

# **2022 IEEE 21st Mediterranean Electrotechnical Conference (MELECON 2022)**

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# CONFERENCE PROGRAM

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**Tuesday, June 14**

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*Christoph Maurer, University of Freiburg, Germany*  
*Dimitris Fotiadis, University of Ioannina, Greece*

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**Room: Room 4 - University of Palermo**

**Chairs:** Maria Gabriella Signorini, *Politecnico di Milano, Italy*

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*Felix del Campo, Hospital Universitario Rio Hortega de Valladolid, Spain*  
*Leila Kheirandish-Gozal, The University of Missouri School of Medicine, USA*  
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**Room: Room 5 - University of Palermo**

**Chairs:** Barbara Masini, CNR-IEIIT, Italy

- Franco Davoli, University of Genoa and CNIT S2N National Lab, Italy*  
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*Pietro Cassarà, CNR, Institute of Information Science and Technologies, Italy*  
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**Room: Room 6 - University of Palermo**

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**Room: Room 5 - University of Palermo**

**Chairs:** Francesco Guidi, *CNR-IEIIT, Italy*

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*Antonino Genovese, ENEA, Italy*  
*Luca Pugi, University of Florence, Italy*  
*Fabio Cignini, ENEA, Italy*  
*Fernando Ortenzi, ENEA, Italy*

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## **SESSION S1E - Electrical Machines and Electric Mobility**

**Room: Room 6 - University of Palermo**

**Chairs:** Massimo Caruso, *University of Palermo, Italy*

Daniele Bosich, *University of Trieste, Italy*

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*Pasquale Montegiglio, Politecnico di Bari, Italy*

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## **SESSION S1B- Conversion and Control of Sustainable Energy Sources**

**Room: Room 2 - University of Palermo**

**Chairs:** Kamal Al-Haddad, *University of Montreal, Canada*  
Massimo La Scala, *Politecnico di Bari, Italy*

- 372 **Optimal Allocation of Protection and Control Devices in Distribution Networks With Microgrids**  
*Cleberton Reiz, São Paulo State University, Brazil*  
*Tayenne de Lima, São Paulo State University, Brazil*  
*Jonatas Leite, São Paulo State University, Brazil*  
*Mohammad Javadi, INESC TEC Porto, Portugal*  
*Clara Gouveia, INESC TEC Porto, Portugal*
- 378 **Social and Environmental Impacts Linked to the Use of Non-Destructive Methods in Installations of Underground Electricity Networks**  
*Maileen S Simão, CERTI Foundation, Brazil*  
*Beatriz B Cardoso, CERTI Foundation, Brazil*  
*Euler Ribeiro, CERTI Foundation, Brazil*  
*Marcos Aurelio Izumida Martins, CERTI Foundation, Brazil*  
*Moacir F Lopes Jr., Enel Distribuição São Paulo, Brazil*
- 384 **Economic Dispatch Problem Solution via Holomorphic Embedding Method**  
*Ana Catarina Salles Ramos, University of Palermo, Italy*  
*Francisco Damasceno Freitas, Universidade de Brasilia, Brazil*
- 390 **Climate Change Mitigation in Cities by Adopting Solar Streetlights With Energy Management Capabilities: Case of Nairobi**  
*Willy Stephen Tounsi Fokui, Pan African University Institute for Basic Sciences, Technology and Innovation, Kenya*  
*Michael Saulo, Technical University of Mombasa, Kenya*  
*Livingstone Ngoo, Multimedia University of Kenya, Kenya*
- 396 **A Dual Function of Buck-Boost Converter in Photovoltaic System: MPP Tracker and I-V Tracer for Fault Diagnosis Applications**  
*Yassine Chouay, Mohammed V University in Rabat, Morocco*  
*Mohammed Ouassaid, Mohammed V University in Rabat, Morocco*
- 402 **Hybrid PV-Wind-Battery Management System Based on 7L Switched-Capacitor MLI**  
*Abdelbasset Mehiri, National Polytechnics School, Algeria*  
*El Madjid Berkouk, National Polytechnic School of Algiers, Algeria*  
*Saad Mekhilef, Swinburne University of Technology, Australia*

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## **SESSION S3C - P1 - Neural and Cognitive Engineering - Part 1**

**Room: Room 4 - University of Palermo**

**Chairs:** Anna Maria Bianchi, *Politecnico di Milano, Italy*  
Patricia Figueiredo, *Istituto Superior Tecnico, Portugal*

- 408 **A Quick Review on Machine Learning Techniques in Code Comprehension and Code Review Estimated by Neurophysiological Data**  
*Haytham Hijazi, University of Coimbra, Portugal*  
*Ricardo Couceiro, University of Coimbra, Portugal*  
*Joao Castelhana, University of Coimbra, CIBIT/ICNAS, Portugal*  
*Miguel Castelo-Branco, University of Coimbra, Portugal*  
*Paulo Carvalho, University of Coimbra, Portugal*  
*Henrique Madeira, University of Coimbra, Portugal*

- 414 **Intelligent Biofeedback Comprehension Assessment: Theory, Research, and Tools**  
*Haytham Hijazi, University of Coimbra, Portugal*  
*Ricardo Couceiro, University of Coimbra, Portugal*  
*Joao Castelhana, University of Coimbra, CIBIT/ICNAS, Portugal*  
*José Cruz, University of Coimbra, Portugal*  
*Miguel Castelo-Branco, University of Coimbra, Portugal*  
*Paulo Carvalho, University of Coimbra, Portugal*  
*Henrique Madeira, University of Coimbra, Portugal*
- 420 **EEG Analysis of Selective Attention During Error Potential BCI Experiments**  
*Andrea Farabbi, Politecnico di Milano, Italy*  
*Luca Mainardi, Politecnico di Milano, Italy*
- 424 **NeuXus: A Biosignal Processing and Classification Pipeline for Real-Time Brain-Computer Interaction**  
*Simon Legeay, Université Paris-Saclay, France, Universidade de Lisboa, Portugal*  
*Gustavo Caetano, Instituto Superior Técnico, Universidade de Lisboa, Portugal*  
*Patrícia Figueiredo, Instituto Superior Técnico, Universidade de Lisboa, Portugal*  
*Athanasios Vourvopoulos, Instituto Superior Técnico, Universidade de Lisboa, Portugal*
- 430 **Epileptic Seizure Classification Using Combined Labels and a Genetic Algorithm**  
*Scot Davidson, Ulster University, United Kingdom*  
*Niamh Mccallan, Ulster University, United Kingdom*  
*Kok Yew Ng, Ulster University, United Kingdom*  
*Pardis Biglarbeigi, Ulster University, United Kingdom*  
*Dewar Finlay, Ulster University, United Kingdom*  
*Boon Leong Lan, Monash University, Malaysia*  
*James McLaughlin, Ulster University, United Kingdom*
- 436 **Assessment of Muscle Fatigue During the Walk on a Treadmill in Healthy Subjects Based on Median Frequency of Surface Electromyogram**  
*Szymon Siecinski, Silesian University of Technology, Poland*  
*Paweł Kostka, Silesian University of Technology, Poland*  
*Ewaryst Janusz Tkacz, Silesian University of Technology, Poland*

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## **SESSION S4C - P1 - Remote Sensing Methods and Applications - Part 1**

**Room: Room 5 - University of Palermo**

**Chairs:** *Gloria Bordogna, CNR-IREA, Italy*  
*Dino Ienco, INRAE, UMR TETIS, France*

- 442 **Joint Use of Airborne LiDAR Metrics and Topography Information to Estimate Forest Parameters via Neural Networks**  
*Kamel Lahssini, INRAE, Univ. Montpellier, France*  
*Karun Reuel Dayal, INRAE, Univ. Montpellier, France*  
*Sylvie Durrieu, INRAE, Univ. Montpellier, France*  
*Jean-Matthieu Monnet, INRAE, Univ. Grenoble Alpes, France*
- 448 **Spaceborne SAR Remote Sensing for Hydrogeological Risk Monitoring**  
*Simona Verde, CNR-IREA, Italy*  
*Diego Reale, CNR-IREA, Italy*  
*Antonio Pauciullo, CNR-IREA, Italy*  
*Eugenio Sansosti, CNR-IREA, Italy*  
*Gianfranco Fornaro, CNR-IREA, Italy*
- 454 **The VIIRS Nighttime Lights Average Annual Global Dataset: Exploratory and Brisk Trend Analysis on Three Different Domains**  
*Andrea Ajmar, Politecnico di Torino, Italy*  
*Emere Arco, Politecnico di Torino, Italy*  
*Allegra Eusebio, Politecnico di Torino, Italy*

- 460 **Automatic Generation of Sentinel-1 DInSAR Co-Seismic Maps at Global Scale**  
*Mario Fernando Monterroso, CNR-IREA, Italy*  
*Manuela Bonano, CNR-IMAA, Italy*  
*Claudio De Luca, CNR-IREA, Italy*  
*Riccardo Lanari, CNR-IREA, Italy*  
*Michele Manunta, CNR-IREA, Italy*  
*Mariarosaria Manzo, CNR-IREA, Italy*  
*Giovanni Onorato, CNR-IREA, Italy*  
*Ivana Zinno, CNR-IREA, Italy*  
*Francesco Casu, CNR-IREA, Italy*
- 465 **Comparing Machine Learning Techniques for Aquatic Vegetation Classification Using Sentinel-2 Data**  
*Erika Piasek, National Research Council, Italy*  
*Paolo Villa, National Research Council, Italy*
- 471 **Explainable Multi-Criteria Data-Driven Environmental Status Assessment From Remote Sensing**  
*Daniela Stroppiana, CNR-IREA, Italy*  
*Mirco Boschetti, CNR-IREA, Italy*  
*Pietro Alessandro Brivio, CNR-IREA, Italy*  
*Gloria Bordogna, CNR-IREA, Italy*
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### ***SESSION S1F - The PSS and the EDS of Tokamak Experimental Facilities***

