



EEEICMMXXIV

FINAL
PROGRAM

REV4

X

The 24th IEEE EEEIC edition, hosted in Rome, marks the tenth edition of IEEE EEEIC under the supervision and coordination of the International Association on Environment and Electrical Engineering – APS EEEIA.

We are very excited and pleased to come back “home”.

It is a great honor for us to celebrate this important milestone with the EEEIC Community.

NON
NOBIS
SOLVIM

MONDAY MORNING SESSION**MI-TS1**

H 9:00 > 11:00

Sala del Chiostro**SMART BUILDINGS**

Session Chair

Tuan Tran

CEA Liten

MI-TS1 16**SMARTPHONE-ASSISTED PREPAID METER SYSTEM USING BLE IOT SENSORS FOR SMART CITIES**

Jinsoo Han (Electronics and Telecommunications Research Institute)*; Wan-Ki Park (Electronics and Telecommunications Research Institute)

MI-TS1 54**OPTIMIZING INTEGRATED SHADING DEVICE AND LIGHT SHELF FOR DAYLIGHT PERFORMANCE AND VISUAL COMFORT IN ARCHITECTURE STUDIO**

Pelin Avcı (Izmir Institute of Technology)*; Berk Ekici (Izmir Institute of Technology); Tuğçe Kazanasmaz (Izmir Institute of Technology)

MI-TS1 163**BIM-BASED DIGITAL TWIN AND AUGMENTED REALITY FOR ELECTRICAL MAINTENANCE IN SMART BUILDINGS: A CASE STUDY OF TORRE REGIONE PIEMONTE**

Michele Zucco (Politecnico di Torino)*; Lorenzo Rosso (Politecnico di Torino); Matteo Del Giudice (Politecnico di Torino); Paolo Di Leo (Politecnico di Torino); Anna Osello (Politecnico di Torino)

MI-TS1 177**A NOVEL TIME-DRIVEN TWIN CNN-BASED NILM FRAMEWORK USING DOUBLE GRAYSCALE IMAGES OF ODD HARMONIC CURRENTS**

Petros G. Papageorgiou (Department of Electrical and Computer Engineering, University of Western Macedonia, Kozani, Greece)*; Georgios C. Christoforidis (Department of Electrical and Computer Engineering, University of Western Macedonia, Kozani, Greece); Aggelos S. Bouhouras (Department of Electrical and Computer Engineering, University of Western Macedonia, Kozani, Greece)

MI-TS1 356**BUILDINGS AS NANOGIDS: ENHANCING SUSTAINABILITY AND EFFICIENCY**

saham sherhaji (London south bank university); Abouzar Estebsari (London South Bank University)*; Zunaib Ali (London South Bank University)



IEEEICMXXIV

MONDAY MORNING SESSION

MI-TS2

H 9:00 > 11:00

Aula 1

SS - DATA-DRIVEN SOLUTIONS FOR E-MOBILITY

Session Chairs

Seyed Mahdi Miraftebzadeh, Michela Longo

Politecnico di Milano

MI-TS2 119

GENETIC ALGORITHM STRATEGIES FOR PUBLIC BUS FLEET COMPOSITION

Alessandro Saldarini (Politecnico di Milano)*; Michela Longo (Politecnico di Milano); Morris Brenna (Politecnico di Milano); Cristian G Colombo (Politecnico di Milano); Alessandro Niccolai (Politecnico di Milano); Ota Ryosuke (Tokyo Metropolitan University)

MI-TS2 139

SMART FLEET MANAGEMENT FOR URBAN SUSTAINABILITY: ANALYSIS, OPTIMIZATION, AND ELECTRIFICATION APPROACH IN NARNI DISTRICT'S WASTE COLLECTION

"Mohammad Ghoreishi (Sapienza University of Rome)*; Tommaso Bragatto ("Sapienza" University of Rome); Francesca Santori (A.S.M. Terni S.p.A.); Massimo Cresta (A.S.M. Terni S.p.A.); Leonardo Carloni (A.S.M. Terni S.p.A.); Paride D'Ostilio (A.S.M. Terni S.p.A.)

MI-TS2 176

INTEGRATION OF VEHICLE-TO-GRID (V2G) TECHNOLOGY TO ENHANCED SMART GRID MANAGEMENT: A CASE STUDY OF ELECTRIC MOBILITY IN ROME

Mohadeseh Pasha (Sapienza University of Rome)*; Reza Najafi (Sapienza University of Rome); Chiara Colombaroni (Sapienza University of Rome); Gaetano Fusco (Sapienza University of Rome)

MI-TS2 319

ELECTRIC VEHICLES CHARGING STATIONS SERVICE AREA ASSESSMENT USING SPATIAL ANALYSIS

Babak Ranjgar (Politecnico di Milano)*; Seyed Mahdi Miraftebzadeh (Politecnico di Milano); Alessandro Niccolai (Politecnico di Milano); Michela Longo (Politecnico di Milano)



IEEE EMCXXIV

MONDAY MORNING SESSION

MI-TS3

H 9:00 > 11:00

Sala degli Affreschi**REGULATION
AND ELECTRICITY MARKETS**

Session Chair

Desire Rasolomampionona

Warsaw University of Technology

MI-TS3 37**MULTI-HORIZON ENERGY MARKETS:
OPTIMIZATION OF RESILIENT OPERATIONAL SCHEDULING**

"Hadi Shahcheraghi (Shahid Beheshti University); Mehrdad Setayesh Nazar (Shahid Beheshti University); Seyed Mahoor Ebrahimi (University of Vaasa)*; Miadreza Shafie-khah (University of Vaasa)"

MI-TS3 85**SECURE AND EFFICIENT PEER-TO-PEER ENERGY TRADING:
A CASE STUDY ON EDGE COMPUTING SIMULATION PLATFORM
FOR DECENTRALIZED DECISION MAKING**

Eslam Mofreh (Eindhoven University of Technology)*; P.H. Nguyen (Eindhoven University of Technology); Koen Kok (Eindhoven University of Technology)

MI-TS3 89**TECHNICAL-FINANCIAL ASSESSMENT
OF OFFSHORE WIND FARM IN SOUTHERN BRAZIL**

Gustavo S Djamboladjian (Universidade Federal do Rio Grande do Sul)*; Leonardo N Silva (UFRGS); Daniel S Gazzana (Federal University of Rio Grande do Sul (UFRGS))

MI-TS3 128**FREQUENCY RESTORATION AND REPLACEMENT RESERVE ANALYSIS
UNDER INCREASING RENEWABLE ENERGY SOURCE INTEGRATION:
THE SPANISH CASE STUDY**

Ana Fernández-Guillamón (Universidad de Castilla-La Mancha)*; Angel Molina-García (Universidad Politécnica de Cartagena); Antonio Vigueta Rodríguez (Universidad Politécnica de Cartagena); Luis Miguel Rosario Castillo (Universidad Politécnica de Cartagena)

MI-TS3 178**ROBUST-STOCHASTIC OPTIMIZATION MODEL
FOR STRATEGIC PARTICIPATION OF AGGREGATORS
IN DAY-AHEAD MARKET**

Mohammadamin MAM Mobtahej (Lamar University)*

MI-TS3 242**OPPORTUNITIES IN SOLAR ENERGY MARKET.
A ROMANIAN CASE STUDY**

Anca Constantinescu (Technical University of Cluj-Napoca)*; Claudia Martis (Technical University of Cluj-Napoca); Madalina Alexandra Cotiu (Technical University of Cluj-Napoca)

MI-TS3 271**FLEXIBILITY ACTIVATION
FROM MULTI-ENERGY SYSTEMS CONTROLLED BY TIMED AUTOMATA**

Edoardo Corsetti (RSE)*



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MONDAY MORNING SESSION

MI-TS4
H 9:00 > 11:00
Aula 17

MEASUREMENTS

Session Chair

Livio D'Alvia

Sapienza University of Rome

- MI-TS4 1** **A FREQUENCY STABILITY SCHEME
BASED ON DYNAMIC ESTIMATION AND SPECTRAL CLUSTERING**
Arturo Bretas (University of Florida)*
- MI-TS4 14** **ENHANCING THE DIELECTRIC STRENGTH
OF SILICONE RUBBER (SIR) USING NANO AL2O3 ADDITIVES
UNDER VARYING ENVIRONMENTAL CONDITIONS**
Suod MM.Aldosary (Prince Sattam Bin Abdulaziz University)*; Ahmed A. Hossam-Eldin (Alexandria University); Loai S. El-deen (Aswan University); Kareem M. AboRas (Alexandria University)
- MI-TS4 246** **PREDICTION OF LINE AMPACITY
FROM DISTRIBUTED MONITORING AND WEATHER FORECASTING**
Igor Albizu (University of the Basque Country); Rafael Alberdi (University of the Basque Country); Elvira Fernandez (University of the Basque Country)*; M. Terese Bedialauneta (University of the Basque Country); Paula Castillo (UPV/EHU)
- MI-TS4 303** **ANALYSIS OF ELECTRIC ARC FURNACE INFLUENCE
ON POWER QUALITY IN LOW AND MEDIUM VOLTAGE NETWORKS**
Dariusz Grabowski (Silesian University of Technology)*; Maciej Klimas (Silesian University of Technology); Andrzej Lange (University of Warmia and Mazury)
- MI-TS4 325** **IMPROVING LOW-FREQUENCY PERFORMANCE OF MEASUREMENT
DEVICE FOR FREQUENCY-DEPENDENT SOIL PROPERTIES**
Dmitry Kuklin (Northern Energetics Research Centre)*
- MI-TS4 338** **ANOMALY DETECTION IN LOAD FORECASTING
FOR ELECTRIC VEHICLES USING IMAGE PROCESSING TECHNIQUES**
"Saba Marandi (Concordia University)*; Arash Moradzadeh (Qatar University); Hamed Moayyed (Polytechnic of Porto); Chadi Assi (Concordia University); Mohsen Ghafouri (Concordia University); Zita Vale (GECAD/Polytechnic of Porto)"



MONDAY MORNING SESSION

MI-TS5

H 9:00 > 11:00

Aula 15

**SS - ENERGY COMMUNITIES
FOR ENERGY-EFFICIENT AND FLEXIBLE
PRODUCTION AND CONSUMPTION**

Session Chairs

Stefania Conti University of Catania

Alessia Cagnano Università Mediterranea di Reggio Calabria - DIIES

MI-TS5 75

**INTERNET OF ENERGY FOR ENERGY MANAGEMENT
OF INTERCONNECTED LOCAL ENERGY COMMUNITIES:
CASE STUDY IN BAM CAMPUS - THE NETHERLANDS**

Trung Tran (Technische Universiteit Eindhoven)*; Van der Pijl A. A. (Technische Universiteit Eindhoven); An Nguyen (Eindhoven University of Technology); Minh-Duc Ngo (Thai Nguyen University of Technology); P.H. Nguyen (Eindhoven University of Technology)

MI-TS5 79

**ELECTRIC VEHICLE FLEXIBILITY HARNESSING
THROUGH LOCAL ENERGY COMMUNITY OPERATION OPTIMIZATION:
MAXIMIZING LOCAL ENERGY UTILIZATION**

Enielma Cunha da Silva (Universidade Estadual Paulista)*; Carlos Sabillon (Universidad Loyola Andalucia); Bala Venkatesh (Toronto Metropolitan University); John Fredy Franco (Universidade Estadual Paulista)

MI-TS5 257

**ENERGY COMMUNITY WITH SEMI-PUBLIC SYSTEM
OF EV STATIONS, CARPORT AND BATTERIES ENERGY STORAGE**

George Cristian Lazaroiu (University POLITEHNICA of Bucharest)*

MI-TS5 324

**STABILITY ASSESSMENT OF VIRTUAL SYNCHRONOUS GENERATOR
BASED ON DOUBLE-LOOP CONTROL
TOWARDS NET ZERO ENERGY SYSTEM**

Thongchart Kerdphol (Kasetsart University)*

MI-TS5 359

**THE MAGLIANO ALPI ELECTRICITY COMMUNITY:
ANALYSIS AND INSIGHTS AFTER THREE-YEARS OPERATION**

Riccardo Trevisan (University of Cagliari)*;
Emilio Ghiani (Emilio Ghiani);
Sergio Olivero (Energy Center Politecnico di Torino);
Marco Bailo (Comune di Magliano Alpi)



