

**AEIT2024 International Annual Conference
25-27 September 2024**

PRELIMINARY TECHNICAL PROGRAMME

Wednesday, 25 September

8:30-10:00 *Registration & Welcome Coffee*

10:00-11:00 **MAIN ROOM**
Welcome Statements

11:00-13:00 **MAIN ROOM**
*Panel Intelligenza Artificiale per l'industria:
sfide, opportunità e impatto sociale*

13:00-14:00 *Lunch*

14:00-16:00 **MAIN ROOM**
Keynote Speech I
Panel Stato attuale e prospettive della Transizione Energetica

16:00-16:15 *Coffee Break*

16:15-17:30 **MAIN ROOM**
SME and START UP Session

17:30-18:45 **Parallel Special and Technical Sessions**

MAIN ROOM

TS01 Artificial Intelligence AI

Chair: Marco Roveri - University of Trento

TS01_01 Quantifying the moisture content of transformer oil using dielectric properties and artificial intelligence

Hashem Al-Mattarneh, Adnan Rawashdeh - Yarmouk University, Jordan; Rabah Ismail - Jadara University, Jordan

TS01_02 Harnessing Multivariate AI to Enhance Hydropower Generation Forecasting

Sarah Di Grande, Mariaelena Berlotti, Salvatore Cavalieri - University of Catania, Italy; Roberto Gueli - Etna Hitech, Italy

TS01_03 Multilinear Regression Analysis applied to Voltage Dips classified by a Deep Learning-based Validity Algorithm

Michele Zanoni, Riccardo Chiumeo, Chiara Gandolfi, Liliana Tenti, Massimo Volta - Ricerca sul Sistema Energetico - RSE, Italy

TS01_04 Study and Implementation of a Proprietary RFI Blockchain Infrastructure for Training Registration

Nerea Canales Sebastian, Mirko Ermini, Fabio Senesi - Rete Ferroviaria Italiana, Italy; Marco Sanalidro, Daniele Truzzi, Alessandro Toscano, Silvia Ciucciiovino - University Roma TRE, Italy

TS01_05 Renewable Energy Forecasting AI-Driven Framework for Peer To Peer Trading

Ameni Boumaiza, Kenza Maher - *Hamad Bin Khalifa University, Qatar*

ROOM A

TS02 Power Electronics

Chair: Giuseppe Buja – *University of Padua*

TS02_01 Electromagnetic simulation of the misalignment resilience of a capacitive power transfer system with a matrix structure

Kiran Peirens, Amélie Chevalier, Ben Minnaert - *University of Antwerp, Belgium*

TS02_02 Harmonic Mitigation Solutions for Industrial Connections with Variable Frequency Drives

Illia Diahovchenko - *University College Dublin, Ireland & Sumy State University, Ukraine*;
Stanislav Serhienko - *Sumy State University, Ireland*

TS02_03 Parallel Connection Investigation of GaN FET Devices for High-Current Switches

Salvatore Musumeci, Vincenzo Barba, Divyansh Jain, Michele Pastorelli - *Politecnico di Torino, Italy*; Marco Palma - *EPC Italy, Italy*

TS02_04 Improved Inverter Transfer Function Modeling for Phase-Shifted-Driven Grid-Connected Five-Level Cascaded H-Bridge Multilevel Inverters

Rosario Miceli, Giuseppe Sorrentino, Claudio Nevoloso, Giuseppe Schettino, Gioacchino Scaglione, Fabio Ricco Galluzzo - *University of Palermo, Italy*

TS02_05 State of Charge Real-Time Evaluation of Second-Life Batteries for islanded Grid Support

Dario Pelosi, Ercole Castori, Raffaele Aliberti, Giulia Marinelli, Gianluca Sonnati - *University of Perugia, Italy*; Matteo Marchetti, Federico Rosignoli, Niccolò Mulinari - *Loccioni, Italy*; Linda Barelli - *University of Perugia, Italy*

ROOM B

TS03 TLC/ICT

Chair: Francesco D'Alterio - *Fondazione Ugo Bordon*

TS03_01 A massive clustering algorithm for fast radio resource allocation to distributed units in O-RAN networks

Giambattista Amati, Simone Angelini, Federica Mangiatordi, Emiliano Pallotti, Pierpaolo Salvo - *Fondazione Ugo Bordon, Italy*

TS03_02 Navigating 5G Security: Challenges and Progresses on 5G Security Assurance and Risk Assessment