**Room: Room 6 - University of Palermo**

**Chairs:** Gianmario Polli, *ENEA-DTT, Italy*  
Pietro Zito, *ENEA Research Center Frascati, Italy*

- 477 **Status of Design and Procurement Activities in DTT Tokamak Project Area**  
*Gian Mario Polli, ENEA, Italy*  
*Antonio Cucchiario, DTT S. c. r. l., Italy*  
*Mauro Dalla Palma, Consorzio RFX, Italy*  
*Lori Gabellieri, ENEA and DTT S. c. a r. l., Italy*  
*Alessandro Lampasi, ENEA, Italy*  
*Giuseppe Ramogida, ENEA, Italy*  
*Andrea Reale, ENEA and DTT S. c. a r. l., Italy*  
*Selanna Roccella, ENEA, Italy*  
*Marco Valisa, RFX Consortium, Italy*
- 483 **Model Predictive Control for Tokamak Central Solenoid Power Supply**  
*Cristina Terlizzi, University of Rome Tor Vergata, Italy*  
*Stefano Bifaretti, University of Rome Tor Vergata, Italy*  
*Alessandro Lampasi, ENEA, Italy*
- 489 **Guidelines and Conceptual Design of the Grounding System of the DTT Experimental Facility**  
*Carmelo Riccardo Lopes, University of Palermo & ENEA, Italy*  
*Cristina Terlizzi, University of Rome Tor Vergata, Italy*  
*Roberto Romano, ENEA & DTT, Italy*  
*Guido Ala, Università degli Studi di Palermo, Italy*  
*Gaetano Zizzo, University of Palermo, Italy*  
*Pietro Zito, ENEA & DTT, Italy*  
*Stefano Bifaretti, C-PED, Center for Power Electronics and Drive, University of Rome Tor Vergata, Italy*  
*Vincenzo Bonaiuto, Tor Vergata University of Rome, Italy*  
*Alessandro Lampasi, ENEA & DTT, Italy*
- 495 **Transmitter and HVPS Architectures in the Ion-Cyclotron Radio Frequency System of DTT**  
*Sebastian N Piras, University of Rome Tor Vergata, ENEA, Italy*  
*Stefano Bifaretti, University of Rome Tor Vergata, Italy*  
*Silvio Ceccuzzi, ENEA, DTT S.c. a r.l., Italy*  
*Gianluca Ravera, Fusion and Nuclear Safety Department, ENEA, Italy*

- 501 **Progress in the Design of the DTT Electrical Distribution System**  
*Marzia Caldora, Sapienza University of Rome, Italy*  
*Gabriele Greco, Tuscia University, Italy*  
*Roberto Romano, ENEA & DTT, Italy*  
*Simone Minucci, University of Tuscia, Italy*  
*Alessandro Lampasi, ENEA, Italy*  
*Maria Carmen Falvo, Sapienza University of Rome, Italy*
- 506 **Single-Phase Inverter Evaluation for a Tokamak Non-Axisymmetric In-Vessel Coil Power Supply**  
*Giovanni Griva, Politecnico di Torino, Italy*  
*Salvatore Musumeci, Politecnico di Torino, Italy*  
*Radu Bojoi, Politecnico di Torino, Italy*  
*Alessandro Lampasi, ENEA, Italy*  
*Pietro Zito, ENEA, Italy*  
*Stefano Bifaretti, University of Rome Tor Vergata, Italy*
- 512 **Power Supply Systems for the DTT Superconducting Magnets**  
*Alessandro Lampasi, ENEA, Italy*  
*Carmelo Riccardo Lopes, University of Palermo, Italy*  
*Matteo Manganelli, ENEA, Italy*  
*Sabino Pipolo, ENEA, Italy*  
*Pietro Zito, ENEA, Italy*

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## ***SESSION SIC - Electrification of Small Islands & Electric Marine Transportation***

**Room: Room 2 - University of Palermo**

**Chairs:** Marco Merlo, *Politecnico di Milano, Italy*  
Enrico Ragaini, *ABB*

- 518 **Predictive Optimal Dispatch for Islanded Distribution Grids Considering Operating Reserve Constraints**  
*Sergio Bruno, Politecnico di Bari, Italy*  
*Giovanni Giannoccaro, Politecnico di Bari, Italy*  
*Cosimo Iurlaro, Politecnico di Bari, Italy*  
*Massimo La Scala, Politecnico di Bari, Italy*  
*Marco Menga, Politecnico di Bari, Italy*
- 524 **On the Participation of Demand-Side Resources on the Operation of Small Power Systems**  
*Fábio Pessoa, University of Coimbra, Portugal*  
*Álvaro Gomes, University of Coimbra, Portugal*
- 530 **Impact of Non-Programmable Distributed Generation in an Islanded Microgrid: The Case Study of Ustica**  
*Giuseppe Caravello, University of Palermo, Italy*  
*Giovanni Artale, University of Palermo, Italy*  
*Antonio Cataliotti, University of Palermo, Italy*  
*Valentina Cosentino, University of Palermo, Italy*  
*Nicola Panzavecchia, National Research Council, Italy*  
*Valeria Boscaino, National Research Council, Italy*  
*Salvatore Guaiana, National Research Council, Italy*  
*Giovanni Tinè, CNR-INM, Italy*  
*Vito Ditta, University of Palermo, Italy*  
*Dario Di Cara, National Research Council, Italy*
- 536 **GIS Approach for Modeling the Electricity Grid of Small Islands Using Open-Source Data: The Case of Isola del Giglio**  
*Aleksandar Dimovski, Politecnico di Milano, Italy*  
*Enrico Ragaini, ABB, Italy*  
*Darlain Edeme, Politecnico di Milano, Italy*  
*Silvia Corigliano, Politecnico di Milano, Italy*  
*Marco Merlo, Politecnico di Milano, Italy*

**543 Assessing the Economic Benefit Due to BESS Management in a Renewable Energy Community of a Small Island**

*Antonino Barberi, University of Palermo, Italy*  
*Vincenzo Di Dio, University of Palermo, Italy*  
*Biagio Di Pietra, ENEA, Italy*  
*Salvatore Favuzza, University of Palermo, Italy*  
*Mauro Galluzzo, University of Palermo, Italy*  
*Rossano Musca, University of Palermo, Italy*  
*Fabio Massaro, University of Palermo, Italy*  
*Gaetano Zizzo, University of Palermo, Italy*

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**SESSION S2C - Smart Materials & Smart Sensors for Industry 4.0**

**Room: Room 3 - University of Palermo**

**Chair:** Pio Lombardi, *Fraunhofer Institute for Factory Operation and Automation IFF, Germany*

**549 Measurements of Two-Phase Flows in Pipelines Using Radioisotopes and Statistical Signal Processing**

*Robert Hanus, Rzeszów University of Technology, Poland*  
*Marcin Zych, AGH University of Science and Technology, Poland*  
*Anna Golijanek-Jędrzejczyk, Gdańsk University of Technology, Poland*

**554 A Battery-Free Wireless Smart Sensor Platform With Bluetooth Low Energy Connectivity for Smart Agriculture**

*Roberto La Rosa, STMicroelectronics, Italy, EPFL, Switzerland*  
*Catherine Dehollain, EPFL, Switzerland*  
*Mario Costanza, Femto-st research institute, France*  
*Angelo Speciale, STMicroelectronics, Italy*  
*Fabio Viola, University of Palermo, Italy*  
*Patrizia Livreri, University of Palermo, Italy*

**559 Investigation of PCB-Based Inductive Sensors Orientation for Corona Partial Discharge Detection**

*Antonino Imburgia, University of Palermo, Italy*  
*Sinda Kaziz, University of Monastir, Tunisia*  
*Pietro Romano, University of Palermo, Italy*  
*Denis Flandre, Université catholique de Louvain, Belgium*  
*Giovanni Artale, University of Palermo, Italy*  
*Giuseppe Rizzo, Prysmian group, Italy*  
*Fabio Viola, University of Palermo, Italy*  
*Fares Tounsi, Université catholique de Louvain, Belgium*  
*Guido Ala, University of Palermo, Italy*

**564 3D Additive Manufacturing of Tapered EBG Layers for a Resonant-Cavity Antenna**

*Cristina Ponti, Roma Tre University, Italy*  
*Paolo Baccarelli, Roma Tre University, Italy*  
*Silvio Ceccuzzi, ENEA, Italy*  
*Giuseppe Schettini, Roma Tre University, Italy*

**569 An ASIC Data Readout Processor for the ALICE HMPID and Charged Particle Veto Detectors**

*Clive Seguna, University of Malta, Malta*  
*Edward Gatt, University of Malta, Malta*  
*Ivan Grech, University of Malta, Malta*  
*Owen Casha, University of Malta, Malta*  
*Giacinto De Cataldo, University of Bari, Italy*

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**SESSION S3C - P2 - Neural and Cognitive Engineering - Part 2**