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MONDAY NOON SESSION**NI-TS1**

H 11:30 > 13:30

Sala del Chiostro**RENEWABLE ENERGY
AND STORAGE - I**

Session Chair

Ana Fernández Guillamón

Universidad de Castilla-La Mancha

NI-TS1 35**STUDY OF THE INFLUENCE OF THE MOTION LIMIT
OF A HORIZONTAL SINGLE-AXIS TRACKER****ON THE ANNUAL INCIDENT ENERGY IN A PV POWER PLANT**

Arsenio Barbon (Oviedo University); Covadonga Bayon-Cueli (DNV UK Limited); Luis Bayon (Oviedo University)*; Verónica Carreira-Fontao (Oviedo University)

NI-TS1 66**DEEP ANALYSIS OF QUASI-MPPT HYSTERESIS CONTROL
FOR MULTIPLE ENERGY SOURCES IN LOW-POWER ENERGY HARVESTING**

Mashiul HUQ (Université de Lorraine, CNRS, IJL, F-54000 Nancy, France); Slavisa Jovanovic (Nil); Philippe Poure (please add your institution)*

NI-TS1 68**RESEARCH ON CORPORATE DECARBONIZATION PLANNING
CONSIDERING THE UNCERTAINTY
OF PROCURING RENEWABLE ENERGY CERTIFICATES**

Taichi Obara (The university of Tokyo)*; Kenji Tanaka (The University of Tokyo)

NI-TS1 78**IMPROVING VERY SHORT-TERM WIND POWER PREDICTABILITY
BY STRATEGICALLY PLACING WEATHER STATIONS**

Olga Klyagina (INESC TEC)*; Ricardo J. Bessa (INESC TEC); David Pozo (European Commission JRC)

NI-TS1 316**HIERARCHICAL AC OPTIMAL POWER FLOW
OF MULTI-MICROGRID SYSTEMS USING A COMBINATION
OF LEARNING-BASED AND LAGRANGIAN METHODS**

Ronald R Cabaoig (University of the Philippines)*; Michael Angelo Pedrasa (University of the Philippines)

NI-TS1 323**EVALUATION OF VOLTAGE PROFILE IN DISTRIBUTION NETWORKS
WITH HIGH PENETRATION OF PHOTOVOLTAIC ENERGY
ASSOCIATED WITH BATTERY ENERGY STORAGE SYSTEMS**

Diego Jose da Silva (Federal University of ABC)*; EDMARCIO ANTONIO BELATI (CECS/UFABC); Jesus López-Lezama (Universidad de Antioquia); Mahdi Pourakbari-kasmaei (Aalto University)



E E E I C M M X X I V

MONDAY NOON SESSION

NI-TS2

H 11:30 > 13:30

Aula 1

POWER SYSTEMS AND SMART GRIDS - 1

Session Chairs

Nikolay Djagarov

University of Brescia

Nikola Vaptsarov

Naval Academy, University of Brescia

NI-TS2 73

ANALYSIS OF CABLE-TRANSFORMER RESONANT INTERACTIONS DUE TO CB PRESTRIKING TRANSIENTS

Behzad Behdani (Delft University of Technology)*; Mohamad Ghaffarian Niasar (Delft University of Technology); Marjan Popov (Delft University of Technology)

NI-TS2 102

OPTIMAL OPERATION OF RENEWABLE ENERGY RESOURCES AND ELECTRIC VEHICLES IN MICROGRIDS

Vahid Shahbazbegian (University of Vaasa); Joao P.D.B. Pereira (FEUP); Miadreza Shafie-khah (University of Vaasa); Gerardo J. Osório (REMIT, Portuguese Univ. Infante D. Henrique.)*; João P Catalão (Faculty of Engineering of University of Porto, Porto, Portugal.)

NI-TS2 207

INVESTMENT PLANNING FOR RISK MITIGATION IN LOW VOLTAGE DISTRIBUTION NETWORKS

Tommaso Bragatto (Sapienza University of Rome); Fabio Massimo Gatta (Sapienza University of Rome); Alberto Geri (Sapienza University of Rome); Marco Maccioni (Sapienza University of Rome)*; Ludovico Nati (Areti S.p.A.); Alessandro Palazzoli (Areti S.p.A.); Paolo Sancioni (Areti S.p.A.)

NI-TS2 221

A STOCHASTIC MODEL FOR CO-OPTIMISATION OF INTERCONNECTED POWER AND GAS SYSTEMS WITH WIND POWER PLANTS, STORAGE SYSTEMS AND RESPONSIVE DEMANDS

Ahmad Rezaee Jordehi (Islamic Azad University, Iran)*; Seyed Amir Mansouri (Comillas Pontifical University); Marcos Tostado (University of Jaén)

NI-TS2 243

TOWARD AUTOMATION FOR GEOGRAPHICALLY DISTRIBUTED POWER HARDWARE-IN-THE-LOOP EXPERIMENTS

PHAM Minh Cong (French Alternative Energies and Atomic Energy Commission)*; Thien Phong Tran (French Alternative Energies and Atomic Energy Commission (CEA)); Quoc Tuan Tran (French Alternative Energies and Atomic Energy Commission (CEA))

NI-TS2 348

DYNAMIC MODEL OF A SMART MICROGRID FOR DSA APPLICATIONS

Giulia Amato (Politecnico di Bari)*; Enrico De Tuglie (Politecnico di Bari); Luigi Pio Savastio (Politecnico di Bari); Giovanni Maula (Politecnico di Bari); Angelo Martella (Politecnico di Bari); Desire D. Rasolomampionona (Institute of Electrical Power Engineering); Krzysztof Zagrajek (Institute of Electrical Power Engineering); Mariusz Kłos (Institute of Electrical Power Engineering)



IEEE EMC SOCIETY

MONDAY NOON SESSION

NI-TS3

H 11:30 > 13:30

Sala degli Affreschi

ENVIRONMENTAL PHENOMENA AND POLLUTION

Session Chair

Michał Jasiński

Wroclaw Univeristy of Science and Technology

NI-TS3 4

ANALYTICAL DATA-DRIVEN METHOD FOR GEOMAGNETIC DISTURBANCE UNCERTAINTY QUANTIFICATION COMPENSATION

Arturo Bretas (University of Florida)*

NI-TS3 11

ASSESSMENT OF GREENHOUSE GAS EMISSION REDUCTION STRATEGIES IN ELECTRICITY GRID OF TURKIYE BY UTILIZING ENERGYPLAN SIMULATION

Cagdas Karakus (Politechnika Wroclawska)*; Zbigniew Leonowicz (Wroclaw University of Science and Technology); Jakob Zinck Thellufsen (Aalborg University)

NI-TS3 12

ASSESSMENT AND EVALUATION OF AIR POLLUTANTS AT DEHRADUN AND HARIDWAR REGION, UTTARAKHAND, INDIA.

Avnish Chauhan (Graphic Era Hill University, Dehradun, Uttarakhand)*; Anirudh Tomar (Graphic Era Hill University); Vijay Kumar (Graphic Era Hill University Dehradun); Prerna Sharma (Graphic Era Hill University, Dehradun, Uttarakhand); PP Pathak (Gurukula Kangri University, Haridwar, Uttarakhand, India)

NI-TS3 33

FORECASTING SHORT-TERM FINE PARTICULATE MATTER CONCENTRATION USING AN AUTOREGRESSIVE MODEL

Longkai Ma (harvard university)*

NI-TS3 156

VISUAL INTERACTION AND ITS EFFECTS ON THE DESIGN OF HV TOWERS

Luca Buono (TERNA); Alexa Mariela Lopez Diaz (Terna)*; Gaia Leone (Terna); Lorenzo Papi (Terna); Maria Rosaria Guarniere (Terna); Francesco Palone (TERNA); Roberto Spezie (Terna)

NI-TS3 314

PREDICTION AND ANALYSIS OF SHIELDING EFFECTIVENESS IN CONDUCTING POLYMER COMPOSITES USING THE TRANSMISSION LINE MATRIX METHOD: APPLICATIONS IN NEAR AND FAR FIELDS

Karim Benzaoui (Laboratory Electromagnetic Compatibility, Ecole Militaire Polytechnique)*; Youcef Amine MEDJAOURI (Ecole Militaire Polytechnique); Achour ALES (Electromagnetic Compatibility Laboratory , Ecole Militaire Polytechnique, BP 17 Bordj El-Bahri 16111 Algiers, Algeria)



IEEE EMC SOCIETY

MONDAY NOON SESSION

NI-TS4

H 11:30 > 13:30

Aula 17

SS - SMART SOLUTIONS AND STRATEGIES FOR ENVIRONMENTAL COMFORT, ENERGY SAVING AND CLIMATE RESILIENT INDOOR AND OUTDOOR SPACES

Session Chairs

Marina Bonomolo, Giorgia Peri, Laura Cirrincione

University of Palermo

NI-TS4 41

ASSESSMENT OF PERFORMANCE OF HYBRID HEAT PUMP SYSTEM DURING WINTER SEASON IN DIFFERENT CLIMATIC CONDITIONS

Marina Bonomolo (University of Palermo)*; Giuliana Leone (University of Palermo); Alessio Coga (University of Palermo); Stefania Guarino (University of Palermo); Tancredi Testasecca (University of Palermo); Marco Beccali (Università di Palermo - Dipartimento di Ingegneria)

NI-TS4 60

ENERGY SAVING: POST-INTERVENTION ANALYSIS OF THE 'SUPERBONUS 110%' IN A SPORTS FACILITY

Andrea Fioravanti (University of L'Aquila, Department of Industrial and Information Engineering and Economics)*; Alberto Prudenzi (University of L'Aquila); Andrea Silvestri (University of L'Aquila); Simone mari (University of L'Aquila)

NI-TS4 106

DEVELOPMENT OF A FIRST PROTOTYPE FOR LOW-COST KIT FOR DLCS DESIGN

Marina Bonomolo (University of Palermo); Alessandro Biondi (University of Palermo); Cristina Baglivo (Università del Salento); Massimiliano Di Liberto (University of Palermo); Alessio Leto (University of Palermo); Marco Beccali (Università di Palermo - Dipartimento di Ingegneria)*

NI-TS4 157

PRELIMINARY ANALYSIS FOR SIZING PACKAGED HVAC SYSTEMS. THE ROLES OF HEAT RECOVERY AND COMPRESSOR ENERGY CONSUMPTION

Pierluca Martorana (University of Palermo); Vincenzo Franzitta (University of Palermo); Domenico Curto (University of Palermo); andrea guercio (University of Palermo); Malik Ali Judge (University of Palermo)*; stefano mangione (University of Palermo); Margherita Frascati (University of Palermo)

NI-TS4 286

EFFECT OF THE ACCUMULATION CAPACITY ON THE ENERGY PERFORMANCE OF A GREEN HYDROGEN PRODUCTION PLANT

Laura Cirrincione (Università di Palermo)*; Concettina Marino (Mediterranean University of Reggio Calabria); Antonino Nucara (Mediterranean University of Reggio Calabria); Maria Francesca Panzera (Mediterranean University of Reggio Calabria); Matilde Pietrafesa (Mediterranean University of Reggio Calabria); Gianluca Scaccianoce (University of Palermo)

NI-TS4 300

LITERATURE REVIEW ON METRICS TO ASSESS THE THERMAL RESILIENCE OF BUILDINGS TO CLIMATE CHANGE

Giorgia Peri (Università di Palermo - DEIM)*; Vasiliki Geropanta (School of Architecture, Technical University of Crete- TUC); Maria La Gennusa (Università degli Studi di Palermo-DEIM); Gianluca Scaccianoce (University of Palermo)