Francesco D'Alterio, Marco Rotunno, Marina Settembre, Andrea Bernardini, Leonardo Sagratella - *Fondazione Ugo Bordon, Italy*; Giuseppe Bianchi, Francesco Mancini, Andrea Paci - *University of Rome Tor Vergata, Italy*; Nicolò Maunero - *IMT School for Advanced Studies, Italy*

TS03_03 Leveraging LEO technology to support grid automation in rural and sub-urban areas and provide extended connectivity in renewable energy plants

Luigi Petrianni, Lourdes Garcia Duarte, Sara Turco, Daniele Rufini, Fabio Bosatelli, Renzo Valente, Matteo Cantù, Giuseppe Leotta - *Enel, Italy*

TS03_04 Opportunities and Challenges for the Integration of AI in Network Evolution Toward 6G

Francesco Matera, Marina Settembre - *Fondazione Ugo Bordon, Italy*; Alessandro Vizzarri, Franco Mazzenga - *University of Rome Tor Vergata, Italy*; Jaime Llorca, Antonia

Tulino - *University of Naples Federico II, Italy*; Andrea Detti - *University of Rome Tor Vergata, Italy*; Daniele Ronzani - *Hewlett Packard, Italy*; Sergio Barbarossa - *Sapienza University of Rome, Italy*

TS03_05 Optimized Rate-Adaptive Error Correction through Puncturing and Shortening of Simplex Codes

Massimo Battaglioni, Gianmarco Greganti, Giovanni Cancellieri - *Università Politecnica delle Marche, Italy*

ROOM C

TS04 Flexibility, Energy storage and Sector Coupling

Chair: Maurizio Fauri - *University of Trento*

TS04_01 System Scheduling with Pumped-Hydro Plants with Different Grid Connection Schemes

Giordano Costanzi, Vincenzo Trovato - *University of Trento, Italy*; Pietro Colella, Gianfranco Chicco - *Politecnico di Torino, Italy*

TS04_02 Implementation of an experimental facility for District Heating Networks flexibility assessment

Claudio Anderis, Marcelo Andre Muro Alvarado, Riccardo Lazzari - *Ricerca sul Sistema Energetico - RSE, Italy*

TS04_03 IEC CIM based Ontology Definition for Gas Distribution Networks

Francesca Soldan, Enea Bionda, Gabriele Paludetto - *Ricerca sul Sistema Energetico - RSE, Italy*; Federico Belloni, Michele Ceglia, Marco Ferrario, Elvira Montresor - *Unareti, Italy*

TS04_04 Techno-Economic Analysis and Sizing of RFB and Supercapacitor-Based HESS for an EV Charging Station

Marcin Buchajczyk, Saman Korjani, Mattia Duranti, Edoardo Gino Macchi - *Fondazione Bruno Kessler, Italy*

TS04_05 The sizing of a smart microgrid integrating hydrogen technology for a Power to Power scenario

Daniele Menniti, Anna Pinnarelli, Maria Elena Bruni, Nicola Sorrentino, Giovanni Brusco, Vittorio Bilotta, Pasquale Vizza - *University of Calabria, Italy*

19:30 Conference Cocktail presso il Castello del Buonconsiglio con il Coro SAT

Thursday, 26 September

9:00-10:45 ROOM B

Tavola Rotonda Road Tunnels Power Systems

9:00-10:45 Parallel Special and Technical Sessions

MAIN ROOM

TS05 Energy Transition

Chairs: Fabrizio Pilo - *University of Cagliari*, Susanna Mocci - *University of Cagliari*

TS05_01 Transmission network expansion planning approach with different time-based aggregation of users connections

Enrico Maria Carlini, Alessandra Zagnoni - *Terna, Italy*; Maria Carmen Falvo - *Sapienza University of Rome, Italy*; Carlo Panachia, Chiara Giordano, Roberto Germanà, Matteo Ricciardi, Beatrice Vincenzi - *Terna, Italy*

TS05_02 Healing AI Mental Health to Slash Energy Consumption and Carbon Emissions

Shai Misan, Rayhan Beebeejaun - *Kaizen Innovator Network, Italy*; Pietro Orciuolo, Daniele Bosich, Massimiliano Chiandone, Giorgio Sulligoi - *University of Trieste, Italy*

TS05_03 Correlations between the evolution of electricity distribution infrastructure and territory

Giacomo Viganò, Chiara Michelangeli, Marco Rossi - *Ricerca sul Sistema Energetico - RSE, Italy*

TS05_04 Challenges and opportunities for Multi-purpose Interconnectors and wind offshore generation

