Radio Engineering University, Russia)

### **Improvements in the ModSCA Simulator: a tool helping to analyze energy efficiency of a compressed air system**

Norma Anglani and Maria Evelina Mognaschi (University of Pavia, Italy); Gianluca Sala (Sea Vision, Srl; DIII, University of Pavia, Italy)

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**10:30-12:15**

### **S1-3: Human-centered robotics: rethinking the interaction between men and machines**

**Chair:** Domenico Prattichizzo

**Room:** Room 203

### **Design Guidelines for a Wearable Robotic Extra-Finger**

Irfan Hussain, Gionata Salvietti, Monica Malvezzi and Domenico Prattichizzo (University of Siena, Italy)

### **Exploration of Lower Limb Body Schema Integration with Respect to Body-Proximal Robotics**

Tim Schürmann (Technische Universität Darmstadt, Germany); Philipp Overath (TU Darmstadt, Germany); Oliver Christ (University of Applied Sciences and Arts Northwestern Switzerland, Germany); Joachim Vogt and Philipp Beckerle (Technische Universität Darmstadt, Germany)

### **An innovative portable hand exoskeleton for rehabilitation and assistance**

Roberto Conti and Enrico Meli (Florence University, Italy); Alessandro Ridolfi, Benedetto Allotta, Lapo Governi and Yary Volpe (University of Florence, Italy)

### **Relevance of Series-Elastic Actuation in Rehabilitation and Assistance Robotic: two Cases of Study**

Marco Cempini, Dario Marconi, Marco Muscolo, Matteo Moisè, Matteo Fantozzi, Mario Cortese, Andrea Parri, Tingfang Yan, Simona Crea and Francesco Giovacchini (Scuola Superiore Sant'Anna, Italy); Federico Posteraro (Auxilium Vitae Rehabilitation Centre, Italy); Maria Carrozza; Nicola Vitiello (Scuola Superiore Sant'Anna, Italy)

### **Immersive VR for natural interaction with a haptic interface for shape rendering**

Mario Covarrubias and Monica Bordegoni (Politecnico di Milano, Italy)

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**10:30-12:15**

**S1-4: Millimeter-waves Communications**

**Chair:** Dajana Cassioli

**Room:** Room 202

**Millimeter-Wave Communications in 5G Mobile Networks for Wireless Access and Backhaul (invited)**

L. Dussopt (CEA-LETI), V. Palestini (Telecom Italia)

**Strategies for the improvement of the Out of Band Behavior of TM dual-mode Filters**

Cristiano Tomassoni (University of Perugia, Italy), Marco Dionigi (University of Perugia, Italy), Roberto Sorrentino (University of Perugia, Italy)

**Potentials of Low-Complexity Rake Receivers for 60 GHz UWB Wireless Communication Systems**

Nikola Rendeovski (University of L'Aquila, Italy), Dajana Cassioli (University of L'Aquila, Italy)

**On the Alignment-throughput Tradeoff in Millimeter Wave Systems**

Hossein Shokri-Ghadikolaei (KTH, Royal Institute of Technology, Sweden); Lazaros Gkatzikis (Mathematical and Algorithmic Sciences Lab, France Research Center, Huawei Technologies Co. Ltd., France); Carlo Fischione (KTH, Sweden)

**Frequency-Domain In-Vehicle Channel Modelling in mmW Band**

Aniruddha Chandra (Brno University of Technology ; National Institute of Technology, Durgapur, WB, Czech Republic); Pavel Kukolev and Tomas Mikulasek (Brno University of Technology, Czech Republic); Ales Prokes (Brno University of Technology ; Sensor, Information and Communication Systems Research Centre, Czech Republic)

**10:30-12:15**

**Tutorial 1: Co-simulation of Power System and Communications Networks for Smart Distribution Planning and Operation Studies**

**Speakers:** Fabrizio Pilo, (University of Cagliari, Italy), Emilio Ghiani (University of Cagliari, Italy)

**Room:** Room 205

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**12:15-12:45**

**Exhibitions of Research Projects and Spin-offs: presentation of the initiative**

**Speaker:** Paolo Attilio Pegoraro (University of Cagliari, Italy)

**Room:** Aula Magna

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**12:45-14:00**

**Lunch**

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**14:00-16:15**

**S2-1: IoT-based solutions for Smart Societies (2)**

**Chair:** Carla Chiasserini

**Room:** Aula Magna

**Reconfigurable Antenna System for Wireless Applications**

Simone Ciccia (Politecnico di Torino, Italy); Giorgio Giordanengo (Istituto Superiore Mario Boella ; Politecnico di Torino, Italy); Sergio Arianos (Istituto Superiore Mario Boella (ISMB), Italy); Flavio Renga, Pietro Ruiu, Alberto Scionti, Lorenzo Mossucca and Olivier Terzo (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi (Politecnico di Torino, Italy)