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MONDAY NOON SESSION

NI-TS5

H 11:30 > 13:30

Aula 15

SS - TRANSPORT SYSTEMS AND SUSTAINABLE MOBILITY - 1

Session Chairs

Gaetano Fusco, Mariano Gallo

Sapienza University of Rome

NI-TS5 19

PREDICTIVE MODEL TO ASSESS POLLUTION FROM ROAD RUNOFF WATERS AS A TOOL TO INCREASE SUSTAINABLE MOBILITY

Maria Vittoria Corazza (Sapienza University of Rome)*; Paola Di Mascio (Sapienza University of Rome); Laura Moretti (Sapienza University of Rome); Giulia Del Serrone (Sapienza University of Rome); Luciano Cera (Cera Ingegneria)

NI-TS5 23

FUEL CELL ELECTRIC VEHICLES: LITERATURE ANALYSIS TO IDENTIFY BARRIERS TO THEIR DEPLOYMENT AND POSSIBLE MITIGATION STRATEGIES

Mariano Gallo (Universita' del Sannio - Dipartimento di Ingegneria)*

NI-TS5 72

CALIBRATING SHORTEST PATHS ON OPENSTREETMAP NETWORKS USING GOOGLE ROUTING API

Salar Salehi (sapienza university)*; Ken Varghese (Sapienza University); Lory Bresciani (Sapienza University); Guido Gentile (Sapienza University); Arif Huseynov (Sapienza University)

NI-TS5 175

UTILIZING P-MEDIAN AND MACHINE LEARNING FOR BIKE-SHARING DEMAND PREDICTION

Marzieh Afsari (Sapienza university of Rome)*; Mousaalreza Dastmard (Sapienza university of Rome); Lory Michelle Bresciani Miristice (Sapienza university of Rome); Guido Gentile (Sapienza University of Rome)

NI-TS5 208

DIFFUSION MODELS: AN APPLICATION TO EVALUATE THE SPREAD OF ELECTRIC VEHICLE ON THE CITY OF SALERNO (SOUTH OF ITALY)

Stefano De Luca (University of Salerno); Chiara Fiori (University of Salerno)*; Francesca Bruno (University of Salerno)

NI-TS5 248

EFFECTS OF THE PASSENGER WEIGHT ON THE TRAIN RUNNING TIMES AND RELATED IMPLICATIONS ON SERVICE FREQUENCIES

Luca D'Acierno (Federico II University of Naples)*; Luca De Matteis (Federico II University of Naples); Rosario Stefanelli (Federico II University of Naples); Marilisa Botte (Federico II University of Naples)



ESECIE 2024

MONDAY AFTERNOON SESSION

AI-TSI

H 15:00 > 17:00

Sala del Chiostro

**SS - INNOVATIONS IN ELECTRIC
MOBILITY – TECHNICAL, ENVIRONMENTAL,
AND SOCIAL CHALLENGES OF THE TRANSITION**

Session Chairs

Marco Pasetti, Antony Vasile, Davide Astolfi

University of Brescia

AI-TSI 10

**OPTIMIZING WIRELESS POWER TRANSFER SYSTEMS
FOR IMPROVED EFFICIENCY THROUGH GEOMETRIC
AND DIMENSIONAL ALIGNMENTS**

Osama Mohammed (Florida International University)*; Ahmed Ibrahim (Florida International University); Ahmed S Soliman (Florida International University)

AI-TSI 51

**CONCEPT AND PRELIMINARY DESIGN
OF A STAND-ALONE CHARGING STATION
FOR LIGHT ELECTRIC VEHICLES**

Antony Vasile (Università degli Studi di Brescia)*; Marco Pasetti (Università degli Studi di Brescia); Davide Astolfi (University of Brescia); Gaetano Zizzo (Università di Palermo); Eleonora Riva Sanseverino (University of Palermo); Alessandra Flammini (Università degli Studi di Brescia)

AI-TSI 64

**TIME-OF-USE ELECTRICITY UTILIZATION
FOR EV CHARGING THROUGH SMART SYSTEMS
WITH BATTERY INTEGRATION**

Qais Ali (University of Palermo)*; Maria Luisa Di Silvestre (University of Palermo); Gaetano Zizzo (DEIM University of Palermo); Pio Alessandro Lombardi (Fraunhofer Institute for Factory Operation and Automation IFF); Eleonora Riva Sanseverino (University of Palermo)

AI-TSI 86

**INVESTIGATING THE ROLE OF ELECTRIC VEHICLES
IN PROVIDING FREQUENCY RESPONSE
IN LOW-INERTIA ISLANDED POWER GRIDS**

Sajjad Fattaheian Dehkordi (Aalto University)*

AI-TSI 93

**ELECTRIC VEHICLES MAINTENANCE:
RECOMMENDATIONS FOR A SAFE WORK**

Pietro Colella (Politecnico di Torino)*; Enrico Pons (Politecnico di Torino)



IEEE EMC XXIV

MONDAY AFTERNOON SESSION

AI-TS2

H 15:00 > 17:00

Aula 1

SS - TOWARDS THE NEXT GENERATION OF SMART GRIDS-BASED MULTI-ENERGY SYSTEMS RAISING ICT CUTTING-EDGE SOLUTIONS (INTELLIGRID)

Session Chairs

Alessandro Aliberti, Edoardo Patti

Politecnico di Torino

AI-TS2 59**IMPROVING DYNAMIC RESPONSE OF HYDRO POWER PLANTS USING ELECTRICAL ENERGY STORAGE IN LOW-INERTIA POWER GRIDS**

Ramin Ahmadi Kordkheili (Aalto University)*; Sajjad Fattaheian-Dehkordi (Aalto University); Matti Lehtonen (Aalto University Finland)

AI-TS2 91**GAIA META-PLATFORM: ENABLING MULTI-ENERGY VECTORS DATA ANALYSIS VIA IOT FEDERATION**

Alessio Viticchiè (AlphaWaves); Felice Cetrone (ALPHAWAVES S.R.L.); Christian Camarda (Midori srl); Virginia Vassallo (Midori srl); Leonardo Napoli (Bosco Elettronica srl); Edoardo Patti (Politecnico di Torino, Department of Control and Computer Engineering); Alessandro Aliberti (Politecnico di Torino, Interuniversity Dept. of Regional and Urban Studies and Planning)*

AI-TS2 101**IMPACT OF UNCERTAINTY ON ENERGY HUB OPTIMIZATION BASED ON ENERGY RESOURCES DISTRIBUTION AND DEMAND RESPONSE**

Tiago M. M. Azevedo (FEUP); Morteza Vahid-Ghavidel (University of Tabriz); Sérgio F Santos (INESC TEC - Institute for Systems and Computer Engineering, Technology and Science); Gerardo J. Osório (REMIT, Portucalense Univ. Infante D. Henrique)*; João P Catalão (Faculty of Engineering of University of Porto, Porto, Portugal.)

AI-TS2 120**AN AUTOMATED TOOL FOR URBAN BUILDING ENERGY MODELLING: FROM SPARSE DATASETS TO CITYJSON**

Pietro Rando Mazzarino (Politecnico di Torino)*; Salvatore Finocchiaro (Politecnico di Torino); Luca Barbierato (Politecnico di Torino); Daniele S Schiera (Politecnico di Torino); Lorenzo Bottaccioli (Politecnico di Torino); Edoardo Patti (Politecnico di Torino, Department of Control and Computer Engineering)

AI-TS2 198**A DISTRIBUTED IOT SOFTWARE INFRASTRUCTURE FOR MULTI-PURPOSE SERVICES IN MULTI-ENERGY SYSTEMS**

Rafael Natalio Fontana Crespo (Politecnico di Torino)*; Yingjun Luo (Politecnico di Torino); Manuela Baracani (Politecnico di Torino); Paolo Squillari (Politecnico di Torino); Fabio Favoino (Politecnico di Torino); Edoardo Patti (Politecnico di Torino, Department of Control and Computer Engineering)

AI-TS2 261**HYBRID SYSTEM FOR SOLAR IRRADIANCE FORECASTING IN PHOTOVOLTAIC PANELS – CASE STUDY FOR SELECTED LOCATIONS IN POLAND**

Kacper Książek (University of Silesia in Katowice); Małgorzata Przybyła-Kaspepek (Uniwersytet Śląski w Katowicach); Michał Jasiński (Wrocław University of Science and Technology)*



E E E I C M M X X I V

MONDAY AFTERNOON SESSION

AI-TS3

H 15:00 > 17:00

Sala degli Affreschi**CIRCUITS, SENSORS
AND ACTUATORS**

Session Chair

Ioana-Gabriela Sirbu

University of Craiova

AI-TS3 15**A NOVEL TOPOLOGY FOR HIGH VOLTAGE BATTERY
ENERGY STORAGE SYSTEMS**

Jose M. Guerrero (Universidad del País Vasco/Euskal Herriko Unibertsitatea)*;
 Jelena Stojkovic Terzic (University of Belgrade); Unai Villena (Universidad del
 País Vasco/Euskal Herriko Unibertsitatea); Tomislav Rajić (University of
 Belgrade); Marene Larruskain (Universidad del País Vasco/Euskal Herriko
 Unibertsitatea)

AI-TS3 226**MATHEMATICAL MODEL OF BRUSHLESS
DOUBLY FED INDUCTION MACHINE**

Nikolay Djagarov (Nikola Vaptsarov Naval Academy)*

AI-TS3 260**SERIES-SERIES VERSUS SERIES-PARALLEL
IN TERMS OF STABILITY ISSUES FOR INDUCTIVE
POWER TRANSFER SYSTEMS**

Ioana-Gabriela Sirbu (University of Craiova)*;
 Lucian Mandache (University of Craiova);
 Dan Gabriel I Stanescu (University of Craiova, Faculty of Electrical Engineering);
 Mircea Emilian Ardeleanu (University of Craiova, Faculty of Electrical Engineering)

AI-TS3 285**A JIGSAW APPROACH FOR ELECTRICAL ENGINEERING:
TRANSIENT STABILITY ANALYSIS OF A SYNCHRONOUS MACHINE**

Manuela Minetti (University of Genoa)*

AI-TS3 321**SMART IRRIGATION IN PRECISION AGRICULTURE
USING A REAL-TIME SYSTEM LEVERAGING IOT, CLOUD COMPUTING,
AND MACHINE LEARNING**

Fatima Zahra Bassine (IWR!);
 Fatima Zahra Bassine (ENSEM)*

AI-TS3 24**ELECTRICAL ENGINEERS
AND THE INFINITY IN POWER SYSTEMS**

Massimo Mitolo (Irvine Valley College);
 Silvano Vergura (Dept. of Electrical and Information Engineering)*

AI-TS3 347**ELECTROSTATIC HAZARDS IN POWER SYSTEMS**

Massimo Mitolo (Irvine Valley College)*;
 Gianfranco Di Lorenzo (Sapienza University of Rome);
 Erika Stracqualursi (Sapienza University of Rome);
 Rodolfo Araneo (Sapienza University of Rome)



MONDAY AFTERNOON SESSION**AI-TS4**

H 15:00 > 17:00

Aula 17**SS - SMART STRATEGIES FOR RELIABILITY, TECHNICAL AND 3E ASSESSMENT IN RENEWABLE ENERGY SYSTEMS**

Session Chairs

Nicola Blasuttigh University of Trieste**Simone Negri** Politecnico di Milano**AI-TS4 39****KNOWLEDGE-DISCOVERY-BASED METHODS FOR WIND POWER GENERATORS PERFORMANCE ANALYSIS**

Davide Astolfi (University of Brescia)*; Marco Pasetti (Università degli Studi di Brescia); Fabrizio De Caro (University of Salerno); Antony Vasile (Università degli Studi di Brescia); Alfredo Vaccaro (University of Sannio)

AI-TS4 112**ECONOMIC AND ENVIRONMENTAL ASSESSMENT OF INDUSTRIAL RENEWABLE ENERGY COMMUNITIES**

Simone Negri (Politecnico di Milano); Nicola Blasuttigh (University of Trieste)*; Claudio Pagani (ELCO & EBNER Engineering); Alessandro Massi Pavan (University of Trieste (Italy)); Stefano Pastore (University of Trieste)