**Room: Room 4 - University of Palermo**

**Chairs:** Anna Maria Bianchi, *Politecnico di Milano, Italy*  
Henrique Madeira, *University of Coimbra, Portugal*

- 574 **Quantitative Measures of Autonomic Activations During Software Development**  
*Giulio Steyde, Politecnico di Milano, Italy*  
*Alessandra Calcagno, Politecnico di Milano, Italy*  
*Pierluigi Reali, Politecnico di Milano, Italy*  
*Anna M. Bianchi, Politecnico di Milano, Italy*
- 579 **Impact of Ultra-Short-Term HRV Features in Software Code Sections Complexity Classification**  
*André Matias Bernardes, University of Coimbra, Portugal*  
*Ricardo Couceiro, University of Coimbra, Portugal*  
*Júlio Cordeiro Medeiros, University of Coimbra, Portugal*  
*Jorge Henriques, University of Coimbra, Portugal*  
*César Teixeira, University of Coimbra, Portugal*  
*João Durães, University of Coimbra, Portugal*  
*Henrique Madeira, University of Coimbra, Portugal*  
*Paulo Carvalho, University of Coimbra, Portugal*
- 585 **Sustained Attention Task-Related Changes of Functional Connectivity in Children With ADHD**  
*Stefania Coelli, Politecnico di Milano, Italy*  
*Alessandra Calcagno, Politecnico di Milano, Italy*  
*Eleonora Iacone, Politecnico di Milano, Italy*  
*Ludovica Gaspari, Politecnico di Milano, Italy*  
*Maria Canevini, University of Milan, A. O. San Paolo, Italy*  
*Anna M. Bianchi, Politecnico di Milano, Italy*
- 590 **Personality Traits Classification From EEG Signals Using EEGNet**  
*Veronika Guleva, Politecnico di Milano, Italy*  
*Alessandra Calcagno, Politecnico di Milano, Italy*  
*Pierluigi Reali, Politecnico di Milano, Italy*  
*Anna M. Bianchi, Politecnico di Milano, Italy*
- 595 **Cognitive Computing Tools for Identification and Classification of Brain Tumors Starting From Magnetic Resonance Imaging: Preliminary Results**  
*Camilla Russo, University of Naples Federico II, Italy*  
*Paolo Maresca, University of Naples Federico II, Italy*  
*Alfredo Marinelli, University of Naples Federico II, Italy*
- 600 **Using SVM for Alzheimer's Disease Detection From 3D T1MRI**  
*Rashmi Kumari, Bennett University, India*  
*Shivani Goel, Bennett University, India*  
*Subhranil Das, Birla Institute of Technology, India*

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## **SESSION S4C - P2 - Remote Sensing Methods and Applications - Part 2**

**Room: Room 5 - University of Palermo**

**Chairs:** Gloria Bordogna, *CNR-IREA, Italy*  
Dino Ienco, *INRAE, UMR TETIS, France*

- 605 **SAR Sea Surface Currents Estimation Over Long Strips of the Adriatic Sea**  
*Virginia Zamparelli, IREA-CNR, Italy*  
*Gianfranco Fornaro, IREA-CNR, Italy*
- 610 **Multi-Spectral Sensors Monitoring of the Epidemic of Xylella Fastidiosa in the Apulia Region**  
*Sara Dell'Anna, Politecnico di Torino, Italy*  
*Giuseppe Mansueto, ITHACA, Italy*  
*Piero Boccardo, Politecnico di Torino, Italy*  
*Emere Arco, Politecnico di Torino, Italy*
- 616 **Use of Multi-Temporal SAR Non-Local Mean Filtering Operations for Change Detection Analyses**  
*Antonio Pepe, National Council Research, Italy*
- 621 **Dealing With Missing Modalities at Test Time for Land Cover Mapping: A Case Study on Multi-Source Optical Data**  
*Yawogan Jean Eudes Gbodjo, INRAE, France*  
*Dino Ienco, INRAE, France*

**627 Support Vector Machine for Volcano Hazard Monitoring From Space at Mount Etna**

*Ciro Del Negro, Istituto Nazionale di Geofisica e Vulcanologia, Italy*  
*Eleonora Amato, Istituto Nazionale di Geofisica e Vulcanologia, Italy*  
*Federica Torrisi, Istituto Nazionale di Geofisica e Vulcanologia, Italy*  
*Claudia Corradino, Istituto Nazionale di Geofisica e Vulcanologia, Italy*  
*Maide Bucolo, University of Catania, Italy*  
*Luigi Fortuna, University of Catania, Italy*

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**SESSION S4D - Smart Education Technologies**

**Room: Room 6 - University of Palermo**

**Chairs:** *Francesca Pozzi, CNR, Istituto Tecnologie Didattiche, Italy*  
*Symeon Retalis, University of Piraeus - Department of Digital Systems, Greece*

**632 Smartness Dimensions in Designing Collaborative Learning Activities**

*Francesca Pozzi, CNR-ITD, Italy*  
*Donatella Persico, CNR-ITD, Italy*  
*Marcello Passarelli, CNR-ITD, Italy*  
*Andrea Ceregini, CNR-ITD, Italy*  
*Pietro Polsinelli, OpenLab, Italy*  
*Matteo Bicocchi, OpenLab, Italy*

**638 Bare Conductive Ink as a Tool to Teach Pupils EFL Vocabulary**

*Alice Pagano, Università di Genova, Italy*  
*Giulia Lombardi, Università di Genova, Italy*  
*Rita Cersosimo, Università di Genova, Italy*

**642 The Role of Artificial Intelligence in Smart Classes: A Survey**

*Eleni Dimitriadou, Cyprus University of Technology, Cyprus*  
*Andreas Lanitis, Cyprus University of Technology, Cyprus*

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**Thursday, June 16**

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**SESSION S1J - Cyber Security and Big Data Issues for Smart Grid Systems**

**Room: Room 2 - University of Palermo**

**Chairs:** *Seref Sagiroglu, Gazi University, Turkey*  
*Pierluigi Gallo, Università di Palermo, Italy*

**648 Digital Data Integration Project Between a DSO and a University for Sustainability and Efficiency**

*Emin Kartci, Ozyegin University, Turkey*  
*Eda Emniyet Akkus, Yesilirmak Electric Distribution Co., Turkey*  
*Semanur Sançar, Ozyegin University, Turkey*  
*Tuba Avsar Bugdayci, Yesilirmak Electric Distribution Co., Turkey*  
*Mutlu Bektas, Yesilirmak Electric Distribution Co., Turkey*  
*Gokturk Poyrazoglu, Ozyegin University, Turkey*

**653 Impact of Data Granularity and Distribution Network Modeling on the Energy Community Operation**

*Andrea Mazza, Politecnico di Torino, Italy*  
*Stefano Aime, Politecnico di Torino, Italy*  
*Gianfranco Chicco, Politecnico di Torino, Italy*

**659 Long Term Scenarios: Optimal Selection of a Representative Set of Climatic Years for the Simulation of the National Electricity System**

*Ivan De Palma, Italy*  
*Nunzia Riccio, Terna S.p.A., Rome, Italy*  
*Enrico De Tuglie, Politecnico di Bari, Italy*  
*Pierluigi Di Cicco, Terna S.p.A., Rome, Italy*

- 665 **Deep Learning for Classification of FDI on Time-Series Sensor Data in Cyber-Physical Power Systems**  
*Siddhartha Deb Roy, National Institute of Technology Meghalaya, India*  
*Sanjoy Debbarma, National Institute of Technology Meghalaya, India*
- 671 **Machine Learning Architecture for Signature-Based IoT Intrusion Detection in Smart Energy Grids**  
*Nikhil Yadav, St. John's University, USA*  
*Laura Truong, St. John's University, USA*  
*Erald Troja, St. John's University, USA*  
*Mehrdad Aliasgari, California State University, USA*
- 677 **A Privacy-Preserving Blockchain Solution to Support Demand Response in Energy Trading**  
*Lorenzo Bracciale, University of Rome "Tor Vergata", Italy*  
*Pierpaolo Loreti, University of Rome "Tor Vergata", Italy*  
*Emanuele Raso, University of Rome "Tor Vergata", Italy*  
*Giuseppe Bianchi, University of Rome "Tor Vergata", Italy*  
*Pierluigi Gallo, University of Palermo, Italy*  
*Eleonora Riva Sanseverino, University of Palermo, Italy*

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### **SESSION SIG - P1 - Smart solution for high penetration of PV generation in Renewable Energy Communities - Part 1**

**Room: Room 3 - University of Palermo**

**Chairs:** José M. Blanes, *University Miguel Hernández of Elche, Spain*

Gabriele Maria Lozito, *University of Firenze, Italy*

Fabio Viola, *University of Palermo, Italy*

- 683 **Experimental Characterization of Filter Reactors for Grid-Connected Solar Photovoltaic Systems**  
*Antonio Faba, University of Perugia, Italy*  
*Ermanno Cardelli, University of Perugia, Italy*
- 688 **Power Quality Analysis of Power Converters for Photovoltaic Systems in Avionic Applications**  
*Antonio Faba, University of Perugia, Italy*  
*Ermanno Cardelli, University of Perugia, Italy*
- 693 **PVMODEL: An Online Photovoltaic Modelling Tool**  
*Vicente Galiano, Miguel Hernández University of Elche, Spain*  
*José Blanes, Miguel Hernández University of Elche, Spain*  
*Francisco Javier Toledo, Miguel Hernández University of Elche, Spain*  
*Victoria Herranz, Miguel Hernández University of Elche, Spain*  
*Antonino Laudani, University of Roma Tre, Italy*
- 698 **High-Reliability Solar Array Regulator Proposal for Harsh Environments**  
*Cristian Torres, University Miguel Hernández of Elche, Spain*  
*José Blanes, University Miguel Hernández of Elche, Spain*  
*Ausias Garrigos, University Miguel Hernández of Elche, Spain*  
*David Marroquí, University Miguel Hernández of Elche, Spain*  
*Carlos Orts, University Miguel Hernández of Elche, Spain*  
*José Antonio Carrasco, University Miguel Hernández of Elche, Spain*
- 703 **Pareto Optimization Strategy for Clustering of PV Prosumers in a Renewable Energy Community**  
*Francesco Grasso, University of Florence, Italy*  
*Gabriele Lozito, University of Florence, Italy*  
*Francesco Riganti Fulginei, Roma Tre University, Italy*  
*Giacomo Talluri, University of Florence, Italy*
- 709 **Artificial Load Profiles and PV Generation in Renewable Energy Communities Using Generative Adversarial Networks**  
*Francesco Grasso, University of Florence, Italy*  
*Carlos A. Iturrino, University of Florence, Italy*  
*Gabriele Lozito, University of Florence, Italy*  
*Giacomo Talluri, University of Florence, Italy*