### **Urban Civics: An IoT Middleware for Democratizing Crowdsensed Data in Smart Societies**

Sara Hachem (University of California Berkeley, France); Valerie Issarny (INRIA, France); Vivien Mallet (Inria, France); Animesh Pathak (Inria Paris-Rocquencourt, France); Rajiv Bhatia (The Civic Engine, USA); Pierre-Guillaume Raverdy (Ambientic, France)

### **Measurement-based Energy Consumption Profiling of Mobile Radio Networks**

Antonio Capone (Politecnico di Milano, Italy); Stefano D'Elia (Vodafone Italy, Italy); Ilario Filippini (Politecnico di Milano, Italy); Marco Zangani (Vodafone Italy, Italy)

### **Urban-scale Cellular Offloading through Wi-Fi Access Points: a Measurement-based Case Study**

Patrice Raveneau (INRIA, Université de Lyon, INSA-Lyon, CITI, France); Razvan Stanica (INSA Lyon, France); Marco Fiore (National Research Council of Italy, Italy); Sandesh Uppoor (Orange Labs, France); Mathieu Cunche (INSA-Lyon / INRIA, France); Herve Rivano (Inria ; Université de Lyon, INRIA, INSA Lyon, CITI, France); Zbigniew Smoreda (Orange Labs ; France Telecom Group, France)

### **Adopting IoT Framework for Energy Management of Smart Building: A Real Test-Case**

Paolo Bellagente (Italia, Italy); Paolo Ferrari, Alessandra Flammini and Stefano Rinaldi (University of Brescia, Italy)

### **Video processing for V2V communications: a case study with traffic lights and plate recognition**

Giacomo Russo, Enrico Baccaglioni, Luca Boulard, Daniele Brevi and Riccardo M. Scopigno (Istituto Superiore Mario Boella, Italy)

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**14:00-16:15**

### **S2-2: LED for lighting: what is new in the year of light**

**Chair:** Enrico Zanoni

**Room:** Room 201

### **OLED and OLET in the future of light generation (invited)**

Michele Muccini (CNR-ISMN, Italy)

### **LED light sources: solving design issues with innovative technology (invited)**

Alexander Wilm (OSRAM – OS)

### **Analysis of the mechanisms limiting the reliability of retrofit LED lamps**

Carlo De Santi (University of Padova, Italy); Matteo Dal Lago (LightCube Srl, Italy); Matteo Buffolo, Matteo Meneghini and Gaudenzio Meneghesso (University of Padova, Italy); Enrico Zanoni (DEI, Italy)

### **Influence of random alloy fluctuations in InGaN/GaN quantum wells on LED efficiency**

Matthias Auf der Maur (University of Rome Tor Vergata, Italy); Alessandro Pecchia (CNR-ISMN, Italy); Aldo Di Carlo (University of Rome Tor Vergata, Italy)

### **Effects and exploitation of Tunable White Light for circadian rhythm and human-centric lighting**

Nicola Trivellin (DEI-UniPD ; LightCube SRL, Italy); Matteo Meneghini (University of Padova, Italy); Marco Ferretti and Diego Barbisan (DEI - UniPD, Italy); Matteo Dal Lago (LightCube Srl, Italy); Gaudenzio Meneghesso (University of Padova, Italy); Enrico Zanoni (DEI, Italy)

### **Modeling challenges for high-efficiency visible light-emitting diodes**

Francesco Bertazzi (Politecnico di Torino, Italy); Stefano Dominici, Marco Mandurrino, Dipika Robidas and Xiangyu Zhou (DET, Politecnico di Torino, Italy); Marco Vallone (Politecnico di Torino, Italy); Marco Calciati and Pierluigi Debernardi (IEIIT CNR, Italy); Giovanni Verzellesi (University of Modena and Reggio Emilia, Italy); Matteo Meneghini (Università di Padova, Italy); Enrico Bellotti (Boston University, Italy); Giovanni Ghione and Michele Goano (Politecnico di Torino, Italy)

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**14:00-15:45**

**S2-3: Advances in magnetics: applications, characterization, modeling (1)**

**Chair:** Antonio Faba

**Room:** Room 203

**Improving the Jiles-Atherton Model by introducing a full dynamic dependence of parameters**

Francesco Riganti Fulginei (Roma TRE University, Italy); Gabriele Maria Lozito, Stefano Gaiotto and Alessandro Salvini (Roma Tre University, Italy)