Enrico Maria Carlini, Corrado Gadaleta, Michela Migliori, Francesca Longobardi - *Terna, Italy*; Arman Derviskadic - *Hitachi Energy, Italy*; Elin Rahmqvist, Alberto Persico - *Hitachi Energy, Sweden*

TS05_05 Offshore wind power plant capability: the Italian case

Luca Buono, Francesco Palone, Roberto Spezie, Gabriele Tresso - *Terna, Italy*

TS05_06 Natural Ester Filled Furnace Transformers

Fabio Scatiggio - *A&A Fratelli Parodi, Italy*; Rainer Frotscher - *Maschinenfabrik Reinhausen, Germany*; Cristian Chittaro - *ABS, Italy*; Fabrizio Ferrari - *Tamini Trasformatori, Italy*

TS05_07 Operation management of the power system with high RES penetration: the Italian case

Benedetto Aluisio, Chiara Vergine - *Terna, Italy*

ROOM A

TS06 Renewable Energy Communities

Chair: Luigi Martirano – *Sapienza University of Rome*

TS06_01 Impact of energy demand and generation time resolution on self-consumption within Renewable Energy Communities

Cristina Ventura, Giuseppe Marco Tina, Carmelo Fabio Fiore - *University of Catania, Italy*; Francisco Muñoz-Rodríguez, Catalina Rus-Casas, Gabino Jiménez-Castillo - *University of Jaen, Spain*

TS06_02 A combined ML forecast and Real time control approach to reduce imbalance costs in renewable energy communities of prosumagers

Nicola Sorrentino, Daniele Menniti, Anna Pinnarelli, Giovanni Brusco, Pasquale Vizza - *University of Calabria, Italy*; Stefano Mendicino - *Creta Energie Speciali, Italy*

TS06_03 Business Model for Renewable Energy Communities

Jacopo Neri, Edoardo Corsetti - *Ricerca sul Sistema Energetico - RSE, Italy*

TS06_04 An Application of Distributed Optimisation to Energy Communities in Italy

Lorenzo Saguatti - *LEAP, Italy*; Filippo Bovera - *Politecnico di Milano, Italy*; Marco Gabba, Gaia Martoriello, Matteo Zatti - *LEAP, Italy*

TS06_05 Control of Nanogrids with Distributed Storage Optimization and Frequency Support for Renewable Energy Community Applications

Daniele Menniti, Nicola Sorrentino, Anna Pinnarelli, Giovanni Brusco, Giampiero Spena - *University of Calabria, Italy*; Giuseppe Barone - *Creta Energie Speciali, Italy*

TS06_06 Emerging security and legal challenges within renewable energy communities: key prevention and defence strategies

Silvia Ricciuti - *Fondazione Bruno Kessler, Italy*; Simona Stoklin - *University of Perugia, Italy*; Francesca Giuliano - *Università Cattolica del Sacro Cuore, Italy*; Christian Mari - *Politecnico di Milano, Italy*; Massimiliano Zanchiello - *Sapienza University of Rome, Italy*; Salvatore Manfredi - *Fondazione Bruno Kessler, Italy*

TS06_07 Innovative Peer-to-Peer Energy trading in Local Energy Communities Featuring Electric Vehicle Charging Infrastructure

Elham Mokaramian, Pierluigi Siano, Vito Calderaro, Vincenzo Galdi, Giuseppe Graber, Lucio Ippolito - *University of Salerno, Italy*

ROOM C

TS07 Power Quality and Safety

Chair: Enrico Maria Carlini - *Terna*

TS07_01 A New Integrated Instrument for Partial Discharge Monitoring and Diagnostics of Medium Voltage Cables

Manuel Sozzi, Sergio Chiarello, Giovanni Pirovano, Johnny Borghetto - *Ricerca sul Sistema Energetico - RSE, Italy*; Alfredo Contin - *University of Trieste, Italy*

TS07_02 Fire Danger Characterization in Italy: Mitigating the Impact on Real Time Operation of Power System

Filippo D'Amico, Elena Collino, Francesca Viterbo, Riccardo Bonanno - *Ricerca sul Sistema Energetico - RSE, Italy*; Simone Talomo, Chiara Vergine, Francesco Pietrocola - *Terna Rete Italia, Italy*; Michele De Nigris - *Ricerca sul Sistema Energetico - RSE, Italy*

TS07_03 An Open-Source Optimal Network Reconfiguration Tool for Improving Distribution Grid Reliability

