

Technical Sessions Programme

Wednesday, 5th October

AEE Technical Sessions

Capri Congress Center 11,30-13,30

Session A1.1 - Renewable Energy Sources, New configuration of Electricity Systems and their management

Chairperson: Domenico Villacci – Università del Sannio

Validation of combined simulation tool of grid connected photovoltaic power plants

A. Ukar - PI – Photovoltaik Institut Berlin, Germany, H.-G. Holtorf, N. Mohamed - Carl von Ossietzky University of Oldenburg, Germany

Use of Hidden Inertia from Wind Generation for Frequency Support in Power Grids

F. Bassi, L. Caciolli, G. Giannuzzi - Terna Rete Italia, N. Corsi, A. Giorgi - University of Florence

PV and Building Energy Efficiency Measures Impact on the Grid in a Middle East Case Study

P. Lazzeroni, S. Olivero, F. Stirano - Istituto Superiore sui Sistemi Territoriali per L'Innovazione (SiTI), M. Repetto - Politecnico di Torino, C. Micono, P. Montaldo, G. Zanzottera - Ai Engineering

Effects of Average Power Factor Management in Distribution Systems with Dispersed Generation

F. Bignucolo, A. Savio, R. Caldon - University of Padova, A. Cerretti - Enel Distribuzione

Contribution of MV Static Distributed Generation to Voltage Unbalance Mitigation

A. Savio, F. Bignucolo, R. Caldon - University of Padova

Impact on Residential Peak Consumption of an Electrochemical Storage System

R. Urban, D. Moneta, M. Gallanti - RSE – Ricerca sul Sistema Energetico

Capri Congress Center 14,30-16,30

Session A1.2 - Renewable Energy Sources, New configuration of Electricity Systems and their management

Chairperson: Roberto Caldon – AEE AEIT

Smart Distribution Management System

C. Arrigoni, M. Bigoloni, I. Rochira - Siemens, C. Bovo, M. Merlo, V. Ilea - Politecnico di Milano, R. Bonera - Freelance Senior Analyst and Developer

Independent energetic grids for a smart island: model and design of a microgrid for a small Italian island

G. Graditi, R. Ciavarella, M. Valenti - ENEA Centro Ricerche Portici, M. Ippolito, D. La Cascia, G. Zizzo - University of Palermo

Exploiting distributed energy storage to increase network hosting capacity with a Multi-agent control system

S. Mocci, N. Natale, F. Pilo, S. Ruggeri - University of Cagliari
Cagliari, Italy

Development of the Control Strategy for a Direct Current Microgrid: a Case Study

R. Lazzari - RSE, D. Ronchegalli - Eldor

Analysis of Active Power Curtailment Strategies for Renewable Distributed Generation

M. Rossi, G. Viganò, D. Moneta, D. Clerici, C. Carlini - RSE

Measurements Placement in Active Distribution Networks for Centralized Control Systems

G. Viganò, M. Rossi, C. Carlini, D. Moneta - RSE

Sala Cerio 11,30-13,30

Session A2.1 - Methods, Components and Technologies for the transmission and distribution of electricity

Chairperson: Roberto Caldon - AEE AEIT

Modelli stocastici per la previsione del profilo di assorbimento aggregato di carichi termostatici residenziali

F. Conte, S. Massucco, F. Silvestro - Università di Genova, E. Ciapessoni, D. Cirio, A. Pitto - RSE

Valutazione probabilistica della Net Transfer Capacity mediante power flow probabilistico

F. Adinolfi, S. Massucco, M. Saviozzi, F. Silvestro - Università di Genova, E. Ciapessoni, D. Cirio, A. Pitto - Ricerca sul RSE

Integrating Forecasting Models in Cyber Physical Power Systems

A. Andreotti - University of Naples "Federico II", E.M. Carlini - Terna Rete Italia, A. Vaccaro, D. Villacci - University of Sannio