**FE Analysis of Magnetic Shielding Screens based on Mortars containing Ferromagnetic particles**

Antonino Laudani (University of Roma Tre, Italy); Salvatore Coco (University of Catania, Italy); Gabriele Maria Lozito (Roma Tre University, Italy); Giuseppe Pollicino (University of Catania, Italy)

**Spin waves propagation in arrays of single- and bi-component thin magnetic stripes: a micromagnetic study**

Michele Guerrini (University of Perugia, Italy); Giovanni Carlotti (University of Perugia, Italy)

**Magnetic solitons driven by spin-based phenomena: a review on their features and potentialities**

Riccardo Tomasello (University of Calabria, Italy); Anna Giordano and Vito Puliafito (University of Messina, Italy); Mario Carpentieri (Technical University of Bari, Italy)

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**14:00-16:15**

**Panel: Industry Forum on Electric Mobility (1)**

**Chair:** Giuseppe Tomasso

**Room:** Room 202

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**14:00-15:45**

**Tutorial 2: Solving Power Flow and Optimal Power Flow Problems in the presence of Data Uncertainty by Affine Arithmetic**

**Speaker:** Alfredo Vaccaro, University of Sannio, Benevento (Italy)

**Room:** Room 205

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**16:15-16:45**

**Coffee Break**

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**16:45-18:30**

**S3-1: Big Data for Enterprise, Government, Healthcare and Environment - Innovative solutions and emerging applications (1)**

**Chair:** Silvana Castano

**Room:** Aula Magna

**Data Scientist: a special profile for Big Data (invited)**

Antonio Teti (Università "G.D'Annunzio" di Chieti-Pescara), Edgardo Bucciarelli (Università "G.D'Annunzio" di Chieti-Pescara), Giovanni Cancellieri (Università Politecnica delle Marche), Emanuele Frontoni (Università Politecnica delle Marche), Franco Chiaraluce (Università Politecnica delle Marche)

**DBpedia Mobile Explorer**

Iacopo Vagliano (Politecnico di Torino, Italy); Marco Marengo (Telecom Italia S.p.A., Italy); Maurizio Morisio (Politecnico di Torino, Italy)

**A Cloud-based Big Data Sentiment Analysis Application for Enterprises' Brand Monitoring in Social Media Streams**

Antonio Tedeschi (University Roma TRE ; Signal Processing for Telecommunications and Economics, Italy); Francesco Benedetto (University of Roma Tre; Signal Processing for Telecommunications and Economics Lab., Italy)

### **Topological Classification of Small DC Motors**

Matteo Rucco (University of Camerino, School of Science and Technology ; Loccioni Group, Italy); Emanuela Merelli (University of Camerino, School of Science and Technology, Italy); Cristina Cristalli (Loccioni Group, Italy); Enrico Concettoni (Research for Innovation ; Loccioni Group, Italy); Andrea Ferrante (Research for Innovation, Loccioni Group, Italy)

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**16:45-18:30**

### **S3-2: High Availability electrical components and systems: fault-tolerant design and operation; failure detection and diagnosis (2)**

**Chairs:** Radu Bojoi, Alfredo Testa

**Room:** Room 201

### **On Supply Reliability and Voltage Quality in the Presence of Feeder Automation in MV Smart Grids**

Manuel Chiumarulo (Second University of Naples, Italy); Sasa Djokic (Institute for Energy Systems. The University of Edinburgh, United Kingdom); Roberto Langella, Alfredo Testa and Alfonso Turco (Second University of Naples, Italy)

### **Multiphase Electrical Machines and Drives in the Transportation Electrification**

Radu Bojoi, Andrea Cavagnino and Alberto Tenconi (Politecnico di Torino, Italy); Alberto Tessorolo (University of Trieste, Italy); Silvio Vaschetto (Politecnico di Torino, Italy)

### **Technological Solution for Increasing the Quality of Crimped Connections**

Ocoleanu Constantin Florin (University of Craiova ; Electrical Engineering Faculty, Romania); Cividjian Grigore and Manolea Gheorghe (University of Craiova, Romania)

### **Fault-Tolerant Design of Motor-Drives for High Reliability Applications**

Giuseppe Fabri, Emidio Della Loggia, Marco Tursini and Marco Villani (University of L'Aquila, Italy)