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### **SESSION S3D - E-Health and IoT for Smart HealthCare**

**Room: Room 4 - University of Palermo**

**Chairs:** Henri Korkalainen, *University of Eastern Finland, Finland*

Nicos Maglaveras, *Aristotle University, Greece*

Massimo Mischi, *Eindhoven University of Technology, The Netherlands*

**715 A Model for Digital Sweat Sensing Devices**

*Jelte Haakma, Eindhoven University of Technology, The Netherlands*

*Elisabetta Peri, Eindhoven University of Technology, The Netherlands*

*Simona Turco, Eindhoven University of Technology, The Netherlands*

*Eduard Pelssers, Eindhoven University of Technology, The Netherlands*

*Jaap den Toonder, Eindhoven University of Technology, The Netherlands*

*Massimo Mischi, Eindhoven University of Technology, The Netherlands*

**720 Data Processing Using Edge Computing: A Case Study for the Remote Care Environment**

*Ian Chetcuti, University of Malta, Malta*

*Conrad A Attard, University of Malta, Malta*

*Joseph Bonello, University of Malta, Malta*

**726 Biometric-Based Packet Validation Scheme for Body Area Network Smart Healthcare Devices**

*Vincent O. Nyangaresi, Tom Mboya University College, Kenya*

*Mustafa Al Sibahee, Iraq University College, Iraq*

*Zaid Abduljabbar, University of Basrah, Iraq*

*Junchao Ma, Shenzhen Technology University, China*

*Mustafa Khalefa, University of Basrah, Iraq*

**732 Correlation Between Wearable Inertial Sensor Data and Standardised Parkinson's Disease Axial Impairment Measures Using Machine Learning**

*Luigi Borzi, Politecnico di Torino, Italy*

*Alessandro Manoni, Sapienza University of Rome, Italy*

*Alessandro Zampogna, Sapienza University of Rome, Italy*

*Fernanda Irrera, Sapienza University of Rome, Italy*

*Antonio Suppa, Sapienza University of Rome, Italy*

*Gabriella Olmo, Politecnico di Torino, Italy*

**737 Performance Assessment of Microneedle Dry and Wet Gel Electrodes Using a Dual-Channel, Single Lead Wearable ECG Device**

*Om Prakash Singh, Tyndall National Institute, University College Cork, Ireland*

*Yuan Hu, Tyndall National Institute, University College Cork, Ireland*

*Andrea Bocchino, Tyndall National Institute, University College Cork, Ireland*

*Theo Guillerm, Tyndall National Institute, University College Cork, Ireland*

*Conor O'Mahony, Tyndall National Institute, University College Cork, Ireland*

**741 Covid-19 Symptoms Monitoring Sensor Network for Isolation Rooms at Hospitals**

*Ghanim Y GH S AlOmani, American University of the Middle East, Kuwait*

*Abdulsamad D S Darwesh, American University of the Middle East, Kuwait*

*Shehab A J M AlSennei, American University of the Middle East, Kuwait*

*Husain A M A Buabbas, American University of the Middle East, Kuwait*

*Abdulmohsen F M A AlGhareeb, American University of the Middle East, Kuwait*

*Hossam O. Ahmed, American University of the Middle East, Kuwait*

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### **SESSION S4E - P1 - Cognitive Computing, Artificial Intelligence & Machine Learning - Part 1**

**Room: Room 5 - University of Palermo**

**Chairs:** Danilo Pau, *ST Microelectronics, Italy*

Mattia Rigotti, *IBM Research, Switzerland*

- 746 **Complexity Bounded Classification of Fish-Eye Distorted Objects With Micro-Controllers**  
*Danilo Pietro Pau, STMicroelectronics, Italy*  
*Alessandro Carra, STMicroelectronics, Italy*  
*Marco Garzola, Tecniplast S.p.A., Italy*  
*Laura Falaschetti, Università Politecnica delle Marche, Italy*  
*Claudio Turchetti, Università Politecnica delle Marche, Italy*
- 752 **Tiny Neural Networks for ISM Band Demodulation**  
*Marco Forleo, STMicroelectronics, Italy*  
*Danilo Pietro Pau, STMicroelectronics, Italy*  
*Nicolo' Ivan Piazzese, STMicroelectronics, Italy*
- 758 **Automated Neural and On-Device Learning for Micro Controllers**  
*Danilo Pietro Pau, STMicroelectronics, Italy*  
*Prem Ambrose, STMicroelectronics, Italy*
- 764 **Design of a Cloud-Based Data Platform for Standardized Machine Learning Workflows With Applications to Transport Infrastructure**  
*Andrea Bartezzaghi, IBM Research, Switzerland*  
*Ioana Giurgiu, IBM Research - Zurich, Switzerland*  
*Chiara Marchiori, IBM Zurich Research Center, Switzerland*  
*Mattia Rigotti, IBM Research, Switzerland*  
*Rizal Sebastian, TNO - Netherlands Organisation for Applied Scientific Research, The Netherlands*  
*A. Cristiano I. Malossi, IBM Research - Zurich, Switzerland*
- 770 **Question Answering With BERT: Designing a 3D Virtual Avatar for Cultural Heritage Exploration**  
*Mariella Farella, National Research Council, University of Palermo, Italy*  
*Giuseppe Chiazzese, National Research Council, Italy*  
*Giosuè Lo Bosco, University of Palermo, Italy*

## **SESSION 51H - P1 - Wireless Power transfer and Power Electronics Systems - Part 1**

**Room: Room 6 - University of Palermo**

**Chairs:** Luigi Costanzo, *University of Campania Luigi Vanvitelli, Italy*  
 Minh Nguyen, *Thai Nguyen University of Technology, Vietnam*

- 775 **Center-Fed Resonator Array for Increased Misalignment Tolerance in Automotive Wireless Power Transfer**  
*Mattia Simonazzi, University of Bologna, Italy*  
*Leonardo Sandrolini, University of Bologna, Italy*  
*Alessandro Campanini, University of Bologna, Italy*  
*José Alberto, Universidade Lusófona de Humanidades e Tecnologias, Portugal*  
*Andrea Mariscotti, University of Genova, Italy*
- 780 **Voltage Adaptation or Resistance Matching in Backpack Regenerative Systems?**  
*Luigi Costanzo, Università degli Studi della Campania Luigi Vanvitelli, Italy*  
*Mingyi Liu, Virginia Tech, USA*  
*Alessandro Lo Schiavo, Università degli Studi della Campania Luigi Vanvitelli, Italy*  
*Massimo Vitelli, Università degli Studi della Campania Luigi Vanvitelli, Italy*  
*Lei Zuo, Virginia Tech, USA*
- 785 **Coupled Inductor Core Design Methodology to Improve Power-Density for Interleaved Buck Converter With 22kW-Class Wireless Charging of EV**  
*Jin Chul Kim, Korea National University of Transportation, Korea*  
*Hyung Woo Lee, Korea National University of Transportation, Korea*  
*Chan Bae Park, Korea National University of Transportation, Korea*  
*Jae Bum Lee, Korea National University of Transportation, Korea*  
*Dong Kyun Kim, Korea National University of Transportation, Korea*  
*Sang Gyun Ryu, Korea National University of Transportation, Korea*  
*Seong-Yong Hong, Korea National University of Transportation, Korea*

- 791 **Application of a Power Source for Hydrogen Fuel Cell Railway Vehicles in Multiple Resonant LLC Converter With Parallel-Input and Series-Output**  
*Dong Kyun Kim, Korea National University of Transportation, Korea*  
*Hyung Woo Lee, Korea National University of Transportation, Korea*  
*Chan Bae Park, Korea National University of Transportation, Korea*  
*Jae Bum Lee, Korea National University of Transportation, Korea*  
*Sang Gyun Ryu, Korea National University of Transportation, Korea*  
*Jae Hyeon Lim, Korea National University of Transportation, Korea*  
*Jin Chul Kim, Korea National University of Transportation, Korea*
- 796 **Dual-Topology Cross-Coupled Configuration of Switched Capacitor Converter for Wide Range of Application**  
*Saahithi Suresh, Reva University, India*  
*Busireddy Hemanth Kumar, Sree Vidyanikethan Engineering College, India*  
*Kalvakurthi Jyotheeswara Reddy, VIT University, India*  
*Ritesh Dash, KIIT University, India*  
*Vivekanandan Subburaj, NITK Surathkal, India*
- 801 **Finite Element Analysis of Copper Wire for Wireless Power Transfer Applications**  
*Luca Pugi, University of Florence, Italy*  
*Francesco Grasso, University of Florence, Italy*  
*Liberio Paolucci, University of Florence, Italy*  
*Leonardo Luchetti, University of Florence, Italy*  
*Giacomo Zini, University of Florence, Italy*

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## ***SESSION 51L - Application of Machine Learning and Artificial Intelligence in Smart Grids***