AI-TS4 159**COMPARATIVE STUDY OF POWER PREDICTION FOR PHOTOVOLTAIC MODULES WITH DIFFERENT TECHNOLOGIES TESTED IN ITALY AND IN SPAIN**

Gabriele Malgaroli (POLITECNICO DI TORINO)*; Alessandro Ciocia (Politecnico di Torino); Slawomir Gulkowski (Lublin University of Technology); José Vicente Muñoz Díez (Universidad de Jaén); Stefano Schubert (Politecnico di Torino); Filippo Spertino (Politecnico di Torino)

AI-TS4 185**FAULT DIAGNOSIS OF PHOTOVOLTAIC MODULES USING INFRARED IMAGES AND HYBRID DCNNs: A COMPARATIVE STUDY**

Chourouk Moussaoui (University of Jijel)*; Adel Mellit (Jijel university); Pastore Stefano (University of Trieste); Alessandro Massi Pavan (University of Trieste (Italy))

AI-TS4 188**PERFORMANCE, RELIABILITY AND ECONOMY OF DFIGS FOR MICRO-HYDROPOWER APPLICATIONS: A CASE STUDY**

Valerio Ciccariello (Dept. of Astronautics, Electrical & Energetic Engn); Stefano Elia (Dept. of Astronautics, Electrical & Energetic Engn); Manlio Pasquali (ENEA); Chiara Boccaletti (Dept. of Astronautics, Electrical & Energetic Engn)*

AI-TS4 263**UNSUPERVISED ANOMALY DETECTION OF SHIPBOARD ELECTRICAL POWER CONSUMPTION THROUGH GRU AUTOENCODER MODEL**

Giuseppe La Tona (Consiglio Nazionale delle Ricerche (CNR))*; Paolo Fazzini (Consiglio Nazionale delle Ricerche (CNR)); Maria Carmela Di Piazza (Consiglio Nazionale delle Ricerche (CNR))



IEEE EMC SOCIETY

MONDAY AFTERNOON SESSION**AI-TS5**

H 15:00 > 17:00

Aula 15**SS - TRANSPORT SYSTEMS
AND SUSTAINABLE MOBILITY - 2**

Session Chairs

Gaetano Fusco Sapienza University of Rome**Mariano Gallo** University of Sannio**AI-TS5 65****METHOD FOR DEFINING ELECTROMAGNETIC INTERFERENCES
IN THE METRO TRACK CIRCUITS**Tetiana Serdiuk (Ukrainian State University of Science and Technologies)*,
Maksym Serchenko (Ukrainian State University of Science and Technologies)**AI-TS5 145****MID-TERM FEASIBILITY ASSESSMENT
OF BATTERY ELECTRIC TRUCKS AND FUEL CELL ELECTRIC TRUCKS**Fabio Borghetti (Politecnico di Milano); Michela Longo (Politecnico di Milano);
Andrea Di Martino (Politecnico di Milano)*; Renato Mazzoncini (Politecnico di
Milano); Seyed Mahdi Miraftebzadeh (Politecnico di Milano)**AI-TS5 216****SAFETY AND ENERGY ASSESSMENT OF ELECTRIC VEHICLES
EQUIPPED WITH ADAPTIVE CRUISE CONTROL SYSTEM**Angelo Coppola (University of Naples)*;
Andrea Marchetta (University of Naples)**AI-TS5 228****REDUCING GREENHOUSE GAS EMISSIONS
OF THE TRANSPORT SECTOR IN URBAN AREAS: A REVIEW**Muhammad Waseem (Politecnico di Torino);
Pietro Colella (Politecnico di Torino)*; Enrico Pons (Politecnico di Torino);
Marianna Costa (Gruppo Trasporti Torinese)**AI-TS5 287****OPTIMIZED SMART CHARGING OF ELECTRIC BUS FLEETS
FOR GREENHOUSE GAS EMISSION MINIMIZATION**Benjamin Blat Belmonte (Technical University of Darmstadt)*;
Georg Avermarie (Technical University of Darmstadt);
Stephan Rinderknecht (Technical University Darmstadt)**AI-TS5 330****CORRELATION OF OD MATRIX AND TRAFFIC VOLUME
WITH FUNCTIONAL DATA ANALYSIS:
A SIMULATION-BASED CASE STUDY IN THE CITY OF PORTICI**Alessandra Marisa Tascione (Università degli Studi di Napoli Federico II);
Luca Di Costanzo (University of Naples "Federico II");
Davide Forcina (University of Naples "Federico II");
Luigi Pariota (University of Naples)*;
Christian Capezza (University of Naples "Federico II");
Fulvio Simonelli (University of Naples Federico II)

IEEICM MXXIV



CITY TOUR

June 17th 2024
START 05.30 PM

Meeting Point

@ P.zza di S. Pietro in Vincoli

TUESDAY MORNING SESSION

M2-TSI

H 9:00 > 11:00

Sala del Chiostro**RENEWABLE ENERGY
SOURCES AND STORAGE- 2**

Session Chair

Gerardo J. Osorio

REMIT, Portucalense Univ. Infante D. Henrique

M2-TSI 90**CONVERSION OF WIND POWER PLANTS
TO HYBRID POWER PLANTS**Leonardo N Silva (UFRGS)*;
Gustavo S Djambolakdjian (Universidade Federal do Rio Grande do Sul);
Daniel S Gazzana (Federal University of Rio Grande do Sul (UFRGS))**M2-TSI 92****ENERGY STORAGE SYSTEMS PLANNING
IN THE ELECTRIC DISTRIBUTION SYSTEM
CONSIDERING THE GROW OF PV PENETRATION**Norberto A Martinez (UNESP)*; Stavros Orfanoudakis (Delft University of
Technology); Pedro P. Vergara (TU Delft); John Franco (UNESP)**M2-TSI 99****AN AI-BASED ALGORITHM FOR ENERGY MANAGEMENT
OF HYBRID RENEWABLE ENERGY SYSTEM**Malik Ali Judge (University of Palermo)*; Vinzenzo Franzitta (University of
Palermo); Domenico Curto (University of Palermo)**M2-TSI 111****OPTIMAL CONTROL OF A WIND FARM-BESS UNIT
TO COMBINE SYNTHETIC INERTIA AND FAST RESERVE**Francesco Conte (Università Campus Bio-Medico di Roma)*;
Fabio D'Agostino (University of Genova); Stefano Massucco (University of
Genova); Matteo Saviozzi (University of Genova); Chiara Gandolfi (Ricerca sul
Sistema Energetico - RSE S.p.A.); Marco Raffaele Rapizza (Ricerca sul Sistema
Energetico - RSE S.p.A.)**M2-TSI 131****BATTERY SIZING FOR GRID POWER PEAKS REDUCTION:
A POWER-ORIENTED AUTOMATED WAREHOUSE CASE STUDY**Massimo Ceraolo (University of Pisa);
Giovanni Lutzemberger (University of Pisa - DESTEC)*;
Francesco Giuseppe Mr Quilici (Università di Pisa);
Claudio Scarpelli (University of Pisa); Marco Sabatini (Cassioli SRL)**M2-TSI 164****CHARACTERIZING WIND SPEED VARIABILITY IN SOUTH AFRICA:
AN EEMD-BASED APPROACH**Theunis Oosthuizen (Stellenbosch University)*;
Chantelle Y van Staden (Stellenbosch University)**M2-TSI 315****POWER AND ENERGY HARVESTING EFFICIENCY
UNDER DIFFERENT ENVIRONMENTAL SOURCES
USING PIEZOELECTRIC MECHANISM FOR INDUSTRIAL APPLICATIONS**Muath A Bani Hani (Jordan University of Science and Technology)*; Bara'ah
Nemrawi (Jordan University of Science and Technology); Wasim Barham
(Jordan University of Science and Technology); Sallam Kouritem (Department
of Mechanical Engineering Alexandria University)

E E E I C M M X X I V

TUESDAY MORNING SESSION

M2-TS2

H 9:00 > 11:00

Aula 1**SS - SMART SUSTAINABLE ISLANDS
AND GREEN ENERGY COMMUNITIES**

Session Chairs

Sonia Leva Politecnico di Milano**Rodolfo Araneo** Sapienza University of Rome**Renato Procopio** University of Genoa**M2-TS2 109****FUNCTIONS AND SAFETY REGULATIONS
OF COMMERCIAL AND INDUSTRIAL INSTALLATIONS
WITH BATTERY ENERGY STORAGE AND PV SYSTEMS**Sonia Leva (Politecnico di Milano);
Ana Cabrera (Politecnico di Milano); Riccardo Ramaschi (Politecnico di Milano)*;
Emanuele Giovanni Ogliaari (Politecnico di Milano);
Enrico Lamanna (Huawei Technologies Italia);
Valerio Ciccariello (Huawei Technologies Italia)**M2-TS2 113****COMPARATIVE LIFE CYCLE ASSESSMENT
ON DIFFERENT END-OF-LIFE MANAGEMENT OF LITHIUM-ION
ELECTRIC VEHICLE BATTERIES: A LITERATURE REVIEW
AND AN APPLICATION SCENARIO**

Riccardo Ramaschi (Politecnico di Milano)*; Sonia Leva (Politecnico di Milano)

M2-TS2 114**AN OVERVIEW OF OPTIMIZATION METHODS
FOR HOME ENERGY MANAGEMENT SYSTEMS**Marios Saleptsis (Politecnico di Milano)*;
Marco Mussetta (Politecnico di Milano); Sonia Leva (Politecnico di Milano)**M2-TS2 125****PEAK SHAVING WITH BIFACIAL SOLAR PV:
SIMULATED STORAGE BATTERY DISPATCH
FOR ELECTRIC VEHICLE CHARGING***Michael Wood (Politecnico di Milano)*;
Emanuele Giovanni Ogliaari (Politecnico di Milano);
Sonia Leva (Politecnico di Milano)***M2-TS2 137****DESIGN CONSIDERATIONS AND ENERGY MANAGEMENT SYSTEM
FOR GREEN AND RELIABLE TELECOMMUNICATION BASE STATIONS**Ana Cabrera (Politecnico di Milano)*; Sonia Leva (Politecnico di Milano);
Francesco Grimaccia (Politecnico di Milano)**M2-TS2 247****A NOVEL DATA-DRIVEN APPROACH FOR THE SIMULTANEOUS
PREDICTION OF STATE OF HEALTH TRAJECTORY
AND REMAINING USEFUL LIFE IN SEQUENCES OF VARIABLE LENGTH**Spyridon Giazitzis (Politecnico di Milano); Michele Bellomo (Politecnico di
Milano)*; Alberto Dolara (Politecnico di Milano); Francesco Grimaccia (Politecni-
co di Milano); Emanuele Giovanni Ogliaari (Politecnico di Milano); Susheel
Badha (Infineon Technologies); Filippo Rosetti (Infineon Technologies)

ESECIE M M X X I V

TUESDAY MORNING SESSION**M2-TS3**

H 9:00 > 11:00

Sala degli Affreschi**SS - DC GRIDS APPLICATIONS,
TECHNOLOGIES AND PROTECTION - 1**

Session Chairs

Francesca Pizzimenti, Riccardo Loggia

Sapienza University of Rome

M2-TS3 110**FAULT ANALYSIS IN LVDC SYSTEMS - ACCURACY AND
APPLICABILITY OF THE TRADITIONAL METHOD**

Julian David Valbuena Godoy (Politecnico di Milano); Simone Negri (Politecnico di Milano)*; Francesca Oliva (Politecnico di Milano); Antonello Antoniazzi (Smart Power Division ABB SpA); Roberto Faranda (Politecnico Di Milano)

M2-TS3 140**HVDC SEA ELECTRODES: ON THE CHOICE OF THE RIGHT SITE**

"Massimo Brignone (University of Genova, Department of Naval, Electrical, and ICT Engineering)*; Daniele Mestriner (University of Genova, Department of Naval, Electrical, and ICT Engineering); Mario Nervi (University of Genova, Department of Naval, Electrical, and ICT Engineering)"