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**16:45-18:30**

### **S3-3: Advances in magnetics: applications, characterization, modeling (2)**

**Chair:** Antonio Faba

**Room:** Room 203

### **Some Remarks About The Magnetization Processes in Electrical Steels Via a Micromagnetic Approach**

Simone Quondam Antonio and Michele Pompei (University of Perugia, Italy)

### **Magnetization Processes of Non Oriented Electrical Steels: Vector Hysteresis and Energy Losses Measurements**

Simone Quondam Antonio and Michele Pompei (University of Perugia, Italy)

### **Micromagnetic modelling of synchronized three terminal magnetic tunnel junctions**

Mario Carpentieri (Technical University of Bari, Italy); Silvano Vergura (Politecnico di Bari, Italy); Riccardo Tomasello (University of Calabria, Italy); Anna Giordano, Vito Puliafito and Giulio Siracusano (University of Messina, Italy)

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**16:45-18:30**

### **Panel: Industry Forum on Electric Mobility (2)**

**Chair:** Giuseppe Tomasso

**Room:** Room 202

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**16:45-18:30**

### **Research and Innovation Networking**



**Chairs:** Gianmario Pellegrino, *DENERG, Politecnico di Torino*; Silverio Bolognani, *Università di Padova*.

**Room:** Room 205

### **Corporation and Academia**

Franco Tortarolo, Avio Aero

### **IP management in a Research Network**

Shiva Loccisano, Head of Technology Transfer and Industrial Liaison Division, Politecnico di Torino

### **The Role of Venture Capital**

N. Redi, Investment Director, Vertis Sgr

### **Start ups and Hubs for Innovation**

Speaker: C. Bianchini, RAW Power Srl e Reggio Emilia Innovazione

### **Round Table**

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**20:00-22:00**

**Social Dinner**

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## **Friday, Sep 18**

**8:30-10:00**

### **S4-1: Big Data for Enterprise, Government, Healthcare and Environment - Innovative solutions and emerging applications (2)**

**Chair:** Silvana Castano

**Room:** Aula Magna

### **Exploratory Analysis of Large Web Datasets**

Silvana Castano, Alfio Ferrara and Stefano Montanelli (Università di Milano, Italy)

### **Characterization of Public Datasets for Recommender Systems**

Erion Cano (Polytechnic University of Turin, Italy); Maurizio Morisio (Politecnico di Torino, Italy)

### **ABC: A knowledge Based Collaborative framework for e-health**

Flora Amato and Giovanni Cozzolino (Università di Napoli Federico II, Italy); Alessandro Maisto (University of Fisciano, Italy); Antonino Mazzeo (Università di Napoli Federico II, Italy); Vincenzo Moscato (University of Napoli Federico II, Italy); Serena Pelosi (University of Fisciano, Italy); Antonio Picariello (University di Napoli, Italy); Sara Romano (University of Napoli Federico II, Italy); Carlo Sansone (University of Napoli Federico II, Italy)

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**8:30-10:00**

### **S4-2: SmartGrids and microgrids: enabling technologies for a more efficient and more resilient electrical system (1)**

**Chairs:** Roberto Caldon, Paolo Mattavelli

**Room:** Room 201

### **Short-term Load Demand Forecasting in Smart Grids using Support Vector Regression**

Marco Pellegrini (LIF Srl, Italy)

### **Load Area Application to Radial Distribution Systems**

Giovanni Mercurio Casolino (University of Cassino and LM, Italy); Arturo Losi (University of Cassino, Italy)

### **A Novel Measurement-based Procedure for Load Dynamic Equivalent Identification**

Andrea Savio, Fabio Bignucolo, Riccardo Sgarbossa and Paolo Mattavelli (University of Padova, Italy); Alberto Cerretti (ENEL Distribuzione SpA, Italy); Roberto Turri (University of Padova, Italy)

### **Dynamic Models for Distributed Energy Resources in a Microgrid environment**

Francesco Adinolfi and Francesco Conte (University of Genova, Italy); Andrea Pitto (Ricerca sul Sistema Energetico RSE S.p.A., Italy); Stefano Massucco (University of Genova ; IEES Lab., Italy); Federico Silvestro (University of Genova, Italy)

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**8:30-10:00**

#### **S4-3: Measurements, Traceability and Quality Assurance for Industry and Civil Society (1)**

**Chair:** Marco Parvis

**Room:** Room 203

#### **The practical realisation of the ohm at INRIM**

Cristina Cassiogo (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy); Enrico Gasparotto (Istituto Nazionale di Ricerca Metrologica, Italy)