**Room: Room 1 - University of Palermo**

**Chairs:** *Alessandro D'Innocenzo, University of Aquila, Italy*  
*Gianfranco Chicco, Politecnico di Torino, Italy*

- 807 **On Substrates, Blocks and States: Distributed Energy Resources' Diffusion Models, Use Cases and Frontiers in Power System Planning**  
*Fabian Heymann, INESC TEC, Portugal*  
*Joel Villavicencio Gastelu, Federal University of ABC, Brazil*  
*Anselmo Rajabo Anselmo, Federal University of ABC, Brazil*  
*Joel D Melo, Federal University of ABC, Brazil*
- 813 **An Ontological Approach for Automatic Tracking Causes of Blackouts in Power Systems**  
*Tao Huang, Politecnico di Torino, Italy*  
*Martina Baiocchi, Politecnico di Torino, Italy*  
*Xia Lei, Xihua University, China*
- 819 **An Asymmetric Loss With Anomaly Detection LSTM Framework for Power Consumption Prediction**  
*Jihan Ghanim, American University of Beirut, Lebanon*  
*Maha Issa, American University of Beirut, Lebanon*  
*Mariette Awad, American University of Beirut, Lebanon*
- 825 **Graph Neural Network Power Flow Solver for Dynamical Electrical Networks**  
*Tania B. López-García, University of Zaragoza, Spain*  
*José A Domínguez-Navarro, University of Zaragoza, Spain*
- 831 **Video Discharge Extractor: A Deep Learning and Computer Vision-Based Framework for Surface Discharges Recognition on HV Lines Insulators**  
*Alberto Maldarella, RSE Spa, Italy*  
*Gabriele Lami, Elif Lab, Italy*  
*Enea Bionda, RSE Spa, Italy*  
*Carlo Tornelli, RSE Spa, Italy*  
*Giovanni Pirovano, RSE Spa, Italy*  
*Sergio Ludovico Chiarello, RSE Spa, Italy*

**837 Ultra-Short-Term Photovoltaic Output Power Forecasting Using Deep Learning Algorithms**

*Berhane Darsene Dimd, Norwegian University of Science and Technology, Norway*  
*Steve Völler, Norwegian University of Science and Technology, Norway*  
*Ole-Morten Midtgård, Norwegian University of Science and Technology, Norway*  
*Tarikua Mekashaw Zenebe, Norwegian University of Science and Technology, Norway*

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**SESSION S1K - P1 - Energy Management, Smart Metering and Distributed Energy Resources  
- Part 1**

**Room: Room 2 - University of Palermo**

**Chairs:** *Giuditta Pisano, University of Cagliari, Italy*  
*Ciro Spataro, University of Palermo, Italy*  
*Pietro Romano, University of Palermo, Italy*

**843 The Decentralized Grid-Aware P2P Energy Market Enabled by a Distributed Ledger Implementation**

*Robert Jahn, TU Dortmund University, Germany*  
*Oliver Kraft, TU Dortmund University, Germany*  
*Marcel Klaes, TU Dortmund University, Germany*  
*Dennis Schmid, TU Dortmund University, Germany*  
*Christian Rehtanz, TU Dortmund University, Germany*  
*Ulf Haeger, TU Dortmund University, Germany*

**849 Optimisation of Generation Models for Clusters of Photovoltaic Plants**

*Alessandro Ciocia, Politecnico di Torino, Italy*  
*Gianfranco Chicco, Politecnico di Torino, Italy*  
*Filippo Spertino, Politecnico di Torino, Italy*

**855 Experimental Tests About the Efficiency of Commercial Hybrid PV Inverters Operating at Variable Power Factor**

*Giuseppe Marco Tina, University of Catania, Italy*  
*Cristina Ventura, University of Catania, Italy*  
*Luigi Lanuzza, Enel X Inn, Prod Lab, Italy*  
*Massimiliano De Benedetti, Enel X Inn, Prod Lab, Italy*  
*Daniele Dugo, Enel X Inn, Prod Lab, Italy*

**860 Cost Sensitivity Analysis to Uncertainty in Demand and Renewable Energy Sources Forecasts**

*Nikolina Čović, University of Zagreb, Croatia*  
*Domagoj Badanjak, University of Zagreb, Croatia*  
*Karlo Šepetanc, University of Zagreb, Croatia*  
*Hrvoje Pandzic, University of Zagreb, Croatia*

**866 Real-Time Distribution Grid Control and Flexibility Provision Under Uncertainties: Laboratory Demonstration**

*Mohammad Rayati, University of Applied Sciences of Western Switzerland, Switzerland*  
*Mokhtar Bozorg, University of Applied Sciences of Western Switzerland, Switzerland*  
*Mauro Carpita, University of Applied Sciences of Western Switzerland, Switzerland*  
*Pasquale De Falco, University of Naples Parthenope, Italy*  
*Pierluigi Caramia, University of Naples Parthenope, Italy*  
*Antonio Bracale, University of Naples Parthenope, Italy*  
*Daniela Proto, University of Naples Federico II, Italy*  
*Fabio Mottola, University of Naples Federico II, Italy*

**872 Comparing R-Vine Copulas and Quantile Regression Forests for Reliability Forecasting of Renewable Energies**

*Stefan Möws, Hamburg University of Technology, Germany*  
*Marisa Ahrens, Hamburg University of Technology, Germany*  
*Christian Becker, Hamburg University of Technology, Germany*

**878 A Template Model to Assess the DC Stability of Green Charging Microgrids**

*Andrea Alessia Tavagnutti, University of Trieste, Italy*  
*Daniele Bosich, University of Trieste, Italy*  
*Stefano Pastore, University of Trieste, Italy*  
*Giorgio Sulligoi, University of Trieste, Italy*

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**SESSION SIG - P2 - Smart solution for high penetration of PV generation in Renewable Energy Communities - Part 2**

**Room: Room 3 - University of Palermo**

**Chairs:** José M. Blanes, *University Miguel Hernández of Elche, Spain*  
Gabriele Maria Lozito, *University of Firenze, Italy*  
Fabio Viola, *University of Palermo, Italy*

**884 A Python Tool for Simulation and Optimal Sizing of a Storage Equipped Grid Connected Photovoltaic Power System**

*Elisa Belloni, University of Perugia, Italy*  
*Gabriele Lozito, University of Florence, Italy*  
*Alberto Reatti, University of Florence, Italy*

**890 Simulation-Based Assessment of Supercapacitors as Enabling Technology for Fast Charging in Micromobility**

*Maurizio Laschi, University of Florence, Italy*  
*Fabio Corti, University of Perugia, Italy*  
*Gabriele Lozito, University of Florence, Italy*  
*Dario Vangi, University of Florence, Italy*  
*Michelangelo S. Gulino, University of Florence, Italy*  
*Luca Pugi, University of Florence, Italy*  
*Alberto Reatti, University of Florence, Italy*

**896 Control Strategies for Output Voltage Regulation in a SS Compensated Wireless Charging System**

*Vittorio Bertolini, University of Perugia, Italy*  
*Fabio Corti, University of Perugia, Italy*  
*Ermanno Cardelli, University of Perugia, Italy*  
*Alberto Reatti, University of Florence, Italy*

**902 Comparison of Control Strategies for Dual Active Bridge Converter**

*Fabio Corti, University of Perugia, Italy*  
*Vittorio Bertolini, University of Perugia, Italy*  
*Alberto Reatti, University of Florence, Italy*  
*Ermanno Cardelli, University of Perugia, Italy*  
*Marco Giallongo, University of Florence, Italy*

**908 Optimal Expansion Planning of Integrated Natural Gas and Electricity Network With High Penetration of Wind and Solar Power Under Uncertainty**

*Patrick Sunday Onen, University of Bradford, United Kingdom*  
*Geev Mokryani, University of Bradford, United Kingdom*  
*Rana Zubo, Northern Technical University, Iraq*

**914 MPP Tracking Optimization of Complete PV Installations Attaining Minimum Losses**

*Zaint Abufarha Alexakis, University of Patras, Greece*  
*Antonio T Alexandridis, University of Patras, Greece*

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**SESSION S3E - Big Data Integration and Personalised Medicine**

**Room: Room 4 - University of Palermo**

**Chairs:** Luca Faes, *University of Palermo, Italy*  
Giandomenico Nollo, *University of Trento, Italy*

**920 Assessment of Driving Stress Through SVM and KNN Classifiers on Multi-Domain Physiological Data**

*Damiano Fruet, University of Trento, Italy*  
*Chiara Barà, University of Palermo, Italy*  
*Riccardo Pernice, University of Palermo, Italy*  
*Luca Faes, University of Palermo, Italy*  
*Giandomenico Nollo, University of Trento, Italy*