M2-TS3 152**A SUSTAINABLE DESIGN****FOR THE NEW 500 KV HVDC ITALIAN SWITCHING STATIONS**

Luca Buono (TERNA); Arianna Guarneri (Terna); Francesco Palone (TERNA); Lorenzo Papi (Terna); Roberto Spezie (Terna); Gabriele Tresso (Terna); Pierluigi Vacante (Terna)*

M2-TS3 158**POSSIBLE SCHEMES****FOR THE "HYPERGRID" HVDC SWITCHING STATIONS**

Luca Buono (TERNA); Massimo Marzinotto (Terna); Francesco Palone (TERNA); Lorenzo Papi (Terna); Roberto Spezie (Terna); Gabriele Tresso (Terna); Pierluigi Vacante (Terna)*

M2-TS3 197**RESILIENCY ENHANCEMENT OF NETWORKED DC MICROGRIDS
THROUGH A DECENTRALIZED ENERGY MANAGEMENT SYSTEM**

Hossam M Hussein (Florida International University)*; Mahmoud Abdelrahman (FLORIDA INTERNATIONAL UNIVERSITY); S M Sajjad Hossain Rafin (Florida International University); Ibtissam Kharchouf (Florida International University); Osama Mohammed (Florida International University)

M2-TS3 233**MUTUAL INDUCTION
IN HYBRID AC/DC TRANSMISSION LINES**

Marco Graziani (Sapienza University of Rome)*; Jacopo dell'Olmo (Sapienza University of Rome); Fabio Massimo Gatta (Sapienza University of Rome); Federico Carere (Sapienza University of Rome)



TUESDAY MORNING SESSION

M2-TS4

H 9:00 > 11:00

Aula 17

SS - NEW PERSPECTIVES ON BIPVS (BUILDING INTEGRATED PHOTOVOLTAIC SYSTEMS): NUMERICAL AND EXPERIMENTAL STUDIES ON THE PV CELLS, POWER CONVERTER, CONTROL SYSTEMS, AND STORAGE

Session Chairs

Elisa Belloni University of Perugia**Fernando Mancilla-David** University of Colorado**M2-TS4 2**

ENERGY MANAGEMENT IN SMART BUILDINGS WITH SHARED PHOTOVOLTAIC PANELS AND ELECTRIC VEHICLE CHARGERS

Mohammadamin MAM Mobtahej (Lamar University)*;
Hasan Zargargzadeh (Lamar University)**M2-TS4 126**

MONITORING OF BIPV BY MEANS OF A LOW COST WIRELESS SENSOR NETWORK

Antonino Laudani (University of Catania)*; Fabio Corti (University of Florence);
Matteo Intravaia (Università degli Studi di Firenze); Gabriele Maria Lozito
(Università degli Studi di Firenze); Michele Quercio (University of Roma Tre);
Francesco Riganti-Fulginei (Roma Tre University)**M2-TS4 132**

DEVELOPMENT OF A NEW LED-BASED SOLAR SIMULATOR FOR BUILDING-INTEGRATED PHOTOVOLTAIC CHARACTERIZATION

Elisa Belloni (Università degli Studi di Perugia)*; Marco Casini (University of
Siena); Antonio Faba (Università degli Studi di Perugia); Antonino Laudani
(Università di Catania); Gabriele Maria Lozito (Università degli Studi di Firenze)**M2-TS4 133**

BIFACIAL PV-BASED GLAZED FAÇADE APPLIED TO AN OFFICE BUILDING: ANALYSIS OF ELECTRIC ENERGY BALANCE BY MEANS OF ARTIFICIAL INTELLIGENCE

Elisa Belloni (Università degli Studi di Perugia); Flavia Forconi (Università degli
Studi Roma Tre); Gabriele Maria Lozito (Università degli Studi di Firenze); Luigi
Martirano (University of Rome); Martina Palermo (Università degli Studi Roma
Tre)***M2-TS4 170**

APPLICATION OF DEEP LEARNING ALGORITHMS FOR BIPV POWER FORECASTING IN ITALY

Rafiq Asghar (Roma Tre University)*; Francesco Riganti Fulginei (Rome Tre
University); Michele Quercio (Roma Tre University); Muhammad Ahmad
(University of Exeter); Mohammad Abusara (University of Exeter)**M2-TS4 232**

A MODULAR ELECTROTHERMAL PHOTOVOLTAIC ARRAY MODEL FOR BIPV APPLICATIONS

Orlando Gonzales (University of Colorado Denver); Miguel Angel Huerta Quian
(Universidad Técnica Federico Santa María); Elisa Belloni (Università degli Studi
di Perugia)*; Alejandro Angulo (Universidad Técnica Federico Santa María);
Fernando Mancilla-David (University of Colorado Denver)

E E E I C M M X X I V

TUESDAY MORNING SESSION

M2-TS5

H 9:00 > 11:00

Aula 15**SS - PNRR PE2 SPOKE 8
FINAL USE OPTIMIZATION, SUSTAINABILITY
& RESILIENCE IN ENERGY SUPPLY CHAIN:
A RIGHT TRACK FOR A GREENER FUTURE - 1**

Session Chairs

Giuditta Pisano University of Cagliari**Luigi Calcara** Sapienza University of Rome**M2-TS5 153****LIFE CYCLE ASSESSMENT IMPACT INDICATORS
FOR SIMULATION-BASED OPTIMIZATION OF BUILDINGS**

Laura CIRRINCIONE (Università di Palermo)*; Sonia Longo (Università di Palermo); Francesco Montana (University of Palermo); Giorgia Peri (Università di Palermo - DEIM); Eleonora Riva Sanseverino (University of Palermo); Gianluca Scaccianoce (University of Palermo)

M2-TS5 206**RENEWABLE ENERGY COMMUNITY PLANNING COMBINING
MULTI-OBJECTIVE OPTIMIZATION AND UNCERTAINTY ASSESSMENT**

Maria Luisa Di Silvestre (University of Palermo); Fabio Massaro (University of Palermo); Francesco Montana (University of Palermo)*; Eleonora Riva Sanseverino (University of Palermo); Salvatore Ruffino (University of Palermo); Giuseppe Sciumè (Università di Palermo)

M2-TS5 223**NET ZERO EMISSIONS AND POSITIVE ENERGY DISTRICTS:
A POTENTIAL SOLUTION TO ACHIEVE THE EUROPEAN CLIMATE TARGETS**

Jacopo Famiglietti (Politecnico di Milano)*; Giorgio Villa (Politecnico di Milano); Michela Romagnosi (Politecnico di Milano); Alice Dénarié (Politecnico di Milano); Rossano Scoccia (Politecnico di Milano); Mario Motta (Politecnico di Milano)

M2-TS5 253**CLEAN LIFT: A CASE STUDY FROM INDUSTRIAL TO CIVIL APPLICATION**

Francesco Romano (Politecnico di Milano - Dipartimento di Energia)*; Federico Pedranzini (Politecnico di Milano); Mario Motta (Politecnico di Milano)

M2-TS5 274**REAL-TIME CONTROL OF RENEWABLE COMMUNITY
ENERGY RESOURCES INCLUDING DEMAND RESPONSE PROVIDERS**

Fabio Mottola (University of Naples Federico II); Daniela Proto (University of Naples Federico II)*

M2-TS5 295**ASSESSING DISTRIBUTION NETWORK RESILIENCE INDEX
WITH IMPACT CHAINS**

Giuditta Pisano (University of Cagliari)*; Adriano Casu (University of Cagliari); Fabrizio Pilo (University of Cagliari)

M2-TS5 344**EMERGING MODELS ENABLING RENEWABLE
ENERGY COMMUNITIES IN ITALY**

Salvatore Ruggiero (School of Engineering Science, Department of Social Sciences LUT University); Simone Franzò (please add your institution)*; Davide Chiaroni (Politecnico di Milano)

M2-TS5 353**QUALIFICATION OF MV CABLE JOINTS:
PARTIAL DISCHARGES INNOVATIVE TESTS**

Massimo Pompili (Sapienza University of Rome)*; Luigi Calcara (Sapienza University of Rome)



E E R I C M M X X I V

TUESDAY NOON SESSION

N2-TS1

H 11:30 > 13:30

Sala del Chiostro**POWER SYSTEMS
AND SMART GRIDS - 2**

Session Chair

Arturo Bretas

Sandia National Laboratories

N2-TS1 25**COORDINATED OPERATION
OF MULTI-ENERGY MICROGRIDS BASED ON FUZZY-LOGIC CONTROL**

Pablo Horrillo-Quintero (University of Cadiz)*; Pablo García-Triviño (University of Cadiz); EHSAN HOSSEINI (Cadiz University); Carlos Andrés García-Vázquez (University of Cadiz); Higinio Sánchez-Sainz (University of Cadiz); Luis M. Fernández-Ramírez (University of Cadiz)

N2-TS1 76**ECONOMIC AND TECHNICAL DESIGN CONSIDERATIONS
FOR A COMMERCIAL SCALE MICROGRID**

Ryan R Thompson (Sunbird)*; Bernard Bekker (Stellenbosch University)

N2-TS1 88**DISTRIBUTED CONTROL FOR A MICROGRID CLUSTER:
IMPLEMENTATION AND EXPERIMENTAL VALIDATION**

David Carrasco-González (University of Cadiz)*; Raúl Sarrias-Mena (University of Cadiz); Pablo Horrillo-Quintero (University of Cadiz); EHSAN HOSSEINI (Cadiz University); Francisco Llorens-Iborra (University of Cadiz); Luis M. Fernández-Ramírez (University of Cadiz)

N2-TS1 169**A PLANNING FRAMEWORK FOR ON-GRID MICROGRIDS
INCORPORATING GREEN HYDROGEN AND RENEWABLES**

Abbas Tabandeh (University of Technology Sydney)*; Dr. Jahangir Hossain (University of Technology Sydney); kaveh khalilpour (University of Technology Sydney)

N2-TS1 205**OPTIMAL OPERATION OF PV-INTEGRATED RECONFIGURABLE
MICROGRIDS AND COMPUTATIONAL BURDEN**

Seyed Farhad S.F. Zandrazavi (University of Vaasa)*; Miadreza Shafie-khah (University of Vaasa)

N2-TS1 210**A DATA-DRIVEN PROBABILISTIC POWER FLOW ANALYSIS
CONSIDERING VOLTAGE-DEPENDENT LOADS**

Seyed Farhad S.F. Zandrazavi (University of Vaasa)*; Miadreza Shafie-khah (University of Vaasa); Meysam Pashaei (University of Vaasa); Nataly Bañol Arias (University of Twente); Thiago Batista Soeiro (University of Twente)

N2-TS1 342**MICROFRONTEND APPLICATION
FOR MICROGRIDS MONITORING AND CONTROLLING**

Łukasz Jasiński (Wrocław University of Science and Technology); Jacek Rezmer (Wrocław University of Technology); Zbigniew Leonowicz (Wrocław University of Science and Technology); Luigi Martirano (University of Rome); Michał Jasiński (Wrocław University of Science and Technology)*



IEEE EMC SOCIETY

TUESDAY NOON SESSION

N2-TS2

H 11:30 > 13:30

Aula 1**ENERGY EFFICIENT SYSTEMS - 1**

Session Chair

Francesco Grimaccia

Politecnico di Milano

N2-TS2 31**IMPROVEMENT OF BLDC MOTOR EFFICIENCY AT LOW SPEED OPERATION THROUGH INTERNAL WIRING CONFIGURATION SWITCHING**

Carlos A. Platero (Universidad Politécnica de Madrid)*;
 Kumar Mahtani (Universidad Politécnica de Madrid);
 David Talavera (Universidad Politécnica de Madrid);
 Jose M. Guerrero (Universidad del País Vasco/Euskal Herriko Unibertsitatea);
 Maria D. López (Comunidad de Madrid);
 Rubén Pascual (Universidad Politécnica de Madrid)

N2-TS2 123**UNLOCKING DEMAND RESPONSE POTENTIALS BY ELECTRIC VEHICLE CHARGING STATIONS IN SMART GRIDS**

Mohammad Sadegh Javadi Estahbanati (INESC TEC)*;
 Mohammad Javadi (Prof. Mohammad Javadi)