Improving Power Quality and Efficiency in Electrical Plants using a Three-Phase Series Hybrid Passive Filter

F. Grasso, A. Luchetta, S. Manetti - University of Firenze, S. De Giorgis, F. Cenghialta, E. D'Antuono - Energia Europa

Applicazione del teorema di Boucherot per l'analisi di Load Flow su Reti Elettriche Radiali

P.A. Scarpino - Università degli Studi di Firenze

Innovative Technologies for Modelling and Measuring Electrical Discharges

A. Villa, L. Barbieri, M. Gondola, R. Malgesini - Research on Energy System - RSE, A.R. Leon-Garzon - Politecnico di Milano

Sala Cerio 14,30-16,30

Session A2.2 - Methods, Components and Technologies for the transmission and distribution of electricity

Chairperson: Alfredo Testa – Università di Napoli Federico II

Enhance Available Battery Energy by Means of a New Management System Control Strategy

L. Pellegrino, E. Micolano - RSE

Natural Esters Distribution Transformers: a Solution for Environmental and Fire Risk Prevention

M. Pompili, L. Calcara - University of Roma "La Sapienza", A. Sturchio, F. Catanzaro - E-distribuzione

Sodium-Nickel Chloride (NaNiCl₂) Experimental Transient Modelling

R. Benato, S. Dambone Sessa - University of Padova, A. Necci, F. Palone - Terna Rete Italia

Sodium-chloride (Na-NiCl₂) Battery Safety Tests for Stationary Electrochemical Energy Storage

R. Benato, S. Dambone Sessa - University of Padova, G. Crugnola, M. Todeschini, A. Turconi, N. Zanon, S. Zin - Fiamm Sonick

Equivalent Circuit Models for the Analysis of a Commercial Ultracapacitor Module

M. Andriollo, M. Caramanna, A. Tortella - University of Padova

Finite Element Model of a 3 m long Three-core Armoured Submarine Cable

R. Benato, S. Dambone Sessa, M. Forzan, F. Gentilin - University of Padova, M. Marelli, D. Pietribiasi - Prysmian Power Link

Measurement of short circuit impedance with EDG

U. Corbellini - Corbellini srl Engineering Company, M. La Rosa - RAI – Radiotelevisione Italiana, G.L. Amicucci, F. Fiamingo - INAIL

Accurate Prediction of the Corona Noise Produced by Overhead Transmission Lines

A. Donini, R. Spezie - Terna Rete Italia, R. Cortina - Consultant, E.A. Piana - University of Brescia, R. Turri - University of Padova

Sala Hotel Syrene 11,30-13,30

Session A3.1 Mobility and Transports - Suburban and Urban Applications

Chairperson: C. Carganico - Italferr

Installazione in un nodo ferroviario di sistemi di accumulo per il recupero di energia in frenata dai convogli in arrivo

M. Ceraolo, G. Lutzemberger – Università di Pisa

A Simulation Model to Estimate Touch Voltage in DC Railway Systems

C. Spalvieri - Rete Ferroviaria Italiana, R. Lamedica, F.M. Gatta, A. Ruvio, L. Pantalone - Sapienza University of Rome

Innovative Protection System for Separation Section between 15 kV a.c. and 3 kV d.c. Railway Networks

G. Guidi Buffarini, G. Trezza, R. Consalvi - Italferr, R. Lamedica, A. Ruvio, S. Muzi - Sapienza University of Rome

Intervento di up-grade della Linea di Contatto per l'aumento della velocità nel tratto in curva posto tra il km 31 ed il km 50 della linea AV Milano-Bologna

E. Fedeli, P. Fellini, C. Spalvieri - RFI, M. Porreca - SATFERR, G. Ricci - G.C.F. Generale Costruzioni Ferroviarie

Processo di certificazione e prove del V300 Zefiro ETR 1000 per velocità commerciali fino a 350 km/h