- 926 **Analysis of Cardiac Pulse Arrival Time Series at Rest and During Physiological Stress**  
*Chiara Barà, University of Palermo, Italy*  
*Riccardo Pernice, University of Palermo, Italy*  
*Laura Sparacino, University of Palermo, Italy*  
*Yuri Antonacci, University of Palermo, Italy*  
*Michal Javorka, Comenius University, Slovakia*  
*Luca Faes, University of Palermo, Italy*
- 932 **An Integrated Multimodal Approach to Evaluate Autonomic Control, Cerebral Autoregulation and Cognitive Function in Patients Undergoing Surgical Aortic Valve Replacement During a 3-Months Follow-Up**  
*Vlasta Bari, IRCCS Policlinico San Donato, Italy*  
*Francesca Gelpi, University of Milan, Italy*  
*Noemi Cornara, IRCCS Policlinico San Donato, Italy*  
*Beatrice Cairo, University of Milan, Italy*  
*Beatrice De Maria, IRCCS Istituti Clinici Scientifici Maugeri, Italy*  
*Enrico Bertoldo, IRCCS Policlinico San Donato, Italy*  
*Valentina Fiolo, IRCCS Policlinico San Donato, Italy*  
*Edward Callus, IRCCS Policlinico San Donato, University of Milan, Italy*  
*Carlo De Vincentiis, IRCCS Policlinico San Donato, Italy*  
*Marianna Volpe, IRCCS Policlinico San Donato, Italy*  
*Raffaella Molfetta, IRCCS Policlinico San Donato, Italy*  
*Moreno Zanardo, University of Milan, Italy*  
*Paolo Vitali, IRCCS Policlinico San Donato, Italy*  
*Francesco Sardanelli, IRCCS Policlinico San Donato, Italy*  
*Marco Ranucci, IRCCS Policlinico San Donato, Italy*  
*Alberto Porta, IRCCS Policlinico San Donato, University of Milan, Italy*
- 936 **Low-Invasive Multisensor Real-Time Acquisition System for the Assessment of Cardiorespiratory and Skin Conductance Parameters**  
*Gabriele Volpes, University of Palermo, Italy*  
*Simone Valenti, University of Palermo, Italy*  
*Antonino Parisi, University of Palermo, Italy*  
*Alessandro Busacca, University of Palermo, Italy*  
*Luca Faes, University of Palermo, Italy*  
*Riccardo Pernice, University of Palermo, Italy*
- 942 **Information Extraction From Clinical Records: An Example for Breast Cancer**  
*Ivan Lazić, University of Novi Sad, Serbia*  
*Nikša Jakovljević, University of Novi Sad, Serbia*  
*Jasmina Boban, University of Novi Sad, Serbia*  
*Igor Nosek, University of Novi Sad, Serbia*  
*Tatjana Loncar-Turukalo, University of Novi Sad, Serbia*

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## **SESSION S4E - P2 - Cognitive Computing, Artificial Intelligence & Machine Learning - Part 2**

**Room: Room 5 - University of Palermo**

**Chairs:** Danilo Pau, *ST Microelectronics, Italy*  
 Mattia Rigotti, *IBM Research, Switzerland*

- 948 **Risk Prediction in the Life Insurance Industry Using Federated Learning Approach**  
*Harshit Gupta, Indian Institute of Information Technology Allahabad India, India*  
*Dhairya Patel, Indian Institute of Information Technology Allahabad India, India*  
*Anurag Makade, Indian Institute of Information Technology Allahabad India, India*  
*Kapil Gupta, Indian Institute of Information Technology Allahabad India, India*  
*Om Prakash Vyas, Indian Institute of Information Technology Allahabad India, India*  
*Antonio Puliafito, University of Messina, Italy*
- 954 **Training of an ANN Feed-Forward Regression Model to Predict Wind Farm Power Production for the Purpose of Active Wake Control**  
*Philip Krajinski, Ruhr University Bochum, Germany*  
*Constantinos Sourkounis, Ruhr University Bochum, Germany*

- 960 **Exploring How Weak Supervision Can Assist the Annotation of Computer Vision Datasets**  
*Andrea Abela, University of Malta, Malta*  
*Dylan Seychell, University of Malta, Malta*  
*Mark Bugeja, University of Malta, Malta*
- 966 **Baggage Threat Recognition Using Deep Low-Rank Broad Learning Detector**  
*Divya Velayudhan, Khalifa University, United Arab Emirates*  
*Taimur Hassan, Khalifa University, United Arab Emirates*  
*Abdelfatah Hassan Ahmed, Khalifa University, United Arab Emirates*  
*Ernesto Damiani, Khalifa University, United Arab Emirates*  
*Naoufel Werghi, Khalifa University, United Arab Emirates*
- 972 **A Flexible HLS Hoeffding Tree Implementation for Runtime Learning on FPGA**  
*Luís Miguel Sous, aUniversity of Porto, Portugal*  
*Nuno M. Paulino, University of Porto, Portugal*  
*João C Ferreira, University of Porto, Portugal*  
*João Bispo, University of Porto, Portugal*
- 978 **An Efficient Ocular Disease Recognition System Implementation Using GLCM and LBP Based Multilayer Perception Algorithm**  
*Lakindu Induwara Mampitiya, Sri Lanka Institute of Information Technology, Sri Lanka*  
*Namal Rathnayake, Kochi University of Technology, Japan*
- 984 **Neural Network Decomposition and Distribution on Multiple Microcontrollers**  
*Biagio Montaruli, STMicroelectronics, Italy*  
*Andrea Santamaria, STMicroelectronics, Politecnico di Milano, Italy*  
*Danilo Pietro Pau, STMicroelectronics, Italy*
- 990 **A Citizen Science Approach for the Collection of Data to Train Deep Learning Models**  
*Chantelle Saliba, University of Malta, Malta*  
*Dylan Seychell, University of Malta, Malta*  
*Joseph Buhagiar, University of Malta, Malta*

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## **SESSION S1H - P2 - Energy Harvesting - Part 2**

**Room: Room 6 - University of Palermo**

**Chairs:** Luigi Costanzo, *University of Campania Luigi Vanvitelli, Italy*  
 Minh Nguyen, *Thai Nguyen University of Technology, Vietnam*

- 996 **Self-Powered Extensible S-SSHI Based on RC Differential Circuit for Piezoelectric Energy Harvesting**  
*Yuyao Qi, Ningbo University, China*  
*Yin-Shui Xia, Ningbo University, China*
- 1002 **Experimental Verification of an AC-DC Boost Towards Non-Periodic (AC) Energy Harvesting**  
*Carmine Stefano Clemente, University of Sannio, Italy*  
*Daniele Davino, University of Sannio, Italy*  
*Immacolato Iannone, University of Sannio, Italy*  
*Vincenzo Paolo Loschiavo, University of Sannio, Italy*
- 1007 **A Novel Framework of Hybrid Harvesting Mechanisms for Remote Sensing Devices**  
*Minh T Nguyen, Thai Nguyen University of Technology, Vietnam*  
*Hoang Tran, Duy Tan University, Vietnam*  
*Cuong Van Nguyen, Thai Nguyen University of Technology, Vietnam*  
*Guido Ala, University of Palermo, Italy*  
*Fabio Viola, University of Palermo, Italy*  
*Ilhami Colak, University of Gazi, Turkey*
- 1013 **Circuitual Emulation for Testing Electromagnetic Vibration Energy Harvesters**  
*Luigi Costanzo, Università degli Studi della Campania Luigi Vanvitelli, Italy*  
*Alessandro Lo Schiavo, Università degli Studi della Campania Luigi Vanvitelli, Italy*  
*Massimo Vitelli, Università degli Studi della Campania Luigi Vanvitelli, Italy*

**1019 A High-Efficiency Optical Energy Harvester Based on a Low-Impedance Plasmonic Nanoantenna**

*Aurelio Zinno, University of Palermo, Italy*  
*Marco Scalici, University of Palermo, Italy*  
*Patrizia Livreri, University of Palermo, Italy*

**1024 Performance Estimation for RF Wireless Power Transfer under Real-Life Scenario**

*Romans Kusnins, Riga Technical University, Latvia*  
*Ruslans Babajans, Riga Technical University, Latvia*  
*Darja Cirjulina, Riga Technical University, Latvia*  
*Janis Eidaks, Riga Technical University, Latvia*  
*Anna Litvinenko, Riga Technical University, Latvia*

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**SESSION S1K - P2 - Energy Management, Smart Metering and Distributed Energy Resources  
- Part 2**

**Room: Room 2 - University of Palermo**

**Chairs:** *Giuditta Pisano, University of Cagliari, Italy*  
*Ciro Spataro, University of Palermo, Italy*  
*Pietro Romano, University of Palermo, Italy*

**1030 Automated Route Planning of Hydrogen Deliveries**

*Georg Sehr, Fraunhofer Institute for Factory Operation and Automation IFF, Germany*  
*Mathias Vorbröcker, Fraunhofer Institute for Factory Operation and Automation IFF, Germany*  
*Torsten Birth, Fraunhofer Institute for Factory Operation and Automation IFF, Germany*  
*Marcel Scheffler, Fraunhofer Institute for Factory Operation and Automation IFF, Germany*  
*Sven Schiffner, Fraunhofer Institute for Factory Operation and Automation IFF, Germany*

**1034 Energy Exchange Management in Smart Grids Using a Knapsack Problem Inspired Approach**

*Ayoub Zerka, Mohammed V University in Rabat, Morocco*  
*Mohammed Ouassaid, Mohammed V University in Rabat, Morocco*  
*Mohamed Maaroufi, Mohammed V University in Rabat, Morocco*  
*Reda Rabeah, Mohammed V University in Rabat, Morocco*

**1040 Integrated Scheduling of Grid-Connected PV Pumping Stations and Irrigation Water Systems**

*Natalia Naval, University of Zaragoza, Spain*  
*Jose M Yusta, University of Zaragoza, Spain*

**1045 Digital Platforms in the Energy Sector - A Menu of Regulatory Options for Policy Makers**

*Fabian Heymann, Swiss Federal Office of Energy, Switzerland*  
*Matthias Galus, Swiss Federal Office of Energy, Switzerland*

**1050 A Proposal for Customer Baseline Load Evaluation From Electricity Bills**

*Maria Luisa Di Silvestre, University of Palermo, Italy*  
*Pierluigi Gallo, University of Palermo, Italy*  
*Giovanni Restifo, University of Palermo, Italy*  
*Eleonora Riva Sanseverino, University of Palermo, Italy*  
*Giuseppe Sciumè, University of Palermo, Italy*  
*Antony Vasile, University of Palermo, Italy*