#### **Complex Contoured Electrode System Technology by the Electrolytic Formation Method**

Gennady Gololobov, Victor Gurov, Sergey Karabanov, Dmitry Suvorov, Michail Dubkov, Yulia Srtyuchkova and Maria Klyagina (Ryazan State Radio Engineering University, Russia)

#### **Electrical Resistance Tomography on thin films: sharp conductive profiles**

Alessandro Cultrera and Luca Callegaro (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy)

#### **Simulated shunts as dc low-resistance travelling standards**

Luca Callegaro and Cristina Cassiogo (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy); Enrico Gasparotto (Istituto Nazionale di Ricerca Metrologica, Italy)

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**8:30-10:00**

#### **S4-4: From bioengineering research to healthcare applications: novel methods and technologies**

**Chair:** Gabriella Signorini

**Room:** Room 202

#### **Efficient Tracking of Heart Rate under Physical Exercise from Photoplethysmographic Signals**

Guglielmo Frigo (University of Padova, Italy); Marco Fabris, Alessandra Galli, Fabio Gambarin and Italo Marsili (University of Padua, Italy); Claudio Narduzzi (Universita' di Padova, Italy); Giada Giorgi (University of Padova, Italy)

#### **From Epistemic Uncertainty Quantification to Ontological Uncertainty Management for System Safety and Security**

Rodolfo Fiorini (Politecnico di Milano University, Italy)

#### **Novel Tele-Health Support System for Clinical Psychiatry and Psychology**

Rodolfo Fiorini (Politecnico di Milano University, Italy)

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**8:30-10:00**

#### **Tutorial 3: Power Efficiency in the Design of IoT Devices**

**Speakers:** Enrico Macii (Politecnico di Torino, Italy) Massimo Poncino (Politecnico di Torino, Italy), Michelangelo Grosso (ST-Polito s.c.a.r.l., Italy)

**Room:** Room 205

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**10:00-10:30**

**Coffee Break**

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**10:30-12:00**

**S5-1: Remote Sensing for UAV surveillance applications (1)**

**Chair:** Patrizia Savi

**Room:** Aula Magna

**Real-Time Algorithm for Video Fusion Evaluation: Application to Surveillance System Based on UAV (invited)**

Andrea Masini and Andrea Bracci (Flyby Srl, Italy); Marco Maffei and Pier Antonio Catella (Selex ES, Italy); Sergio Benco (Info Solution Spa, Italy)

**Autonomous Abnormal Behaviour Detection in Intelligence Surveillance and Reconnaissance Applications**

Rosa Meo (Università di Torino, Italy); Roberto Esposito (Università di Torino, Italy); Sergio Viola (Selex ES, Italy); Valter Mellano (Selex ES, Italy); Chee Ming Choor (Selex ES, Italy); Marco Botta (Università di Torino, Italy); Franco Ciaramaglia (Selex ES, Italy)

**Light weight GNSS-based passive radar for remote sensing UAV applications**

Micaela Troglia Gamba (Istituto Superiore Mario Boella, Italy); Sabrina Ugazio (Politecnico di Torino, Italy); Gianluca Marucco (Istituto Superiore Mario Boella, Italy); Marco Pini (Istituto Superiore Mario Boella, Italy); Letizia Lo Presti (Politecnico di Torino, Italy)

**Synthetic Aperture Radar at Millimeter Wavelength for UAV Surveillance Applications**

Michael Caris and Stephan Stanko ; Stephan; Rainer Sommer; Nils Pohl Palm (Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany)

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**10:30-12:00**

**S5-2: SmartGrids and microgrids: enabling technologies for a more efficient and more resilient electrical system (2)**

**Chairs:** Roberto Caldon, Paolo Mattavelli

**Room:** Room 201

**Impact of PV Penetration in a Distribution Grid: a Middle-East Study Case**

Paolo Lazzeroni, Federico Stirano and Sergio Olivero (Istituto Superiore sui Sistemi Territoriali per L'innovazione, Italy); Mourizio Repetto (Politecnico di Torino, Italy)

**Dynamic Line Rating monitoring in WAMS: challenges and practical solutions**

Enrico Carlini (Terna Rete Italia, Italy); Cosimo Pisani (Università del Sannio, Italy); Alfredo Vaccaro (University of Sannio, Italy); Domenico Villacci (Università del Sannio, Italy)

**ICT Reliability Modelling in Co-Simulation of Smart Distribution Networks**

Michele Garau, Gianni Celli, Emilio Ghiani and Gian Giuseppe Soma (University of Cagliari, Italy); Fabrizio Pilo (Dipartimento Di Ingegneria Elettrica Ed Elettronica, Italy); Sergio Corti (RSE, Italy)