N2-TS2 245**RELIABILITY OF STANDARD MODELS FOR OPERATIONAL AIR LEAKAGE ASSESSMENT IN HVAC AIR SYSTEMS**

Federico Pedranzini (Politecnico di Milano)*;
 Francesco Romano (Politecnico di Milano - Dipartimento di Energia)

N2-TS2 249**ENHANCING SHORT-TERM ENERGY FORECASTING IN DISTRIBUTED SYSTEMS THROUGH FEDERATED LEARNING**

Aleksandra Zlatkova (Faculty of Electrical Engineering and Information Technologies)*; Dimitar Taskovski (Faculty of electrical engineering and information technologies Ss Cyril and Meth)

N2-TS2 334**EFFECT OF D-STATCOMS OPTIMAL INSTALLMENT ON VOLTAGE STABILITY ENHANCEMENT AND TOTAL ENERGY SAVING COST CONSIDERING LOAD GROWTH FACTOR USING WHO**

Mirna Fouad Ali (mirnaafouad@gmail.com)*;
 Eman H Beshr (Aastmt);
 Almoataz Abdelaziz (Faculty of Engineering, Ain Shams University);
 Mohamed Ezzat (Ain Shams University)

N2-TS2 286**AGGREGATED ENERGY MANAGEMENT OF MULTIPLE FACTORIES THAT PURCHASED GREEN ENERGY COLLECTIVELY**

Leehter Yao (National Taipei U. of Tech.)*;
 Cheng-Yu Ku (National Taipei U. of Tech.);
 J. C. Teo (National Technology University Taipei)



IEEE EMC 2014

TUESDAY NOON SESSION

N2-TS3

H 11:30 > 13:30

Sala degli Affreschi**SS - DC GRIDS APPLICATIONS,
TECHNOLOGIES AND PROTECTION - 2**

Session Chairs

Francesca Pizzimenti, Riccardo Loggia

Sapienza University of Rome

N2-TS3 52**NON-LINEAR CONTROL
OF PEM ELECTROLYZERS IN DC MICROGRIDS**Eduardo R Vasquez Mayen (Universite catholique de Louvain (UCLouvain))*;
Guy Wanlongo Ndivvulu (Universite catholique de Louvain (UCLouvain));
Virginie Kluysskens (Universite catholique de Louvain (UCLouvain)); Emmanuel
De Jaeger (Universite catholique de Louvain (UCLouvain))**N2-TS3 62****UPDATES ABOUT THE HORIZON EUROPE NEWGEN RESEARCH PROJECT
FOR A NEW GENERATION OF HVDC INSULATION MATERIALS,
CABLES AND SYSTEMS**Giovanni Mazzanti (Dipartimento di Ingegneria dell'Energia Elettrica e
dell'Informazione "Guglielmo Marconi" - Alma Mater Studiorum Università di
Bologna)*; Mika Paajanen (MTT Technical Research Centre); Ilkka Rytoluoto (MTT
Technical Research Centre); Janne Harjuhahto (Maillefer Extrusion Oy); Andrea
Caprara (Techimp – Doble Engineering); Frederik Wurm (University of Twente);
Kari Lahti (Tampere University); Andreas Citroth (GreenDelta); Maya Mourad
(SuperGrid Institute); Merie Kannampuzha (CLIC Innovation Oy); Chiara
Vergine (Terna Rete Italia S.p.A.); Minna Niittymäki (Tampere University); Bassel
Diban (University of Bologna); Paolo Pieroni (Techimp – Doble Engineering)**N2-TS3 97****STABILITY ENHANCEMENT OF HYBRID AC/DC MICROGRID-BASED
BATTERY/ULTRACAPACITOR ENERGY STORAGE SYSTEMS**Hossam M Hussein (Florida International University)*; Mahmoud Abdelrahman
(FLORIDA INTERNATIONAL UNIVERSITY); S M Sajjad Hossain Rafin (Florida
International University); Ibtissam Kharchouf (Florida International University);
Osama Mohammed (Florida International University)**N2-TS3 155****IMPACT OF HVDC TECHNOLOGY
ON THE PROBABILISTIC POWER FLOW OF THE ITALIAN POWER SYSTEM**Giovanni Gardan (Department of Industrial Engineering - University of
Padova)*; Roberto Benato (University of Padova);
Luca Rusalen (University of Padova)**N2-TS3 199****ATTENUATION OF TRAVELING WAVES IN HVDC CABLE LINES**

Luigi Colla (Prysmian)*; Davide Castelli (Prysmian)

N2-TS3 229**OPTIMIZING POWER INTEGRATION:
INTERLEAVED DC-DC CONVERTERS
IN A FUEL CELL-BATTERY-SUPERCAPACITOR HYBRID SYSTEM**Syeda Shafia Zehra (Politecnico di Milano)*; Alberto Dolara (Politecnico di
Milano); Francesco Grimalaccia (Politecnico di Milano);
Marco Mussetta (Politecnico di Milano)

E E E I C M M X X I V

TUESDAY NOON SESSION

N2-TS4

H 11:30 > 13:30

Aula 17**SS - PNRR MOST SPOKE 7 – CONNECTED NETWORKS AND SMART INFRASTRUCTURE. ZERO-CARBON REFUELLING/RECHARGING INFRASTRUCTURES AND GRIDS**

Session Chairs

Maria Giovanna Minutillo University of Salerno**Pierluigi Caramia** University of Napoli Parthenope**N2-TS4 266****CONNECTING THE MOBILITY AND THE REFUELLING/RECHARGING INFRASTRUCTURES: THE ROLE OF DATA SPACES**

Luigi Coppolino (University of Naples "Parthenope"); Roberto Nardone (University of Naples "Parthenope"); Alfredo Petruolo (University of Naples Parthenope); Luigi Romano (University of Naples "Parthenope")

N2-TS4 292**BATTERY-LESS MICROWAVE WIRELESS SENSORS FOR AUTOMOTIVE APPLICATIONS**

Giacomo Paolini (University of Bologna)*; Elisa Augello (University of Bologna); Francesca Benassi (University of Bologna); Diego Masotti (University of Bologna); Alessandra Costanzo (University of Bologna)

N2-TS4 294**INNOVATIVE STRATEGIES FOR RAILWAY ELECTRIFICATION**

Roberto Consalvi (Italferr)*

N2-TS4 299**ANALYSIS OF HYDROGEN DEMAND AND REFUELING INFRASTRUCTURE IN THE ROAD TRANSPORTATION SECTOR IN EUROPE**

Mariagiovanna Minutillo (University of Salerno); Aniello Capiello (University of Salerno)*; Fabiana Romano (University of Naples - Parthenope); Simona Di Micco (University of Naples - Parthenope); Giovanni Di Ilio (University of Naples - Parthenope)

N2-TS4 309**TECHNO-ECONOMIC ASSESSMENT OF ELECTROLYTIC HYDROGEN PRODUCTION FOR REFUELLING STATIONS: CASE STUDIES IN ITALY**

Davide Lanni (Department of Civil and Mechanical Engineering, University of Cassino and Southern Lazio)*; Gabriella Di Cicco (Department of Civil and Mechanical Engineering, University of Cassino and Southern Lazio); Viviana Cigolotti (ENEA Portici, TERIN-PSU-ABI); Massimiliano Della Pietra (ENEA R. C. Casaccia, DTE-PCU-SPCT); Alessandra Perna (Department of Civil and Mechanical Engineering, University of Cassino and Southern Lazio)

N2-TS4 3T1**OPTIMAL DESIGN OF H2 REFUELING STATION WITH ON-SITE HYDROGEN PRODUCTION AND PHOTOVOLTAIC GENERATION**

Pierluigi Caramia (University of Naples Parthenope)*; Antonio Bracale (University of Naples Parthenope); Pasquale De Falco (University of Napoli Parthenope); Simona Di Micco (University of Napoli Parthenope); Mariagiovanna Minutillo (University of Salerno)



E E E I C M M X X I V

TUESDAY NOON SESSION

N2-TS5

H 11:30 > 13:30

Aula 15

SS - PNRR PE2 SPOKE 8 FINAL USE OPTIMIZATION, SUSTAINABILITY & RESILIENCE IN ENERGY SUPPLY CHAIN: A RIGHT TRACK FOR A GREENER FUTURE - 2

Session Chairs

Giuditta Pisano University of Cagliari**Luigi Calcara** Sapienza University of Rome

- N2-TS5 193** **A KNOWLEDGE GRAPH FOR GIS-BASED OPERATIONAL RESILIENCE ASSESSMENT OF ELECTRICITY NETWORKS AGAINST CLIMATE SCENARIOS**
Maria Luisa Villani (ENEA)*; Sonia Giovinnazzi (ENEA); Maurizio Pollino (ENEA)
- N2-TS5 196** **DEVELOPING A DECISION SUPPORT SYSTEM FOR FLEXIBILITY MANAGEMENT IN THE DISTRIBUTION NETWORKS**
Tommaso Bragatto ("Sapienza" University of Rome)*; Parastou Poursoltan (Sapienza); Marco Maccioni (Sapienza University of Rome); Alberto Geri (Sapienza University of Rome); Marco Laracca (Sapienza); Federico Carere (Sapienza University of Rome)
- N2-TS5 212** **DEVELOPMENT OF A METHODOLOGY FOR ASSESSING INDOOR PUNCTUAL THERMAL COMFORT CONDITIONS**
Marina Bonomolo (University of Palermo)*; Laura Cirrincione (Università di Palermo); Tancredi Testasecca (University of Palermo); Gianluca Scaccianoce (University of Palermo); Marco Beccali (Università di Palermo - Dipartimento di Ingegneria)
- N2-TS5 227** **NEST TASK 8.5.2: FRAMEWORK OF THE LCA MODEL OF AN URBAN ENERGY SYSTEM**
Saverio De Franceschi (Università degli Studi di Padova)*; Alessandro Manzardo (Università degli Studi di Padova); Marco Jabara (Università degli Studi di Padova); Junzhang Wu (Università degli Studi di Padova)
- N2-TS5 278** **ENERGY COMMUNITIES DEVELOPMENT: A REVIEW OF CHALLENGES AND OPPORTUNITIES**
SAEED KHORRAMI (Sapienza University of Rome)*; Maria Carmen Falvo (Sapienza University of Rome); Massimo Pompili (Sapienza University of Rome)
- N2-TS5 288** **ENERGY COMMUNITIES AS ENABLERS OF LOCAL TOKEN ECONOMIES: AN EXPLORATORY ANALYSIS IN ITALY**
Samuele Ferrari (Politecnico di Milano); Francesco Dalpasso (Politecnico di Milano); Davide Chiaroni (Politecnico di Milano)*; Gilda Massa (ENEA); Claudia Meloni (ENEA); Cristina Naccarato (ENEA)
- N2-TS5 296** **HOW UNCERTAINTY AFFECTS THE OPTIMAL DESIGN AND OPERATION OF RENEWABLE ENERGY COMMUNITIES: AN ITALIAN CASE STUDY**
Gabriele Volpato (Università degli Studi di Padova)*; Sergio Rech (Università degli Studi di Padova); Andrea Lazzaretto (Università degli Studi di Padova)
- N2-TS5 351** **DESIGN OF COMPOSITES AND BLENDS BASED ON GEOPOLYMERS FOR HEAT STORAGE: TESTS ON MATERIALS FOR THERMAL RESPONSES**
Marco Beccali (Università di Palermo - Dipartimento di Ingegneria)*; Alessandro Biondi (University of Palermo); Fabio Cardona (University of Palermo - Department of Engineering); Manuela Ceraulo (University of Palermo); Massimiliano Di Liberto (University of Palermo); Maria La Gennusa (Università degli Studi di Palermo-DEIM); Bartolomeo Megna (University of Palermo)



E E E I C M M X X I V

TUESDAY NOON SESSION**N2-PS**

H 11:30 > 13:30

Cloister**PHD STUDENTS
POSTER SESSION**

Session Chairs

ABB delegation**N2-PS 56****IS SELLING THE OXYGEN PRODUCED
DURING ELECTROLYSIS REALLY A SOLUTION
TO MAKE GREEN HYDROGEN CHEAPER?**