**1056 An Optimal Energy Management Scheme of a Vehicle to Home**

*Nsilulu Tresor Mbungu, Tshwane University of Technology, University of Sharjah, South Africa*  
*Ali Ismail, Tshwane University of Technology, University of Sharjah, South Africa*  
*Ramesh Bansal, Tshwane University of Technology, University of Sharjah, South Africa*  
*Abdul-Kadir Hamid, University of Sharjah, United Arab Emirates*  
*Raj Naidoo, University of Pretoria, South Africa*

**1061 Techno-Economic Analysis of Port Renewable Energy Communities**

*Riccardo Trevisan, University of Cagliari, Italy*  
*Emilio Ghiani, University of Cagliari, Italy*  
*Simona Ruggeri, University of Cagliari, Italy*  
*Susanna Mocchi, University of Cagliari, Italy*  
*Enrico De Tuglie, Politecnico di Bari, Italy*  
*Fabrizio Pilo, University of Cagliari, Italy*

**1067 Imputation of Electrical Load Profile Data as Derived From Smart Meters**

*Michael Farrugia, University of Malta, Malta*

*Kenneth Scerri, University of Malta, Malta*

*Andrew Sammut, University of Malta, Malta*

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**SESSION SIM - P1 - Power Electronics and Control in Smart Grids, Industry and e-Transportation - Part 1**

**Room: Room 3 - University of Palermo**

**Chairs:** *Giuseppe Schettino, University of Palermo, Italy*

*Alfonso Damiano, University of Cagliari, Italy*

*Hadi Y. Kanaan, Saint-Joseph University of Beirut, Lebanon*

**1073 Design of a Smart Car Park With PV Generation and BESS for Grid-On and Grid-Off Operation. The SMARTEP Project**

*Antonino Barberi, University of Palermo, Italy*

*Marco Beccali, University of Palermo, Italy*

*Marina Bonomolo, University of Palermo, Italy*

*Salvatore Favuzza, University of Palermo, Italy*

*Valerio Lo Brano, University of Palermo, Italy*

*Rossano Musca, University of Palermo, Italy*

*Cristenzio Provenzano, University of Palermo, Italy*

*Gaetano Zizzo, University of Palermo, Italy*

**1079 A Comparison Between RMS and EMT Grid-Forming Implementations in MATLAB/Simscap for Smart Grids Dynamics**

*Salvatore Favuzza, University of Palermo, Italy*

*Rossano Musca, University of Palermo, Italy*

*Gaetano Zizzo, University of Palermo, Italy*

*Jaser Saed, Birzeit University, Palestine*

**1085 Comparative Studies on High-Power Density and Light-Weight Step-Up DC-DC Power Converter for Hydrogen-Fuel-Cell Hybrid System**

*Sang Gyun Ryu, Korea National University of Transportation, Korea*

*Hyung Woo Lee, Korea National University of Transportation, Korea*

*Chan Bae Park, Korea National University of Transportation, Korea*

*Jae Bum Lee, Korea National University of Transportation, Korea*

*Jin Chul Kim, Korea National University of Transportation, Korea*

*Dong Kyun Kim, Korea National University of Transportation, Korea*

*Jae Hyeon Lim, Korea National University of Transportation, Korea*

**1091 Experimental Evaluation of Dead-Time Impacts on the Efficiency and THD for a Three-Phase Five-Level Cascaded H-Bridge Inverter**

*Giuseppe Schettino, University of Palermo, Italy*

*Claudio Nevoloso, University of Palermo, Italy*

*Rosario Miceli, University of Palermo, Italy*

*Gioacchino Scaglione, University of Palermo, Italy*

*Antonino Oscar Di Tommaso, University of Palermo, Italy*

*Fabio Viola, University of Palermo, Italy*

*Concettina Buccella, University of L'Aquila, Italy*

*M. Gabriella Cimatoroni, University of L'Aquila, Italy*

**1097 Accurate Frequency Estimation of Electrical Waveforms Affected by Harmonics and Interharmonics**

*Daniel Belega, University of Timisoara, Romania*

*Dario Petri, University of Trento, Italy*

**1102 Design and Comparison Between PSFB and LLC 400/48V DC/DC Stages for On-Board Battery Charger During Total and Partial CC-CV Charging Cycles**

*Alessandro Campanini, University of Bologna, Italy*

*Mattia Simonazzi, University of Bologna, Italy*

*Marco Bosi, University of Bologna, Italy*

*Claudio Rossi, University of Bologna, Italy*

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## **SESSION S3F - Advances in Medical Informatics for HealthCare Applications**

**Room: Room 4 - University of Palermo**

**Chairs:** Dagmar Krefting, *University Medical Center, Germany*

Silvana Quaglini, *University of Pavia, Italy*

### **1107 Taking a Walk Avoiding Polluted Routes: An Application to a Virtual Coach for Cancer**

*Cosimo Strusi, University of Pavia, Italy*

*Arianna Dagliati, University of Pavia, Italy*

*Daniele Pala, University of Pavia, Italy*

*Cristiana Larizza, University of Pavia, Italy*

*Riccardo Bellazzi, University of Pavia, Italy*

*Silvana Quaglini, University of Pavia, Italy*

### **1112 Designing a Testing Environment for the CAPABLE Telemonitoring and Coaching Platform**

*Giordano Lanzola, University of Pavia, Italy*

*Francesca Polce, University of Pavia, Italy*

*Valentina Tibollo, IRCCS Istituti Clinici Scientifici Maugeri, Italy*

*Silvana Quaglini, University of Pavia, Italy*

*Szymon Wilk, Poznan University of Technology, Poland*

### **1118 Automatic Detection of COVID-19 Pneumonia in Chest Computed Tomography Scans Using Convolutional Neural Networks**

*Neil Micallef, University of Malta, Malta*

*Carl J. Debono, University of Malta, Malta*

*Dylan Seychell, University of Malta, Malta*

*Conrad A Attard, University of Malta, Malta*

### **1124 PROper-Net: A Deep-Learning Approach for Prostate's Peripheral Zone Segmentation Based on MR Imaging**

*Eugenia Mylona, University of Ioannina, FORTH-IMBB, Greece*

*Dimitris Zaridis, University of Ioannina, Greece*

*Nikolaos Tachos, Unit of Medical Technology and Intelligent Information Systems, Greece*

*Kostas Marias, FORTH, Greece*

*Manolis Tsiknakis, Hellenic Mediterranean University, FORTH - ICS, Greece*

*Dimitris Fotiadis, Institute of Molecular Biology and Biotechnology, FORTH, University of Ioannina, Greece*

### **1129 Perceived Stress Analysis of Undergraduate Students During COVID-19: A Machine Learning Approach**

*Ahnaf Akif Rahman, Islamic University of Technology, Bangladesh*

*Muntequa Imtiaz Siraji, Islamic University of Technology, Bangladesh*

*Lamim Ibtisam Khalid, Islamic University of Technology, Bangladesh*

*Fahim Faisal, Islamic University of Technology, Bangladesh*

*Mirza Muntasir Nishat, Islamic University of Technology, Bangladesh*

*Ashik Ahmed, Islamic University of Technology, Bangladesh*

*Md Abdullah Al Mamun, Islamic University of Technology, Bangladesh*

### **1135 Can Machine Learning Predict Mortality in Myocardial Infarction Patients Within Several Hours of Hospitalization? A Comparative Analysis**

*Christopher Farah, American University of Beirut, Lebanon*

*Yasmine Abu Adla, American University of Beirut, Lebanon*

*Mariette Awad, American University of Beirut, Lebanon*

### **1141 A Cost-Effective Eye-Tracker for Early Detection of Mild Cognitive Impairment**

*Danilo Greco, University of Genova, Italy*

*Francesco Masulli, University of Genova, Italy*

*Stefano Rovetta, University of Genova, Italy*

*Alberto Cabri, University of Genova, Italy*

*Davide Daffonchio, University of Genova, Italy*

**1147 Prediction of the 3D Spinal Alignment From External Shape of the Back in AIS Patients Using Regression Model**

*Stefano Caturano, Sapienza University of Rome, Italy*

*Mirko Kaiser, ETH Zurich, Switzerland*

*Martin Bertsch, Bern University of Applied Sciences, Switzerland*

*Tito Bassani, IRCCS Istituto Ortopedico Galeazzi, Italy*

*William Taylor, ETH Zurich, Switzerland*

*Sasa Cukovic, ETH Zurich, Switzerland*

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**SESSION S4F - IoT and Smart Communications**

**Room: Room 5 - University of Palermo**

**Chairs:** *Ali Balador, RISE, Sweden*

*Francesco Flammini, Mälardalen University, Sweden*

*Nicolò De Carli, CNR-IEIT, Italy*

**1153 Personalized Outsourced Privacy-Preserving Database Updates for Crowd-Sensed Dynamic Spectrum Access**

*Laura Truong, St. John's University, USA*

*Erald Troja, St. John's University, USA*

*Nikhil Yadav, St. John's University, USA*

*Syed Ahmad Chan Bukhari, St. John's University, USA*

*Mehrdad Aliasgari, California State University, USA*

**1159 Container-Based Load Balancing and Monitoring Approach in Fog Computing System**

*Tina Samizadeh Nikoui, Science and Research Branch, Islamic Azad University, Iran*

*Amir Masoud Rahmani, National Yunlin University of Science and Technology, Taiwan*

*Ali Balador, RISE Research Institute, Sweden*

*Hooman Tabarsaied, South Branch of Islamic Azad University, Iran*

**1165 A Cost-Aware Resource Management Technique for Cloud and Edge Environment**

*Hamie Ebrahimiyan, Urmia University, Iran*

*Ali Balador, RISE Research Institute, Sweden*

*Tina Samizadeh Nikoui, Science and Research Branch, Islamic Azad University, Iran*