**Exploiting inverter-interfaced DG for voltage unbalance mitigation and ancillary services in distribution systems**

Massimiliano Coppo, Antonino Raciti, Roberto Caldon and Roberto Turri (University of Padova, Italy)

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**10:30-12:00**

**S4-3: Measurements, Traceability and Quality Assurance for Industry and Civil Society (2)**

**Chair:** Marco Parvis

**Room:** Room 203

**Weighted Least Squares Synchrophasor Estimation in the Presence of Decaying-DC Offset**

Daniel Belega (University of Timisoara, Romania); Dario Petri (University of Trento, Italy)

### **Measuring the Magnetic Properties of Fe<sub>3</sub>O<sub>4</sub> Nanopowders**

Elisa Bertolucci, Anna Maria Raspolli Galletti, Claudia Antonetti, Mirko Marracci and Bernardo Tellini (University of Pisa, Italy)

### **Applications of a fast FBG interrogation system for real-time thermal and structural monitoring**

Wei Chen and Alberto Vallan (Politecnico di Torino, Italy)

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**10:30-12:00**

#### **Exhibitors' presentations**

**Chair:** Paolo Attilio Pegoraro

**Room:** Room 202

#### **Project WEARHAP - WEARable HAPtics for humans and robots**

Domenico Prattichizzo (University of Siena, Italy)

#### **P+M Phasor Measurement Unit**

Paolo Castello, Sara Sulis, Carlo Muscas (University of Cagliari, Italy)

#### **Project ELISE – Environment Live SEnsing**

Gian Luca Matteucci (CSP – Innovazione nelle ICT)

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**10:30-12:00**

#### **Tutorial 4: Low-Noise Impedance Sensing: Circuits and Micro-Technological Applications**

**Speaker:** Marco Carminati, DEIB, Politecnico di Milano (Italy)

**Room:** Room 205

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**12:00-14:15**

**Lunch**

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**14:15-16:15**

#### **S6-1: Security and safety of embedded and cyber physical systems (1)**

**Chairs:** Riccardo Sisto, Adriano Valenzano

**Room:** Aula Magna

#### **Overhead and ACK-Induced Jitter in Modbus TCP Communication**

Tingting Hu and Ivan Cibrario (National Research Council, Italy)

#### **On the Performance of Open-Source RTOS Synchronization Primitives**

Gilda Ghafour Zadeh Kashani (CNR - IEIIT Research Groups in Torino, Italy); Ivan Cibrario (National Research Council, Italy)

#### **Wireless for the Factory: the Wi-Fact Analysis**

Alessia Autolitano (Istituto Superiore Mario Boella (ISMB), Italy); Daniele Brevi (Istituto Superiore Mario Boella, Italy); Gianluca Cena (National Research Council of Italy, Italy); Pietro Cultrona (COMAU S. P. A., Italy); Guido Marchetto (Politecnico di Torino, Italy); Fulvio Rusinà (COMAU S. P. A., Italy); Stefano Scanzio (National Research Council of Italy, Italy); Riccardo M. Scopigno (Istituto Superiore Mario Boella, Italy); Riccardo Sisto (Politecnico di Torino, Italy)

#### **A semi-graphical modeling framework for the automated analysis of networked systems security**

Manuel Cheminod (National Research Council of Italy, CNR - IEIIT, Italy); Luca Durante (IEIIT - CNR c/o Politecnico di Torino, Italy); Marcello Maggiora (IT Division - Politecnico di Torino IT Area, Italy); Lucia Seno (National Research Council of Italy, CNR - IEIIT, Italy); Carmela Troilo (IT Division - Politecnico di Torino IT Area, Italy); Adriano Valenzano (National Research Council of Italy (CNR), Italy)

### **Improving Compatibility between CAN FD and Legacy CAN Devices**

Gianluca Cena, Ivan Cibrario, Tingting Hu and Adriano Valenzano (National Research Council of Italy (CNR), Italy)

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**14:15-16:15**

### **S6-2: Vehicle electrification and Smart connection with infrastructure (1)**

**Chairs:** Giambattista Grusso, Maurizio Repetto, Giuseppe Tomasso

**Room:** Room 201

### **Multi-source power converter system for EV charging station with integrated ESS**

Mauro Di Monaco and Umberto Abronzini (University of Cassino and Southern Lazio, Italy); Ciro Attaianese and Matilde D'Arpino (University of Cassino, Italy); Antonino Genovese (Italian National Agency for New Technologies Energy and Sustainable Economic Development ; ENEA, Italy); Giovanni Pede (ENEA, Italy); Giuseppe Tomasso (University of Cassino, Italy)