Marco Ferraro (CNR-ITAE);
 Fabio Massaro (University of Palermo);
 Eleonora Riva Sanseverino (University of Palermo);
 Salvatore Ruffino (University of Palermo)*

N2-PS 144**MULTI-OBJECTIVE PROCEDURE
FOR OPTIMAL INTEGRATION OF DC MICROGRIDS
IN THE DISTRIBUTION NETWORK**

Francesca Marasciuolo (Politecnico di Bari)*;
 Maria Dicorato (Politecnico di Bari);
 Gioacchino Tricarico (Politecnico di Bari);
 Giuseppe Forte (Politecnico di Bari);
 Roberto Sbrizzai (Politecnico di Bari)

N2-PS 173**SECURING AGC SYSTEMS AGAINST FALSE DATA INJECTION ATTACKS
USING FEDERATED LEARNING AND MODEL PREDICTIVE CONTROL**

Masoud Babaei Vaydareh (Concordia University);
 Mohammad Mahdi Soleymani (Concordia University);
 Mohsen Ghafouri (Concordia University)*;
 Chadi Assi (Concordia University)

N2-PS 181**LITHIUM BATTERY STORAGE DEGRADATION ANALYSIS
IN LVAC MICROGRID**

Riccardo Loggia (Sapienza, University of Rome)*;
 Alessandro Flamini (Sapienza University of Rome);
 Alessandro Galasso (Sapienza University of Rome);
 Andrea Massaccesi (Sapienza, University of Rome);
 Roberto Menichelli (Sapienza, University of Rome);
 Luigi Martirano (University of Rome)

N2-PS 183**HVAC SUBMARINE CABLES OPTIMIZATION TRANSMISSION STRATEGIES**

Riccardo Loggia (Sapienza, University of Rome)*;
 Vincenzo Ciniello (Sapienza, University of Rome);
 Stefano Lauria (Sapienza University of Rome)

N2-PS 213**PRELIMINARY RESULTS ON THE IMPULSE BREAKDOWN
CHARACTERISTICS OF NATURAL ESTER OIL
AND OIL-BASED NANOFUID WITH FE₂O₃ NANOPARTICLES**

Alexandros Hadjicostas (Aristotle University of Thessaloniki)*;
 Evangelos T Staikos (Aristotle University of Thessaloniki); George Peppas
 (Technical University of Crete); Zacharias G Datsios (High Voltage Laboratory,
 Aristotle University of Thessaloniki); George Litsardakis (Aristotle University of
 Thessaloniki); Eleftheria Pyrgioti (University of Patras); Ioannis Gonos (National
 Technical University of Athens); Thomas Tsovilis (High Voltage Laboratory,
 Aristotle University of Thessaloniki)



IEEE CMCXXIV

TUESDAY NOON SESSION

N2-PS

H 11:30 > 13:30

Cloister

**PHD STUDENTS
POSTER SESSION**

Session Chairs

ABB delegation

N2-PS 262

AI-DRIVEN FUTURE OF RENEWABLE ENERGY

Tina Ziarati (Sapienza University of Rome)*;
Sattar Hedayat (Sapienza University of Rome);
Matteo Manganelli (Sapienza University of Rome);
Giuseppe Sappa (Sapienza University of Rome)

N2-PS 284

**A PROFIT OPTIMIZATION MODEL
FOR RENEWABLE ENERGY COMMUNITIES
BASED ON THE DISTRIBUTION OF PARTICIPANTS**

Antonio Sassone (Scuola Di Ingegneria, Universita' Della Basilicata);
Shoaib Ahmed (Scuola Di Ingegneria, Universita' Della Basilicata);
Antonio D'Angola (Scuola Di Ingegneria, Universita' Della Basilicata)*

N2-PS 310

**STATE OF ART ON LARGE-SCALE STORAGE SYSTEMS POLICIES
IN EUROPEAN COUNTRIES**

Andrea Paolacci (Sapienza)*;
Maria Carmen Falvo (Sapienza - Università di Roma);
Flavio Andreoli (Epico)

N2-PS 313

**ATENEA4SME: A TOOL FOR SELF-EVALUATION
OF ENERGY EFFICIENCY AND AUDIT SUPPORT IN INDUSTRIAL SMES**

Giacomo Bruni (Dipartimento Unità Efficienza Energetica ENEA, Roma);
Antonio D'Angola (Scuola Di Ingegneria, Universita' Della Basilicata)*;
Antonio Ferraro (University Of Basilicata); Milena Marroccoli (Scuola Di
Ingegneria, Universita' Della Basilicata); Chiara Martini (Dipartimento Unità
Efficienza Energetica ENEA, Roma); Marcello Salvio (Dipartimento Unità
Efficienza Energetica ENEA, Roma); Antonio Telesca (Scuola Di Ingegneria,
Universita' Della Basilicata); Federico Alberto Tocchetti (Dipartimento Unità
Efficienza Energetica ENEA, Roma)

N2-PS 354

**INFLUENCE OF THE EXPERIMENTAL SETUP
ON THE SHIELDING PERFORMANCE OF PERFORATED GRIDS
AGAINST AN INDIRECT ELECTROSTATIC DISCHARGE**

Giuseppe Attolini (Univ. of Rome "La Sapienza");
Salvatore Celozzi (Univ. of Rome "La Sapienza");
Erika Stracqualursi (University of Rome "La Sapienza")*



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WELCOME COCKTAIL

June 18th 2024

START 07.30 PM

@ Hotel Building

Via Montebello, 126 | Rome

WEDNESDAY MORNING SESSION

M3-TSI

H 9:00 > 11:00

Sala del Chiostro

**POWER SYSTEMS
AND SMART GRIDS - 3**

Session Chair

Kenji Tanaka

The University of Tokyo

M3-TSI 45**HOW 6G AND AI CAN RESHAPE
THE FUTURE OF ELECTRIC SYSTEMS**

Aleksandr Zavodovski (University of Oulu)*; Farid Hamzehaghdam (University of Oulu); Antonio Calo (University of Oulu); Rashid Dehkordi (University of Oulu); Petr Stepanek (University of Oulu); Mehdi Rasti (University of Oulu); Eva Pongracz (University of Oulu); Petri Ahokangas (University of Oulu)

M3-TSI 70**EFFICIENT CONGESTION MANAGEMENT:
OPTIMIZING NON-FIRM CAPACITIES FOR MAXIMIZED GRID UTILIZATION**

"Khawaja Khalid Mehmood (Eindhoven University of Technology)*; Ranier Alexander Arruda Moura (Eindhoven University of Technology); Anne van der Molen (Eindhoven University of Technology); Reinaldo Tonkoski (Technical University of Munich); Peter van der Wielen (Eindhoven University of Technology); P.H. Nguyen (Eindhoven University of Technology)"

M3-TSI 87**DEVELOPING MULTI-AGENT WIDE AREA DAMPING CONTROLLER
TO MITIGATE FALSE DATA INJECTION ATTACKS**

Masoud Babaei Vavdareh (Concordia University); Mohsen Ghafouri (Concordia University)*; Amir Ameli (Lakehead University)

M3-TSI 95**SOUTHWEST ALGERIA'S POWER SYSTEM
FLEXIBILITY ENHANCEMENT CONSIDERING
A HIGH SHARE OF VARIABLE RENEWABLE ENERGY**

Saïda Makhloûfi (Centre de Développement des Energies Renouvelables)*; Mohammed Debbache (Centre de Développement des Energies Renouvelables); Amar HADJ ARAB (CDER)

M3-TSI 98**A DYNAMIC STATE ESTIMATION APPLICATION
FOR STABILITY AND UNCERTAINTY MITIGATION IN SMART GRIDS**

Giancarlo Paramo (University of Florida)*; Arturo Bretas (Pacific Northwest National Laboratory)

M3-TSI 116**ADAPTIVE SCHEME FOR STABILITY MARGIN ESTIMATION
OF GRID-CONNECTED DFIG BASED WIND TURBINES**

Mohammad Rajabi Nasab (DEI - Polytechnic of Bari)*; Roberto Cometa (DEI - Politecnico di Bari); Sergio Bruno (DEI - Politecnico di Bari); Massimo La Scala (DEI - Politecnico di Bari)

M3-TSI 269**ASSESSING THE VULNERABILITY
OF POWER SYSTEMS TO FALSE DATA INJECTION ATTACKS:
A BAYESIAN ATTACK GRAPH-BASED APPROACH**

Mohammadmahdi Asghari (Lakehead University)*; Amir Ameli (Lakehead University); Mohsen Ghafouri (Concordia University); Mohammad N Uddin (Lakehead University)



IEEEICSMXXIV

WEDNESDAY MORNING SESSION

M3-TS2

H 9:00 > 11:00

Aula 1**SS - INNOVATIVE
AND SUSTAINABLE TECHNOLOGIES
FOR RAILWAY MOBILITY**

Session Chairs

Luca Pugi University of Florence**Morris Brenna** Politecnico di Milano**M3-TS2 40****SIMULATION AND OPTIMIZATION
OF REVERSIBLE POWER STATIONS FOR RAILWAY APPLICATIONS**

Luca Pugi (University of Florence)*; Luca Di Carlo (University of Florence); Aljon Kociu (University of Florence); Massimo Delogu (Dep. of Industrial Engineering); Hamed Jafari Kaleybar (Politecnico di Milano); Morris Brenna (Politecnico di Milano)

M3-TS2 44**ENERGY HARVESTING
FOR FREIGHT TRAIN MONITORING SYSTEM**

Alessandro Galimberti (Politecnico Di Milano)*; Federico Zanelli (Politecnico Di Milano); Gisella Tomasini (Politecnico Di Milano)

M3-TS2 63**BOTTOM-UP STOCHASTIC MODEL
TO ASSES ENERGY CONSUMPTION
OF TYPICAL RAILWAY ROUTES IN ITALY**

Francesco Tonini (Politecnico di Milano)*; Giuliano Agati (Sapienza Università di Roma); Khaled Gad (Politecnico di Milano); Domenico Borello (University La Sapienza); Emanuela Colombo (Politecnico di Milano)

M3-TS2 180**DIGITAL TWIN BASED IMPLEMENTATION
OF ACTIVE TRACTION SUBSTATION IN DC RAILWAY SYSTEMS**

Hamed Jafari Kaleybar (Politecnico di Milano)*; Morris Brenna (Politecnico di Milano); Luca Pugi (University of Florence); Luca di Carlo (University of Florence); Aljon Kociu (University of Florence); Massimo Delogu (Dep. of Industrial Engineering)

M3-TS2 211**METHODOLOGY FOR ANALYZING STANDALONE
HYBRID RAILWAY PROPULSION SYSTEMS:
A MODEL BASED SYSTEM ENGINEERING APPROACH**

Adriano Pozzessere (University of Rome "La Sapienza")*; Alessandro Ruvio (Sapienza University of Rome); Luca Di Carlo (University of Florence); Luca Pugi (University of Florence); Domenico Borello (University La Sapienza)

M3-TS2 215**DESIGN AND TESTING OF A TEST BENCH
FOR HYBRID TRAIN POWERED
BY HYDROGEN FUEL CELLS AND BATTERIES**

Carmine Cava (Sapienza University of Rome)*; Livio D'Alvia (Sapienza University Dept. of Mechanical and Aerospace Engineering); Renato Ugento (Sapienza University of Rome); Gabriele G. Gagliardi (University La Sapienza); Carlotta Cosentini (Sapienza University of Rome); Ludovica Apa (Sapienza University of Rome); Emanuele Rizzuto (Sapienza University of Rome); Alessandro Ruvio (Sapienza University of Rome); Zaccaria Del Prete (Sapienza University Department of Mechanical and Aerospace Engineering); Domenico Borello (University La Sapienza)



EFRECMXXIV

WEDNESDAY MORNING SESSION

M3-TS3

H 9:00 > 11:00

Sala degli Affreschi

SS - STRATEGIC PLANNING AND MANAGEMENT FOR FUTURE TRANSMISSION AND DISTRIBUTION NETWORKS: A RENEWED VISION

Session Chair

Manuela Minetti

University of Genoa

M3-TS3 165

THE POTENTIAL OF THE 36 KV VOLTAGE LEVEL FOR DISTRIBUTION NETWORKS

Elena Benedetti (Terna SpA)*; Gaia Leone (Terna);
Francesco Palone (TERNA); Roberto Spezie (Terna)

M3-TS3 231

THE ENERGY TRANSITION IMPACT ON THE ITALIAN JOB MARKET

Luigi Reatti (Abcare Energy srl);
Alberto Reatti (University of Florence)*; Flavio Russo (Enel SpA)

M3-TS3 235

OPTIMIZATION-BASED RESTORATION STRATEGY IN A SELF-HEALING DISTRIBUTION NETWORK

Quoc Tuan TRAN (CEA-INES)*; Thien Phong Tran (French Alternative Energies and Atomic Energy Commission (CEA)); PHAM Minh Cong (French Alternative Energies and Atomic Energy Commission)

M3-TS3 277

TECHNO-ECONOMIC STRATEGIES TO DEFINE INERTIA NEEDS IN FUTURE TRANSMISSION NETWORKS

Matteo Fresia (University of Genoa)*; Andrea Bonfiglio (University of Genoa);
Renato Procopio (University of Genoa); Giuseppe Lisciandrello (Terna S.p.A.);
Luca Orru (Terna S.p.A.)