C. Carganico, L. Bocciolini, C. Zappacosta - Italcertifer

Delay Tolerant Network for Smart City: Exploiting Bus Mobility

C. Giannini, P. Calegari, C. Buratti, R. Verdone - University of Bologna

A Method for Optimizing Railway Speed Profiles Basing on the Maximization of the Coasting

A. Guastafierro, G. Lauro - Ansaldo STS, M. Pagano - Università di Napoli Federico II

Increasing of Subway Lines Capability through Moving Block Signaling Systems: Modeling and Simulation

M. Brenna, F. Foadelli, M. Longo, D. Zaninelli - Politecnico di Milano, P. Bellini, M. Sicurello - Azienda Trasporti Milanese

Sala Hotel Syrene 14,30-16,30

Session A3.2 Mobility and Transports – Naval Power Systems and Electrical Propulsion for Aircraft

Chairperson: D. Lauria, A. Del Pizzo – Università di Napoli Federico II

Introduction

Prof. Antonio Moccia - Direttore del Dipartimento di Ingegneria Industriale dell'Università di Napoli Federico II

Cost/Benefit Analysis of Alternative Systems for Feeding Electric Energy to Ships in Port from Ashore

T. Coppola, M. Fantauzzi, S. Miranda, F. Quaranta - University of Naples "Federico II"

Zero Emission Sustainable Craft for Coastal Marine Protected Areas

E. Begovic, C. Bertorello - Università di Napoli Federico II

Main Issues with the Design of Batteries to Power Full Electric Water Busses

F. Balsamo, D. Lauria - University of Naples Federico II, G. Pede - National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), C. Capasso, O. Veneri - Istituto Motori - National Research Council Naples

Analysis of a Five Phase Electrical Drive for the propulsion of All Electric Aircraft Vehicles

A. Del Pizzo, L.P. Di Noia, A. Pizza - University of Naples Federico II

Design Considerations of Energy Storage System for Electric Aircraft Propulsion

A. Del Pizzo, L.P. Di Noia, F. Marulo - University of Naples Federico II

Impact of Safe Return to Port Rules on Passenger Ships Power Systems Design

A. Vicenzutti, V. Bucci, G. Sulligoi - University of Trieste, R. Pelaschiar - Fincantieri Italian Shipyards

ASTRI Technical Sessions

11,30-13,30 – 14,30-16,30

Sala Vanalesti 11,30-13,30

Session C1 Machines and Electrical Drives

Chairperson: Rosario Miceli – Università di Palermo

An Extended Library of Models of Railway Vehicles for Fast Simulation and Optimization of Regenerative Braking and Energy Management

A. Frilli, E. Meli, D. Nocciolini, S. Panconi, L. Pugi, A. Rindi - University of Firenze

Integrated Design of an Hydraulic Servo-System Fed by Vehicle Regenerative Braking

B. Allotta, M. Pagliai, A. Nocentini, L. Pugi - University of Florence, G. Lutzemberger - University of Pisa, A. Pretto - PRETTO

Analysis of Outer Rotor Synchronous Reluctance Motor

F.N. Jurca, C. Martis - Universitatea Tehnică din Cluj-Napoca, Romania

Double and Single Sided Tubular Linear Permanent Magnets Generator for the Wave Energy Conversion

A. Musolino, R. Rizzo, L. Sani - University of Pisa, G. Bracco, G. Mattiazzo - Politecnico di Torino

Loss Analysis in Soft Ferrite Cores for Arbitrary Input Waveforms

M. Marracci, B. Tellini - University of Pisa

Determination of Differential Leakage Factors in Electrical Machines with Non-Symmetrical Full and Dead-coil Windings

A.O. Di Tommaso, F. Genduso, R. Miceli, G. Ricco Galluzzo - University of Palermo