Roberto Cometa, Angelo Velini, Francesco Lorusso - *Politecnico di Bari, Italy*; Antonio Ricca - *ENEA, Italy*; Roberto Sbrizzai, Sergio Bruno - *Politecnico di Bari, Italy*

TS07_04 High voltage grounding system interferences in industrial areas

Luca Buono, Franco Di Bona, Gaia Leone, Francesco Palone, Gabriele Tresso - *Terna, Italy*

TS07_05 Cables' Sheath Cross Bonding: an Overview of the Technique for the Medium Voltage Network of e-distribuzione

Ludovico Spitilli, Niccolò Corsi, Gianluca Di Felice - *e-distribuzione, Italy*; Luigi D'Orazio, Roberto Calone - *Enel Grids, Italy*; Francesco Paolo Palazzotto - *e-distribuzione, Italy*

TS07_06 Use of Remotely Controlled Earthing Switches for the Safety of HV OHLs

Chiara Vergine - *Terna, Italy*; Roberto Spezie - *Terna Rete Italia, Italy*; Rocco Calabrese - *Terna, Italy*; Luciano Minto, Andrea Valant - *Terna Rete Italia, Italy*

10:45-11:00 *Coffee Break*

11:00-11:45 **MAIN ROOM**

*Invited Speech IAS:2024 IEEE Richard Harold Kaufmann Award
I cento anni della rivista "L'Energia Elettrica"*

11:45-13:00 **MAIN ROOM**

Panel Infrastrutture elettriche: dalla tecnologia alle competenze

13:00-14:00 *Lunch*

14:00-16:00 **MAIN ROOM**

Tavola Rotonda IRIS LAB

*Evoluzione e innovazione nell'elettronica industriale:
verso la mecatronica 5.0*

16:00-16:15 *Coffee Break*

16:15-16:45 **MAIN ROOM**

Invited Speech ARERA

Invited Speech Commissione PNRR-PNIEC

16:45-18:00 **MAIN ROOM**

*Tavola Rotonda Politiche e strategie per la decarbonizzazione: fonti
rinnovabili ed elettrificazione degli usi finali dell'energia*

18:00-19:00 **MAIN ROOM**

AEIT FOR YOUNG - dedicated to Fabrizio Cattani

20:30

Conference Dinner

Friday, 27 September

8:30-10:15 Parallel Special and Technical Sessions

MAIN ROOM

TS08 Resilience of Distribution and Transmission Electrical Systems in the times of Climate Changes and Green Energy Transition - *Special Session*)

Chairs: Massimo Pompili - *Sapienza University of Rome*, Emanuele Ciapessoni - *Ricerca sul Sistema Energetico - RSE*, Luigi Calcara - *Sapienza University of Rome*

TS08_01 Protecting Operators During Firefighting Operations Near Overhead Transmission Lines

Michele De Nigris, Giovanni Pirovano, Giovanni D'Avanzo - *Ricerca sul Sistema Energetico - RSE, Italy*; Francesco Pietrocola, Simone Talomo, Chiara Vergine Luciano Minto - *Terna Rete Italia, Italy*

TS08_02 Assessing the benefits from the reduction of substation load outage time via remotely controlled switch disconnectors

Emanuele Ciapessoni, Diego Cirio, Andrea Pitto, Giovanni Pirovano - *Ricerca sul Sistema Energetico - RSE, Italy*; Silverio Casulli, Federico Falorni, Giuseppe Berrettoni, Enrico Maria Carlini, Francesco Marzullo - *Terna, Italy*

TS08_03 An Italian residential electric consumption generator for Renewable Energy Communities analyses

Enrico Pratavia, Jacopo Vivian, Federico Bertelli, Michele De Carli - *University of Padua, Italy*

TS08_04 New Flow Battery Chemistries for Long Duration Energy Storage in the path to Net Zero

Andrea Trovò - *University of Padua, Italy*; Antonio Zingales - *SAET, Italy*; Nicola Poli, Matteo Rugna, Massimo Guarnieri - *University of Padua, Italy*

TS08_05 Node Centrality Evaluation Based on Complex Network Theory: A Real Case Study for an Integrated Power Distribution and ICT System

Mehdi Doostinia, Davide Falabretti, Giacomo Verticale - *Politecnico di Milano, Italy*; Sadegh Bolouki - *Polytechnique Montreal, Italy*

TS08_06 Stochastic modeling of ambient temperature for thermal studies of transformers under different operating conditions

Claudio Francesco Nicolosi, Giovanni Maione, Giuseppe Marco Tina - *University of Catania, Italy*