### **Design of a Drivetrain for a Light Urban Electric Vehicle Powered by Fuel Cells**

Fabrizio Marignetti (Università di Cassino e del Lazio Meridionale, Italy); Damiano D'Aguanno and Riccardo Arcese (Università di Cassino e del Lazio Meridionale, Italy); Salvatore Ivagnes (Aviopei Airport Equipment srl, Italy)

### **How is the Spread of the Electric Vehicles?**

Michela Longo and Dario Zaninelli (Politecnico di Milano, Italy); Fabio Viola, Pietro Romano and Rosario Miceli (University of Palermo, Italy)

### **Battery lifetime for different driving cycles of EVs**

Simone Barcellona (Politecnico di Milano, Italy); Morris Brenna (Politecnico di Milano – Department of Energy, Italy); Federica Foadelli, Michela Longo and Luigi Piegari (Politecnico di Milano, Italy)

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**14:15-16:15**

### **S6-3: Smart manufacturing systems for the factory of the future (1)**

**Chairs:** Maurizio Fiasché, Marco Taisch

**Room:** Room 203

### **A production system model for Mini-Factories and last mile production approach**

Marco Seregini, Cristiano Zanetti, Massimo Bianchini and Marco Taisch (Politecnico di Milano, Italy)

### **Remote maintenance system for semi-automated manufacturing machines**

Paolo Sangregorio (University of Bergamo, Italy); Alberto Luigi Cologni (Università di Bergamo, Italy); Franklin Owen (California Polytechnic State University, USA); Fabio Previdi (University of Bergamo, Italy)

### **The White'R Energy Assessor Tool and its applications for the optimization of white'R island processes**

Manuel Lai, Giulia Molinari and Simona Tusacciu (Iris S. r. l., Italy)

### **Modular automatic generation of automation software for manufacturing machines**

Paolo Sangregorio (University of Bergamo, Italy); Alberto Luigi Cologni (Università di Bergamo, Italy); Fabio Previdi (University of Bergamo, Italy)

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**14:15-16:15**

### **S6-4: Remote Sensing for UAV surveillance applications (2)**

**Chair:** Patrizia Savi

**Room:** Room 202

**SAR Processing under Unstable Flight Conditions (invited)**

Dmytro Vavriv and Oleksandr O. Bezvesilnyy (Institute of Radio Astronomy of the National Academy of Sciences of Ukraine, Ukraine)

**Localization of RFID tags for environmental monitoring using UAV**

Giampaolo Greco (Envisens Technologies SRL, Italy); Claudio Lucianaz (Politecnico di Torino, Italy); Silvano Bertoldo (Politecnico di Torino ; CINFAI Consorzio Interuniversitario per la Fisica delle Atmosfere e delle Idrosfere, Italy); Marco Allegretti (Politecnico di Torino, Italy)

**Automatically Detecting Changes and Anomalies in Unmanned Aerial Vehicle Images**

Marcella Ugliano (EURIX Group, Italy); Luca Bianchi (EURIX Group, Italy); Andrea Bottino (Politecnico di Torino, Italy); Walter Allasia (EURIX Group, Italy)

**Hyperspectral sensor for civil applications to Unmanned Aerial Vehicles within a monitoring scenario**

Roberta Fusaro, Nicole Viola, Sara Cresto Aleina and Marta Casti (Politecnico di Torino, Italy); Pier Antonio Catella (Selex ES, Italy); Leandro Chiarantini and Francesco Butera (Selex ES, Italy)

**GNSS reflectometry for remote sensing of soil moisture**

Yan Jia and Patrizia Savi (Politecnico di Torino, Italy); Yuekun Pei (Politecnico di Torino, Italy); Riccardo Notarpietro (Politecnico di Torino, Italy)

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**14:15-15:45**

**Tutorial 5: The Challenge of Thriving on Uncertainty in Systems Research and Innovation**

**Speaker:** Rodolfo A. Fiorini, Politecnico di Milano (Italy)

**Room:** Room 205

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**16:15-16:45**

**Coffee Break**

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**16:45-18:15**

**S7-1: Security and safety of embedded and cyber physical systems (2)**

**Chairs:** Riccardo Sisto, Adriano Valenzano

**Room:** Aula Magna

**OATS: an Automated Test System for OpenOCD**

Luigi Pomante (Università dell'Aquila, Italy); Ivan De Cesaris (Intel Corporation, Italy); Stefano Dell'Osa (Intel Corporation, Germany)