Cogging Torque Comparison of IPMSMs with different Stator Windings

M. Caruso, A.O. Di Tommaso, F. Genduso, R. Miceli, G. Schettino, F. Viola - Università degli Studi di Palermo

Sala Vanalesti 14,30-16,30

Session C2 Automation and Control

Chairperson: Angelo Raciti – Università di Catania

Secure SCADA Systems for Oil Industry in Gulf Cooperation Council Countries

S. Alshaya - Majmaah University, Saudi Arabia, D. Giuli, F. Paganelli, T. Pecorella - Università di Firenze, F. Hadi - EWADY LLC, Saudi Arabia

Towards a Comprehensive Strategy in Industrial Control System Security

S. Alshaya - Majmaah University, Saudi Arabia, D. Giuli, F. Paganelli, T. Pecorella - Università di Firenze, F. Hadi - EWADY LLC, Saudi Arabia

Automation solution for the emergency electrical network activation through the use of early warning

A. Gambadoro, B. Azzerboni - University of Messina

Session C3 Electromagnetism and Electromagnetic Compatibility

Chairperson: Ermanno Cardelli – Università di Perugia

3D ELF Magnetic Field Strength Modeling through Fully Connected Cascade Networks

S. Coco - University of Catania, A. Laudani, G.M. Lozito, F. Riganti Fulginei, A. Salvini - University of Roma Tre

Identification of a FEM Based Model through CFSO³ Algorithm

A. Laudani, G.M. Lozito, F. Riganti Fulginei, A. Salvini - University of Roma Tre

Session C4 Education and Representation

Chairperson: Giovanni Cancellieri – Università Politecnica delle Marche

Implementing Fuzzy Analysis for Creating Virtual Training Methods In Lifelong Learning

D. Dintsis - Specialist Center of Computer Training, Russia

Session C5 Measurements

Chairperson: Stefano Pirani – Università Politecnica delle Marche

Measuring Magnetic Losses in Si-Fe Alloys with rotating polarization

M. Pompei, S. Quondam Antonio - University of Perugia

Numerical Methods to Achieve Robust Relaxometry Mapping in Multi-Echo Chemical Shift-Based MRI

G. Siracusano, A. La Corte - University of Catania, M. Gaeta - University of Messina, M. Carpentieri - Politecnico of Bari, F. Siracusano – Independent Reseracher, G. Finocchio - University of Messina

Sala Vanalesti 16,30-18,30

AMES/AICT Technical Sessions

Session B1 IOT & Network

Chairperson: Maurizio Mayer - AEIT

L'«Internet delle cose» e la legge applicabile alla protezione dei dati personali nell'Unione Europea

P. Piroddi - Studio legale Piroddi

Physical Layer Security for IoT Devices Configuration and Key Management - a Proof of Concept

L. Brilli, T. Pecorella, L. Mucchi - Università di Firenze

Next Generation M2M Cellular Networks: LTE-MTC and NB-IoT Capacity Analysis for Smart Grids Applications

S. Persia, L. Rea - Fondazione Ugo Bordoni

The Effect of Video Caching on Network Resource Planning - A Real-Case Study

L. Brilli, R. Fantacci, T. Pecorella - Università di Firenze, T. Ionta - Telecom Italia

Exploiting White Space Communication for Increasing GNSS Reliability in Maritime Transportation

E. Bonetto, D. Brevi, R. Scopigno - Istituto Superiore Mario Boella

Thursday, 6th October

AEE Technical Sessions

Sala Cerio 9,30-11,00

Session A1.3 - Renewable Energy Sources, New configuration of Electricity Systems and their management

Chairperson: Stefano Massucco – Università di Genova

Ancillary services by DG and distribution storage devices

M. Coppo, F. Cappelletto, R. Caldon, R. Turri - University of Padova, N. Natale, F. Pilo, G. Pisano, G.G. Soma - University of Cagliari

Distribution System Participation to the Italian Ancillary Service Market

N. Natale, F. Pilo, G. Pisano, G. G. Soma - University of Cagliari

NanoGrids for Home Application in a Power Cloud Framework

D. Menniti, A. Pinnarelli, N. Sorrentino, A. Burgio, G. Brusco, V. Frascà, L. Mendicino, M. Mercuri - Università della Calabria