TS08_07 Mapping resilience of distribution networks against heatwaves

Luigi Calcara - *Sapienza University of Rome, Italy*; Adriano Casu, Fabrizio Pilo, Giuditta Pisano - *University of Cagliari, Italy*; Maurizio Pollino - *ENEA, Italy*; Massimo Pompili - *Sapienza University of Rome, Italy*; Maria Luisa Villani - *ENEA, Italy*

TS08_08 IEC TC10 “Fluids for electrotechnical applications”: One century of history

Massimo Pompili - *Sapienza University of Rome, Italy*

ROOM A

TS09 Electric Mobility/Automotive

Chair: Dario Zaninelli - *Politecnico di Milano*

TS09_01 PKI implementation for the cybersecurity of electric vehicle charging infrastructures

Elsa Corniani, Mauro G. Todeschini - *Ricerca sul Sistema Energetico - RSE, Italy*

TS09_02 The Impact of Dashboard Redesign on the Onboard Management in Maritime Applications: an User Experience Approach

Pietro Orciuolo - *University of Trieste, Italy*; Davide Severini - *Politecnico di Milano, Italy*; Daniele Bosich, Giorgio Sulligoi - *University of Trieste, Italy*

TS09_03 A system-level characterization of residential electric vehicle recharge for the provision of balancing services with a focus on aFRR

Filippo Colzi - *Ricerca sul Sistema Energetico - RSE, Italy*; Giovanni Lutzemberger, Gianluca Pasini - *University of Pisa, Italy*; Sara Salamone - *Ricerca sul Sistema Energetico - RSE, Italy and University of Pisa, Italy*

TS09_04 On-Line State Estimation for Li-ion Batteries in Traction Applications

Simona Sabatino, Giuseppe Graber, Vincenzo Galdi, Vito Calderaro, Lucio Ippolito - *University of Salerno, Italy*

TS09_05 An Intelligent AI-based Smart Contract for Goal-Oriented Semantic Network in the 6G Automotive Sector

Alessandro Vizzari - *University of Rome Tor Vergata, Italy*

TS09_06 Cost Analysis and Optimization of Public Bus Fleets Using Genetic Algorithm Considering Different Technologies

Sofia Borgosano, Alessandro Saldarini, Michela Longo, Dario Zaninelli - *Politecnico di Milano, Italy*; Valentina Astori - *STAR Mobility, Italy*

TS09_07 Assessment of highway fast-charging infrastructures impact on the Italian transmission network

Maria Dicorato, Giuseppe Forte, Francesca Marasciuolo - *Politecnico di Bari, Italy*; Enrico Maria Carlini, Corrado Gadaleta, Antonio Conserva, Michela Migliori, Davide Monno - *Terna, Italy*

ROOM B

TS10 Power System Analysis, Operation and Control

Chair: Paola Verde - *Università di Cassino e del Lazio Meridionale*

TS10_01 A model in Matlab/Simulink for Grid-Forming Control of VSC Converters in HVDC Systems to Implement the Black-Start Function

Rossano Musca, Eleonora Riva Sanseverino, Gaetano Zizzo - *University of Palermo, Italy*; Antony Vasile - *University of Brescia, Italy*; Angelo L'Abbate, Lorenzo Vitulano - *Ricerca sul Sistema Energetico - RSE, Italy*

TS10_02 Clustering techniques to evaluate the impact of reactive power from distribution systems on the transmission system: the Italian case

Andrea Pomarico, Alberto Berizzi - *Politecnico di Milano, Italy*; Cosimo Pisani, Giorgio Giannuzzi, Chiara Vergine - *Terna Rete Italia, Italy*

TS10_03 TWMI: A Single-ended Fault Location Method for Multi-Branch Earthed Overhead Lines based on a Matrix approach

Francesco Sanniti, Sebastian Dambone Sessa - *University of Padua, Italy*; Alessandro Greco, Simone Talomo, Martina Pajussin - *Terna, Italy*; Roberto Benato - *University of Padua, Italy*

TS10_04 Management and Assessment of Road Tunnel Lighting to Improve Energy Efficiency and Performance in View of Self Widespread Consumption

Andrea Danzo, Paola Verde, Pietro Varilone - *University of Cassino and Lazio Meridionale, Italy*; Antonio Gallo, Andrea Sebastiani - *Anas, Italy*

TS10_05 Modular Layout of Power Systems to Increase the Service Continuity of Existing Road Tunnels