**1171 Path Asymmetry Reconstruction via Deep Learning**

*Nada Alhashmi, Khalifa University, United Arab Emirates*

*Nawaf Almoosa, Khalifa University, United Arab Emirates*

*Gabriele Gianini, Università degli Studi di Milano, Italy, Khalifa University, United Arab Emirates*

**1177 Combining Learners to Predict Link Quality in Wireless IoT Networks**

*Miguel Landry Foko Sindjoug, University of Limpopo, South Africa*

*Mthulisi Velempini, University of Limpopo, South Africa*

*Pascale Minet, INRIA Paris, France*

**1183 Learning-Automata-Based Hybrid Model for Event Detection in LoRaWAN Networks**

*Athanasios Tsakmakis, Aristotle University of Thessaloniki, Greece*

*Anastasios Valkanis, Aristotle University of Thessaloniki, Greece*

*Georgia Beletsioti, Aristotle University of Thessaloniki, Greece*

*Konstantinos Kantelis, Aristotle University of Thessaloniki, Greece*

*Petros Nicopolitidis, Aristotle University of Thessaloniki, Greece*

*Georgios Papadimitriou, Aristotle University of Thessaloniki, Greece*

**1189 Sentiment Analysis and Recurrent Radial Basis Function Network for Bitcoin Price Prediction**

*Mario Casillo, University of Salerno, Italy*

*Marco Lombardi, University of Salerno, Italy*

*Angelo Lorusso, University of Salerno, Italy*

*Francesco Marongiu, University of Salerno, Italy*

*Domenico Santaniello, University of Salerno, Italy*

*Carmine Valentino, University of Salerno, Italy*

**1194 Predictive preservation of historic buildings through IoT-based system**

*Mario Casillo, University of Salerno Italy*  
*Caterina Gabriella Guida, University of Salerno Italy*  
*Marco Lombardi, University of Salerno Italy*  
*Angelo Lorusso, University of Salerno Italy*  
*Francesco Marongiu, University of Salerno Italy*  
*Domenico Santaniello, University of Salerno Italy*

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**SESSION S4G - Smart Living Technologies**

**Room: Room 6 - University of Palermo**

**Chairs:** Riccardo Bassoli, *TU Dresden, Germany*  
Juan A. Cabrera Guerrero, *TU Dresden, Germany*

**1199 A Good Horse Only Jumps as High as Needed: Multi-Field Fulcrum Codes for Heterogeneous Decoders**

*Vu Nguyen, Technical University of Dresden, Germany, Vietnam - Korea University of Information and Communication Technology, Vietnam*  
*Juan A. Cabrera, Technical University of Dresden, Germany*  
*Javier Acevedo, Technical University of Dresden, Germany*  
*Christian Scheunert, Technical University of Dresden, Germany*  
*Giang T. Nguyen, Technical University of Dresden, Germany*  
*Frank H.P. Fitzek, Technical University of Dresden, ComNets, Germany*

**1205 MC NFV: Molecular Communication NFV in 6G Networks**

*Pit Hofmann, Technical University of Dresden, Germany*  
*Riccardo Bassoli, Technical University of Dresden, Germany*  
*Frank H.P. Fitzek, Technical University of Dresden, ComNets, Germany*  
*Martin Reisslein, Arizona State University, USA*

**1211 Evaluation of an Intelligent Task Scheduling Algorithm for 6G 3D Networking**

*Jiajing Zhang, Technical University of Dresden, Germany*  
*Huanzhuo Wu, Technical University of Dresden, Germany*  
*Shiwei Shen, Technical University of Dresden, Germany*  
*Riccardo Bassoli, Technical University of Dresden, Germany*  
*Giang T. Nguyen, Technical University of Dresden, Germany*  
*Frank H.P. Fitzek, Technical University of Dresden, ComNets, Germany*

**1217 You Only Hear Once: Lightweight In-Network AI Design for Multi-Object Anomaly Detection**

*Huanzhuo Wu, Technical University of Dresden, Germany*  
*Jia He, Technical University of Dresden, Germany*  
*Máté Tömösközi, Technical University of Dresden, Germany*  
*Jiajing Zhang, Technical University of Dresden, Germany*  
*Frank H.P. Fitzek, Technical University of Dresden, Germany*

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**SESSION SIM - P2 - Power Electronics and Control in Smart Grids, Industry and e-Transportation - Part 2**

**Room: Room 3 - University of Palermo**

**Chairs:** Giuseppe Schettino, *University of Palermo, Italy*  
Concettina Buccella, *University of L'Aquila, Italy*

**1223 Power Flow Numerical Assessment of a STATCOM iUPQC Utility Interface for Microgrids with STATCOM and PAC Functions**

*Matheus Montagner, Santa Catarina State University, WEG Drives and Controls, Brazil*  
*Marcello Mezaroba, Santa Catarina State University, Brazil*  
*Cassiano Rech, Universidade Federal de Santa Maria, Brazil*  
*Eduardo B. dos Prazeres, Santa Catarina State University, Brazil*  
*Douglas Aguiar do Nascimento, University of Zielona Gora, Poland & University of Twente, The Netherlands*  
*Hermes Loschi, University of Nottingham, United Kingdom*

- 1229 Finite Set Model Predictive Control of Three Phase 2L-VSC for Grid Connected Photovoltaic System**  
*Mohammed Tebaa, Mohammed V University in Rabat, Morocco*  
*Mohammed Ouassaid, Mohammed V University in Rabat, Morocco*
- 1235 Investigation on Selective Harmonic Elimination in Unbalanced Multilevel Inverters**  
*Concettina Buccella, University of L'Aquila, Italy*  
*M. Gabriella Cimatori, University of L'Aquila, Italy*  
*Carlo Cecati, University of L'Aquila, Italy*  
*Antonino Oscar Di Tommaso, University of Palermo, Italy*  
*Claudio Nevoloso, University of Palermo, Italy*  
*Giuseppe Schettino, University of Palermo, Italy*  
*Santolo Meo, University of Naples Federico II, Italy*
- 1241 Machine Learning for Model Predictive Control of Cascaded H-Bridge Inverters**  
*Francesco Simonetti, University of L'Aquila, Italy*  
*Giovanni Domenico Di Girolamo, University of L'Aquila, Italy*  
*Alessandro D'Innocenzo, University of L'Aquila, Italy*  
*Carlo Cecati, University of L'Aquila, Italy*
- 1247 Estimation of Model Order for Electromechanical Modes Using Sequential K-Mean Algorithm**  
*Jangam Sandeep, National Institute of Technology, Rourkela, India*  
*Shekha Rai, National Institute of Technology, Rourkela, India*
- 1253 Active Chaos to Control Energy Flows in Complex Networks of Oscillators**  
*Maide Bucolo, University of Catania, Italy*  
*Arturo Buscarino, University of Catania, Italy*  
*Luigi Fortuna, University of Catania, Italy*  
*Giuseppe La Spina, University of Catania, Italy*

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### **SESSION S3G - Bio-electromagnetic modelling**

**Room: Room 4 - University of Palermo**

**Chairs:** Paolo Ravazzani, *IEIIT, CNR, Milano, Italy*  
Patrizia Lamberti, *University of Salerno, Italy*

- 1258 Computational Techniques in Bio-Electromagnetics: Theory and Perspectives**  
*Serena Fiocchi, National Research Council, IEIIT, Italy*  
*Emma Chiamello, National Research Council, IEIIT, Italy*  
*Marta Bonato, National Research Council, IEIIT, Italy*  
*Silvia Gallucci, National Research Council, IEIIT, Italy*  
*Martina Benini, National Research Council, IEIIT, Italy*  
*Gabriella Tognola, National Research Council, IEIIT, Italy*  
*Laura Dossi, National Research Council, IEIIT, Italy*  
*Marta Parazzini, National Research Council, IEIIT, Italy*  
*Paolo Ravazzani, National Research Council, IEIIT, Italy*
- 1264 Electric Scalar Potential Estimations for Non-Invasive Brain Activity Detection Through Multinode Shepard Method**  
*Francesco Dell'Accio, University of Calabria, Italy*  
*Filomena Di Tommaso, University of Calabria, Italy*  
*Guido Ala, University of Palermo, Italy*  
*Elisa Francomano, University of Palermo, Italy*
- 1269 Magnetic Field Effects on the Binding Site of A2A Receptor: An Insight Based on Atomistic Simulations**  
*Federico Del Signore, Sapienza University of Rome, Italy*  
*Paolo Marracino, Rise Technology srl Rome, Italy*  
*Davide Cocco, Sapienza University of Rome, Italy*  
*Stefania Setti, IGEA SPA, Italy*  
*Simona Salati, IGEA SPA, Italy*  
*Ruggero Cadossi, IGEA SPA, Italy*  
*Micaela Liberti, Sapienza University of Rome, Italy*  
*Francesca Apollonio, Sapienza University of Rome, Italy*

**1274 Improved Anatomical Female Breast Model: 3D Realization and Its Application to Numerical Plane Wave Exposure**

*Noemi Dolciotti, Sapienza University of Rome, Italy*

*Micol Colella, Sapienza University of Rome, Italy*

*Simona D'Agostino, Sapienza University of Rome, Italy*

*Francesca Apollonio, Sapienza University of Rome, Italy*

*Micaela Liberti, Sapienza University of Rome, Italy*

**1279 Automated Needle Localisation for Electric Field Computation During an Electroporation Ablation**

*Eloise Julia Rose Inacio, University of Bordeaux, France*

*Luc Lafitte, University of Bordeaux, France*

*Olivier Sutter, University Hospital Paris Seine Saint Denis, France*

*Olivier Seror, University Hospital Paris Seine Saint Denis, France*

*Baudouin Denis de Senneville, University of Bordeaux, France*

*Clair Poignard, University of Bordeaux, France*