Active Distribution Grids: a MatLab-Simulink Tool for Energy Performance Analysis

E. Ciancamerla, M. Minichino - ENEA Casaccia, M.C. Falvo, L. Martirano - University of Rome Sapienza

Infrastruttura di ricarica per i veicoli elettrici in Italia: linee guida per l'installazione e punti aperti nell'implementazione

F. Colzi, S. Celaschi - Ricerca sul Sistema Energetico – RSE

Sala Hotel Syrene 9,30-11,00

Session A2.3 - Methods, Components and Technologies for the transmission and distribution of electricity

Chairperson: Massimo La Scala – Politenico di Bari

Phase-to-Ground Fault Location Methods in Unearthed Sub-Transmission Networks: a Review

M. Baù, R. Benato, S. Dambone Sessa - Università degli Studi di Padova, M. Poli, C. Quaciari - Terna Rete Italia

Impact of Protective Structures on EHV Cable Transient Behaviour: Comparison between FEM, EMTP and Measurements

R. Benato, S. Dambone Sessa, N. Viafora - Università degli Studi di Padova, F. Palone - Terna Rete Italia

Incorporation of Flow-Based Grid Modeling in Multinational Transmission Expansion Planning

L. Amellem, M. Korpas, M. Kristiansen - Norwegian University of Science and Technology (NTNU)

Valutazione di sicurezza in linea del sistema elettrico considerando le incertezze: l'approccio iTESLA

E. Ciapessoni, D. Cirio, A. Pitto - Ricerca sul Sistema Energetico - RSE, N. Omont - Réseau de Transport d'Électricité - RTE , C. Bagnasco - TechRain

Monitoring of Frequency Disturbances in the European Continental Power System

S. Canevese, E. Ciapessoni, A. Gatti, M. Rossi - RSE

Nuovo elettrodotto in doppia terna a 380 kV Sorgente-Rizziconi

F. De Salvo, C. Silvestri - Lombardi ingegneria, G. Carletti, R. De Zan, M. Rebolini, P. Sylos Labini - TERNA Rete Italia, M. Bacchini - Prysmian Powerlink

Il collegamento di Capri alla Rete Elettrica Nazionale: affidabilità e resilienza

F. Palone, V. Iuliani, M. Rebolini, L. Avellino, R. Cirrincione - Terna Rete Italia

Sala Cerio 11,00-12,00

Session A4 Electricity Markets

Chairperson: Michele Antonio Trovato - Politenico di Bari

Forecasting Italian Electricity Market Prices Using a Neural Network and a Support Vector Regression

F. Davò, M.T. Vespucci - University of Bergamo, A. Gelmini, P. Grisi, D. Ronzio - RSE - Ricerca Sistema Energetico

A Future Scenario Analysis of the Impact of EU ETS on the Pan-European Power System

D. Siface, A. Zani, A. Gelmini, A. L'Abbate, M. Benini - Ricerca sul Sistema Energetico - RSE

Islamic finance and renewable energy: an innovative model for the sustainability of investments

D. Morea, L.A. Poggi - University of Rome Tor Vergata

Sala Hotel Syrene 11,00-12,00

Session A5 Regulations and Standards

Chairperson: Roberto Napoli - Politecnico di Torino

Power Transformer Energy Performance: Landscape of Market Surveillance Testing Avenues

F. Bua, A. Marra - ECD, A. Baggini - Università degli Studi di Bergamo

The Role of Electrical Energy Meters in Legal Ascertainments

A. Ferrero, V. Scotti - Politecnico di Milano

AMES/AICT Technical Sessions

Sala Vanalesti 9,30-11,00

Session B2 Networks

Chairperson: Pietro Erratico – AMES AEIT

Adaptive Network-Coding MIMO Schemes for Reliable Multicast Green Communications

F. Chiti, R. Fantacci, L. Pierucci - University of Florence

Software Defined Network Approach Driven by the mPlane Measurement Plane

E. Tego, A. Rufini, A. Valenti, F. Matera - Fondazione Ugo Bordoni, M. Mellia, S. Traverso - Politecnico di Torino

Efficient coordinated beamforming and scheduling approaches for heterogeneous networks