Cristina Moscatiello, Luigi Martirano - *Sapienza University of Rome, Italy*; Giacomo Greco, Sara Cosentino - *TECNE Gruppo Autostrade, Italy*

TS10_06 Continuous Availability Systems in Road Tunnels

Giuseppe Parise - *Sapienza University of Rome, Italy*; Giuseppe Parise - *Sapienza University of Rome, Italy*; Mario Lanciano - *Italoiberica Engineering Group, Italy*; Emilia Pagano - *Pagano*

TS10_07 Short-Circuit Analysis in Unbalanced LV Distribution Networks with Distributed Generators

Matteo Bartolomeo, Paola Verde, Pietro Varilone - *University of Cassino and Lazio Meridionale, Italy*

TS10_08 Overall Equipment Effectiveness - OEE) methodology applied to the TSO: state-of-the-art and prospects

Francesco Del Pizzo, Cristiano Quaciari, Giorgio Giannuzzi, Chiara Vergine, Gaetano Pecoraro, Benedetto Aluisio - *Terna, Italy*; Vito Calderaro, Vincenzo Galdi, Giuseppe Graber - *University of Salerno, Italy*

ROOM C

TS11 Regulation & Markets

Chair: Andrea Galliani - *ARERA*

TS11_01 Italian Regulatory Framework for Grid Flexibility: Weaknesses and Potential Enhancements

Giorgia Lattanzio, Giacomo Viganò, Marco Rossi - *Ricerca sul Sistema Energetico - RSE, Italy*

TS11_02 Impact of the abolition of PUN on the outcomes of the Italian day ahead market

Federica Davò, Alessandro Zani, Dario Siface - *Ricerca Sistema Energetico - RSE, Italy*

TS11_03 Assessment of Graph-Based Clustering Algorithms for Alternative Bidding Zone Configurations

Gianfranco Chicco, Pietro Colella, Andrea Mazza, Angela Russo - *Politecnico di Torino, Italy*; Valentin Ilea - *Politecnico di Milano, Italy*; Federico Quaglia, Mario Limone - *Terna Rete Italia, Italy*; Cristian Bovo - *Università di Pavia, Italy*

TS11_04 Evolution of the Italian retail market for non-household customers in the electricity sector

Gabriella Antonel, Francesca Annarita Sabatini - *ARERA, Italy*

TS11_05 Global and local ancillary services: the Italian regulatory framework

Andrea Galliani, Marco Savino Pasquadibisceglie, Andrea Rosazza - *ARERA, Italy*

TS11_06 The evolution of quality and output-based regulation of electricity networks in Italy

Riccardo Vailati, Luca Lo Schiavo - *ARERA, Italy*

TS11_07 Regulating Water Quality: the Italian Approach

Lorenzo Bardelli, Jacopo Manca - *ARERA, Italy*

10:15-10:30 *Coffee Break*

10:30-13:00 MAIN ROOM
Case Histories

13:00-14:00 Lunch

14:00-15:00 MAIN ROOM
Special Session CHIPS/Corifi

14:00-15:00 Parallel Special and Technical Sessions

ROOM A

TS12 Measurements & IoT

Chair: Claudio Narduzzi - *University of Padua*

TS12_01 Monitoring concrete curing and strength using microwave waveguide sensor and ANN

Hashem Al-Mattarneh - *Yarmouk University, Jordan*; Rabah Ismail, Faten Albtoush - *Jadara University, Jordan*

TS12_02 Appliance Identification in NILM through Image or Signal Features: a Performance Comparison

Zhongzong Yan - *Hunan University, China & University of Trento, Italy*; Davide Brunelli, David Macii, Matteo Nardello - *University of Trento, Italy*; He Wen - *Hunan University, China*; Dario Petri - *University of Trento, Italy*

TS12_03 Digital Twin Applications in the Energy Sector 2024 AEIT International Annual Conference

Saeid Shahmoradi, Andrea Mazza, Enrico Pons - *Politecnico di Torino, Italy*

TS12_04 Smart Soil Nutrient Analyzer

Shreya Shelke, Parag Shende, Shreya Shelke, Manas Shende, Vedant Shelke, Rohan Shelke, Siddhant Shelke - *Vishwakarma Institute of Technology, India*

ROOM B

TS13 Modeling, Design and Simulation of Systems and Devices

Chair: Giuseppe Marco Tina - *University of Catania*

TS13_01 Optimized design flow for coupled PCB-type power inductors

Davide Auteri, Mario Giuseppe Pavone, Giovanni Vinci, Enrico Alfredo Bottaro - *STMicroelectronics, Italy*