**A Unified Clock Synchronization Protocol for Infrastructure Wireless LANs**

Gianluca Cena and Stefano Scanzio (National Research Council of Italy, Italy); Adriano Valenzano (National Research Council of Italy (CNR), Italy); Claudio Zunino (National Research Council of Italy, Italy)

**A Formal Model of Network Policy Analysis**

Fulvio Valenza, Serena Spinoso, Cataldo Basile, Riccardo Sisto and Antonio Lioy (Politecnico di Torino, Italy)

**Radio-Frequency Analysis and Power Supply Assessment for Wireless Sensor Networks on Trains**

Sergio Arianos (Istituto Superiore Mario Boella (ISMB), Italy); Flavio Renga (Istituto Superiore Mario Boella, Italy); Gianluca Dassano, Francesca Vipiana and Mario Orefice (Politecnico di Torino, Italy); Franco Lambertino and Mario Rossi (SKF Industrie S.p.A., Italy)

**A Network Function Modeling Approach for Performance Estimation**

Mario Baldi (Politecnico di Torino; Cisco Systems, Italy); Amedeo Sapio (Politecnico di Torino, Italy)

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**16:45-18:15**

**S7-2: Vehicle electrification and Smart connection with infrastructure (2)**

**Chairs:** Giambattista Gruosso, Maurizio Repetto, Giuseppe Tomasso

**Room:** Room 201

**Object Based Modelling of Hybrid Electrical Vehicle and power management control**

Giambattista Gruosso (Politecnico di Milano, Italy); Paolo Guglielmi (Politecnico di Torino, Italy); Giancarlo Storti gajani (Politrnico di Milano, Italy); Marco Aimo Boot (Iveco - CNH Industrial, Italy); Davide Cardella, Alessio Canepa, Valentino Peluso and Luca Bellini (Politecnico di Torino, Italy); Giulia Musacci, Davide Moschetta, Alessio La Bella and Alberto Bolzoni (Politecnico di Milano, Italy)

**Model based design of power management for Hybrid Electric Vehicle**

Giambattista Gruosso (Politecnico di Milano, Italy)

**Performance evaluation of wireless power transfer systems for electric vehicles using the opposition method**

Vincenzo Cirimele (Politecnico di Torino, Italy); Stefan G Rosu (Politehnica University of Bucharest & Politecnico di Torino, Romania); Paolo Guglielmi and Fabio Freschi (Politecnico di Torino, Italy)

**Hybridization Kit for Light Commercial Vehicles using a Fault-Tolerant Electrical Drive**

Emidio Della Loggia, Giuseppe Fabri, Marco Tursini, Francesco Parasiliti and Alessio Di Tullio (University of L'Aquila, Italy)

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**16:45-18:15**

**S6-3: Smart manufacturing systems for the factory of the future (2)**

**Chairs:** Maurizio Fiasché, Marco Taisch

**Room:** Room 203

**Improving OSB wood panel production by vision-based systems for granulometric estimation**

Gianluca Sforza, Ruggero Donida Labati and Angelo Genovese (Università di Milano, Italy); Enrique Munoz Ballester (University of Milan, Italy); Vincenzo Piuri (Università di Milano, Italy); Fabio Scotti (Universita' degli Studi di Milano, Italy)

**Innovating the Industrial Measurement and Control Network of an Oil Refinery**

Leopoldo Angrisani, Mauro D'Arco and Marco Scognamiglio (University of Naples Federico II, Italy)

**Management integration framework in a Shop-Floor employing self-Contained Assembly Unit for optoelectronic products**

Maurizio Fiasché, Gaia Ripamonti, Francescoa Sisca and Marco Taisch (Politecnico di Milano, Italy); Anna Valente (SUPSI-ISTEPS, Italy)

**A Smart web-based Maintenance System for a smart manufacturing environment**

Ana Alexandru, Alice De Mauro, Maurizio Fiasché, Francescoa Sisca and Marco Taisch (Politecnico di Milano, Italy); Luca Fasanotti (University of Bergamo, Italy); Piergiorgio Grasseni (Smi Group, Italy)

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**16:45-18:15**

**EU Projects dissemination: Smart grid and smart energy**

**Chair:** Pia Martino, Gianfranco Chicco

**Room:** Room 202

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**18:15-18:45**

**Closing Session**

**Room:** Aula Magna

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