G. Bartoli, R. Fantacci, D. Marabissi - University of Florence

75GHz Indoor Radio Channels Propagation Measurements

M. Celidonio, E. Fionda, L. Pulcini - Fondazione Ugo Bordoni, R. Dal Molin, E.R. Restuccia - Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione (Ministry of Economic Development)

Outdoor-Indoor Radio Propagation Measurements on Two Candidate 5G Millimeter Wave Bands

M. Celidonio, E. Fionda, L. Pulcini - Fondazione Ugo Bordoni, M. Ferrante, E.R. Restuccia - Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione (Ministry of Economic Development)

Sala Vanalesti 11,00-13,30

Session B3 Energy Efficiency & EMI Techniques

Chairperson: Angelo Raciti - AEIT

Coppia Differenziale CMOS per applicazioni a bassa tensione di alimentazione

A. Imbruglia - STMicroelectronics, A.D. Grasso, S. Pennisi - University of Catania, G. Scotti, A. Trifiletti - Sapienza University of Rome

Optimized Design of High Power Density EMI Filters for Power Electronic Converters

G. Ala, G.C. Giaconia, G. Giglia - Università degli Studi di Palermo, M.C. Di Piazza, M. Luna, G. Vitale - ISSIA - Consiglio Nazionale delle Ricerche (CNR), Palermo, P. Zanchetta - University of Nottingham, United Kingdom

Three-Phase Inrush Prediction and Control in Switching Power Supplies

M. Pompei, S. Quondam Antonio - University of Perugia

A 500W Fully Digital Switch Mode Power Supply

M. Cacciato, G. Scarcella, G. Scelba - University of Catania, R. Attanasio, I. Massimiani - STMicroelectronics

Analysis of the Current Harmonics Injected into the Power Grid by Dimmable LED Lamps

S. Di Mauro, S. Musumeci, A. Raciti, G. Vasta - University of Catania

Design and Performance Evaluation of a PFC Front-end for LED Drivers with Ultra-low Input Current Distortion

C. Adragna - STMicroelectronics

Design of Operational Transconductance Amplifiers for Voltage to Current Conversion in Gas Sensing Applications

Z. Hijazi - University of Genova and Lebanese University, Lebanon, D. Caviglia - University of Genova, H. Chible - Lebanese University, Lebanon, M. Valle - University of Genova

Materials Characterization by Inverse Neural Network Approach

S. Carcangiu - University of Cagliari, E. Cardelli, A. Faba - University of Perugia, A. Fanni, A. Montisci - University, S. Quondam - University of Perugia

Experimental Characterization of Ruthenium-based Dye Sensitized Solar Cells and Study of Light-soaking Effect Impact on Performance

A. Parisi, R. Pernice, A. Andò, G. Adamo, A.C. Cino, A.C. Busacca - University of Palermo

Sala Vanalesti 14,30-15,30

Session B4 Air Measurements & Control

Novel Laser Analyzers for Measurements and Mapping of Natural Gas Leaks While Driving

J.B. Leen, J. Savee, M. Gupta, A. Gardner, D. Baer, N. Bonavita - ABB

Time of Flight Measurements via Two LiDAR Systems with SiPM and APD

G. Adamo, A. Busacca - Università degli Studi di Palermo

Using Drones for Automatic Monitoring of Vehicular Accident

D. Brevi, G. Gavilanes, R. Scopigno, A. Sheikh - Istituto Superiore Mario Boella, A. Molino - CSP-ICT Innovation, E. Bagalini - Politecnico di Torino