TS13_02 Analysis of Transformer Performance Under Seismic Conditions Using FEM

Ramazan Altay, Necmettin Mert Kocanali, Mahmut Aksoy, Irem Hazar - *Best Transformer, Turkey*

TS13_03 Electromagnetic shielding of aged cement-paste with biochar and PVC in C-band

Giuseppe Ruscica, Zahra Alinaghi, Verónica Valentina Parra Pérez, Isabella Natali Sora - *University of Bergamo, Italy*; Patrizia Savi - *Politecnico di Torino, Italy*

TS13_04 Comparative Analysis of 2D and 3D Permanent Magnet Synchronous Motor Models Under Demagnetization Conditions

Shiva Garaei, Chunyan Lai - *Concordia University, Canada*; Lakshmi Varaha Iyer - *Magna International, USA*

15:00-17:00 MAIN ROOM

Special Session L'Italia in Europa: semiconduttori e fotonica

15:00-17:00 Parallel Special and Technical Sessions

ROOM A

TS14 High Voltage Overhead Lines and Cables

Chair: Roberto Benato - *University of Padua*

TS14_01 Risk Assessment of Induced Currents and Voltages Under Maintenance Conditions Supported by Measurement Campaigns on HV/EHV OHLs

Roberto Benato, Sebastian Dambone Sessa, Giovanni Gardan, Luca Rusalen, Francesco Sanniti - *University of Padua, Italy*; Luciano Minto, Gilberto Ricci, Michele Schiavinato, Fabio Trombini - *Terna, Italy*

TS14_02 Multiconductor Power Flow of HV/EHV Italian Network

Luca Rusalen, Roberto Benato - *University of Padua, Italy*

TS14_03 Insulated Cable Sequence Impedances: a Tool for Terna by the Multiconductor Cell Analysis (MCA)

Luca Rusalen, Giovanni Gardan, Roberto Benato - *University of Padua, Italy*; Cosimo Pisani, Giorgio Giannuzzi - *Terna, Italy*

TS14_04 Electrical parameters of the new "5-Phases" overhead lines

Mattia Boiani, Luca Buono, Franco Di Bona, Gaia Leone, Francesco Palone, Lorenzo Papi, Roberto Spezie, Gabriele Tresso, Pierluigi Vacante - *Terna, Italy*

TS14_05 "5-Phases" towers for ampacity restoration and refurbishment of existing single circuit corridors

Luca Buono, Mattia Boiani, Francesco Palone, Roberto Spezie, Gabriele Tresso - *Terna, Italy*

TS14_06 HVAC cables interference with insulated metallic pipes: analysis in both normal operation and short-circuit condition

Luca Buono, Lorenzo Garzelli, Luca Guizzo, Francesco Palone - *Terna, Italy*

TS14_07 Preliminary Laboratory Tests on RTV-Coated Insulators Removed from Service

Marco Balato, Antonio Di Pasquale, Mario Pagano, Carlo Petrarca - *University of Naples Federico I, Italy*

TS14_08 Criteria for optimizing the operation of high-voltage double-bar systems

Gionata La Barba - *Terna Rete Italia, Italy*; Michele Poli - *Terna, Italy*; Luca Barison, Laura Beltramin, Andrea Tognon - *Terna Rete Italia, Italy*; Chiara Vergine - *Terna, Italy*

ROOM B

TS15 RES and their Integration in Power Systems

Chair: Chiara Vergine - *Terna*

TS15_01 Innovative strategies for upward frequency regulation provision by renewables and batteries

Marco Raffaele Rapizza, Silvia Canevese, Diego Cirio - *Ricerca sul Sistema Energetico - RSE, Italy*; Matteo Saviozzi - *University of Genoa, Italy*; Francesco Conte - *Campus Bio-Medico University of Rome, Italy*

TS15_02 A proposal for regulatory and market reforms to promote firm/dispatchable solar generation

Marco Pierro - *EURAC Research, Italy*; Cristina Cornaro - *University of Rome Tor Vergata, Italy*; David Moser - *EURAC Research, Italy*; Richard Perez - *State University of New York, USA*; Grazia Barchi - *EURAC Research, Italy*

TS15_03 Assessment of Typical Meteorological Year for Hybrid Renewable Offshore Energy Systems: An Italian Case Study

Francesco Lanni, Giovanni Manzini, Beatrice Pinzi, Laura Serri - *Ricerca sul Sistema Energetico - RSE, Italy*; Tullia Bonomi - *University of Milano-Bicocca, Italy*

TS15_04 Transmission Hosting Capacity for connections planning in renewables high penetration areas

Enrico Maria Carlini, Alessandra Zagnoni, Alfonso De Cesare, Chiara Giordano, Andrea Zollo, Lorenzo Del Rio, Luca De Bellis - *Terna, Italy*

TS15_05 Battery Energy Storage System (BESS) for an efficient RES integration: a real case study on the transmission network evolution in the north-eastern Italian grid portion

Enrico Maria Carlini, Alessandra Zagnoni, Alfonso De Cesare, Luigi Di Bello, Chiara Giordano, Olimpia Sanviti, Andrea Boldrin, Mario Cascini - *Terna, Italy*

TS15_06 A Fleet-Wide Context-Aware Approach to Wind Power Data Imputation

Davide Astolfi, Marco Pasetti - *University of Brescia, Italy*; Fabrizio De Caro - *University of Salerno, Italy*; Dmitrii Vasenin, Antony Vasile - *University of Brescia, Italy*; Alfredo Vaccaro - *University of Sannio, Italy*; Alessandra Flammini - *University of Brescia, Italy*

TS15_07 Attaining Grid Code Reactive Power Capabilities for Photovoltaic Power Plant

Gioacchino Tricarico, Maria Dicorato, Giuseppe Forte, Francesca Marasciuolo - *Politecnico di Bari, Italy*

TS15_08 Short-Time Ahead Wind Forecasting Using Hybrid EMD-Based Method

Mona Bahri - *University of Newcastle, Australia*; Sahand Vahidnia – *University of Sidney, Australia*; Leo Ghignone - *Australian Ocean Data Network Integrated Marine Observing System, Australia*

ROOM C

TS16 Smart Grids and Innovative Distribution Systems

Chair: Fabio Bignucolo - *University of Padua*

TS16_01 Voltage Regulation Potential of Electric Vehicles in Distribution Networks Considering Trade-off Between Participation Benefit and Driving Demand

Chaowanant Jamroen, Dulpichet Rerkpreedapong - *Kasetsart University, Thailand*; Miadreza Shafiekhah - *University of Vaasa, Finland*; Sanchai Dechanupaprittha - *Kasetsart University, Thailand*

TS16_02 Recursive reconfiguration of private MV networks to maximize dynamic islanding capability

Andrea Scrocca, Filippo Bovera, Maurizio Delfanti - *Politecnico di Milano, Italy*; Alessandro Blaco - *Optimo IoT, Italy*

TS16_03 Real-Time Simulation of MV/LV Hybrid AC/DC Test Facility: Islanding and Resynchronization

Pietro Carmine, Diego Cavaliere, Riccardo Chiumeo, Chiara Gandolfi, Alessandro Veroni, Michele Zanoni - *Ricerca sul Sistema Energetico - RSE, Italy*

TS16_05 Enhanced Evaluation on Electrical Load Forecasting Methodologies in Urban Distribution Networks

Edoardo Daccò, Davide Falabretti - *Politecnico di Milano, Italy*; Dario Attilio Ronzio, Daniele Perona, Riccardo Lazzari - *Ricerca sul Sistema Energetico - RSE, Italy*; Gaetano Iannarelli, Alessandro Cirocco - *A2A, Italy*; Alessandro Bosisio - *University of Pavia, Italy*

TS16_06 Optimal management of battery-integrated renewable energy communities for providing energy flexibility services

Andrea Sebellin, Massimiliano Coppo, Fabio Bignucolo - *University of Padua, Italy*

TS16_07 Applications of MVDC Technologies for the Evolution of the MVAC Distribution Network

Eleonora Riva Sanseverino, Gaetano Zizzo, Nicolò Calanni Macchio - *University of Palermo, Italy*; Daniele Clerici, Chiara Gandolfi, Alessandro Veroni - *Ricerca sul Sistema Energetico - RSE, Italy*; Antony Vasile - *University of Brescia, Italy*

TS16_08 Integrating Energy Communities and Digital Condominiums with KNX Technology

Gianmarco Sitzia - *Sm@rtKNX, Italy*; Mariacristina Roscia - *University Bergamo, Italy*; Massimo Valerii - *KNX Italia, Italy*; Emilio Ghiani - *University of Cagliari, Italy*

17:00-17:15 MAIN ROOM

AEIT2024 Student Contest Award

AEIT2024 International Annual Conference Closing Session