M3-TS3 307

ASSESSMENT OF ROCOF FILTERING IN VIRTUAL INERTIA SERVICE PROVIDED BY LARGE-SCALE BATTERY ENERGY STORAGE SYSTEMS

Antonio Bracale (University of Naples Parthenope)*;
Pierluigi Caramia (University of Naples Parthenope);
Pasquale De Falco (University of Napoli Parthenope);
Laurent Gagneur (Nidec ASI S.A.S); Andrea Verdicchio (Nidec ASI S.A.S)



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WEDNESDAY MORNING SESSION**M3-TS4**

H 9:00 > 11:00

Aula 17**MAINTENANCE, OPERATION,
AND SAFETY**

Session Chair

Pietro Colella

Politecnico di Torino

M3-TS4 38**TEMPERATURE INFLUENCE IN FREQUENCY RESPONSE ANALYSIS
FOR TRANSFORMER OIL CONDITION MONITORING**

Abel Dominguez (Universidad Politécnica Madrid); Carlos A. Platero (Universidad Politécnica de Madrid); Kumar Mahtani (Universidad Politécnica de Madrid); Jose M. Guerrero (Universidad del País Vasco/Euskal Herriko Unibertsitatea)*

M3-TS4 69**VERIFICATION OF THE ABSENCE OF VOLTAGE**

Sergio Panetta (I-Gard Corp)*

M3-TS4 94**COPPER CONDUCTOR THEFTS OF EARTHING SYSTEMS
OF HIGH VOLTAGE TRANSMISSION LINES:
A CASE STUDY IN HALFAYA OIL FIELD**

Sherif M. Ismael (Facilities and Construction Department PetroChina International FZE Iraq Missan, Iraq); Zheng Ghang (Facilities and Construction Department PetroChina International FZE Iraq Missan, Iraq); Shady H. E. Abdel Aleem (Department of Electrical Engineering Institute of Aviation Engineering and Technology Giza, Egypt); Ziad M. Ali (College of Engineering at Wadi Addawaser, Prince Sattam bin Abdulaziz University)*

M3-TS4 162**THE IMPACT OF CLIMATE CHANGE ON GROUND CLEARANCE
AND HIGH VOLTAGE OVERHEAD LINES DISCHARGE RISK**

Francesco Palone (Terna)*; Gaia Leone (Terna); Piero Berardi (Terna); Giovanni Pirovano (RSE); Alberto Piccinin (Terna); Roberto Spezie (terna); Lorenzo Papi (Terna)

M3-TS4 168**APPLICATION OF NON-GAPPED LINE ARRESTERS
TO 150 KV AND 400 KV OVERHEAD LINES: EFFECTS
OF AC VOLTAGE AT THE INSTANT OF DIRECT LIGHTNING STRIKE**

Zacharias G Datsios (High Voltage Laboratory, Aristotle University of Thessaloniki)*; Diamantis G. Patsalis (High Voltage Laboratory, Aristotle University of Thessaloniki); Pantelis Mikropoulos (Aristotle University of Thessaloniki); Thomas Tsovilis (High Voltage Laboratory, Aristotle University of Thessaloniki)

M3-TS4 264**SMART TESTS FOR MEDIUM VOLTAGE CABLES
IN RENEWABLE ENERGY PLANTS**

Gianfranco Di Lorenzo (Sapienza University of Rome); Erika Stracqualursi (Sapienza University of Rome); Rodolfo Araneo (Sapienza University of Rome)*; Riccardo Cecere (Enel Green Power and Thermal Generation)

M3-TS4 308**PARALLEL CONNECTION OF DIFFERENT UPS UNITS
FOR OPERATION, MAINTENANCE AND RELIABILITY IMPROVEMENT**

Leonardo Baleani (Dept. of Astronautics, Electrical & Energetic Engn); Stefano Elia (Dept. of Astronautics, Electrical & Energetic Engn); Chiara Boccaletti (Dept. of Astronautics, Electrical & Energetic Engn)*



IEEE EMC SOCIETY

WEDNESDAY MORNING SESSION

M3-TS5

H 9:00 > 11:00

Aula 15**SS - INNOVATIVE ELECTRICAL APPLICATIONS FOR ENERGY EFFICIENCY IN BUILDINGS AND INDUSTRIAL PROCESSES - 1**

Session Chair

Alessandro Lorenzo Palma

ENEA

M3-TS5 273**EVALUATING THE ENERGY AND ECONOMIC IMPACTS OF A GEOTHERMAL HEAT PUMP INSTALLATION IN ITALY**

Leonardo Leoni (University of Florence)*; Saverio Ferraro (University of Florence); Fabrizio Martini (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)); Christian Ferrante (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)); Marcello Salvio (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)); Alessandra Cantini (University of Florence); Filippo De Carlo (University of Florence)

M3-TS5 280**COST, ENERGY EFFICIENCY, AND ENVIRONMENTAL IMPACT ANALYSIS OF ORANGE JUICE PASTEURIZATION: COMPARING PULSED ELECTRIC FIELDS WITH TRADITIONAL THERMAL TREATMENT**

Giovanni Landi (Enea)*; Miriam Benedetti (ENEA); Elham Eslami (Salerno University); Giovanna Ferrari (Salerno University); Gianpiero Pataro (Department of Industrial Engineering, University of Salerno)

M3-TS5 283**A FRAMEWORK FOR A PARTICIPATIVE WEB BASED TOOL TO DEFINE ENERGY RETROFIT POTENTIAL AND LOCAL END USE PROFILES IN ORDER TO FACE ENERGY POVERTY PHENOMENA**

Eusebio Antonio Loria (Sotacarbo)*; Stefano Pili (Nordai); Francesca Poggi (Sotacarbo)

M3-TS5 293**ECONOMIC AND ENVIRONMENTAL IMPACT ANALYSIS OF INNOVATIVE ELECTRICAL PEELING METHODS IN THE TOMATO PROCESSING INDUSTRY**

Giovanni Landi (Enea); Miriam Benedetti (Energy Efficiency Unit Department ENEA); Elhami Eslami (Department of Industrial Engineering, University of Salerno); Giovanna Ferrari (Department of Industrial Engineering, University of Salerno); Gianpiero Pataro (Department of Industrial Engineering, University of Salerno)*

M3-TS5 297**GRAPHENE-BASED ORGANIC POLYMER COMPOSITES FOR IMPROVED THERMOELECTRIC PROPERTIES NEAR ROOM TEMPERATURE**

Andrea Reale (Electronic Eng. Dept. - University of Rome Tor Vergata)*

M3-TS5 305**LOW TEMPERATURE CARBON ELECTRODES FOR LOW LIGHT PERFORMING PEROVSKITE SOLAR CELLS**

Luigi Vesce (University of Rome "Tor Vergata")*; Zohair Abbas (University of Rome Tor Vergata); Maurizio Stefanelli (University of Rome "Tor Vergata"); Suresh Podapangi (University of Rome "Tor Vergata"); Hafez Nikbakht (University of Rome "Tor Vergata"); Aldo Di Carlo (CHOSE - Dept. Electr. Eng. University of Rome Tor Vergata)



EEFCE M M X X I V

WEDNESDAY NOON SESSION

N3-TS1

H 11:30 > 13:30

Sala del Chiostro**SS - ELECTROLYTE & ELECTRODE MEMBRANES FOR ELECTROCHEMICAL ENERGY STORAGE DEVICES**

Session Chairs

Giovanni Battista Appetecchi, Antonio Rinaldi

ENEA

N3-TS1 57**DYNAMIC RESPONSE ANALYSIS OF ALKALINE AND PEM ELECTROLYZERS IN LOW-INERTIA POWER SYSTEMS: A COMPARATIVE STUDY**Seyyed Mahyar Tofighi milani (Aalto university)*;
Sajjad Fattaheian-Dehkordi (Aalto university);
Matti Lehtonen (Aalto University Finland)**N3-TS1 268****PROMINENT PROGRESS IN POLYSULFONE-BASED ANION EXCHANGE MEMBRANE FABRICATION BY ELECTROSPINNING**

Somayyeh Rakhshani (Sapienza university of Rome)*

N3-TS1 320**A SMART LARGE-SCALE SYNTHESIS OF Na_{1.0}Li_{0.2}Ni_{0.25}Mn_{0.75}O₂ AS CATHODE FOR NA-ION BATTERIES**

Claudia Paoletti (ENEA)*; Livia Della Seta (ENEA); Pier Paolo Proisini (ENEA)

N3-TS1 346**EXPLORATIVE APPROACHES FOR SAFER, SCALABLE, LITHIUM BATTERY SOLID ELECTROLYTE TECHNOLOGIES**

Eleonora de Santis (ENEA (TERIN-DEC-ACEL)); Sara Bergamasco (Nanofaber srl); Antonio Rinaldi (ENEA (TERIN-DEC-ACEL)); Rodolfo Araneo (Sapienza University of Rome)*; Giovanni Appetecchi (ENEA (TERIN-DEC-ACEL))

N3-TS1 312**GRAVURE PRINTING FOR SODIUM-ION BATTERIES MANUFACTURING: A FIRST ATTEMPT OF PRINTED CATHODE**Maria Montanino (ENEA)*; Claudia Paoletti (ENEA);
Anna De Girolamo Del Mauro (ENEA); Giuliano Sico (ENEA)**N3-TS1 362****ASSESSMENT OF THE ELECTROSTATIC FIELD UNIFORMITY WITHIN AN ELECTROSPINNING DEVICE**Gianfranco Di Lorenzo (University of Rome)*;
Erika Stracqualursi (University of Rome "La Sapienza");
Rodolfo Araneo (University of Rome);
Alfonso Pozio (ENEA); Antonio Rinaldi (ENEA);
Luis Alexander Hein (Nanofaber S.r.l.)

E E S I C M M X X I V

WEDNESDAY NOON SESSION

N3-TS2

H 11:30 > 13:30

Aula 1**POWER ELECTRONICS
AND COMPONENTS - 1**

Session Chair

Salvatore Favuzza

University of Palermo

N3-TS2 27**GROUND FAULT LOCATION METHOD
FOR DC/DC CONVERTERS**

Aitor Blázquez-Campanon (Universidad del País Vasco/Euskal Herriko Unibertsitatea); Jesus Mauricio Pérez-García (Universidad del País Vasco/Euskal Herriko Unibertsitatea); Kumar Mahtani (Universidad Politécnica de Madrid); Pablo Eguia (Universidad del País Vasco/Euskal Herriko Unibertsitatea); Jose M. Guerrero (Universidad del País Vasco/Euskal Herriko Unibertsitatea)*

N3-TS2 55**A HIGH GAIN SINGLE-SWITCH DC-DC CONVERTER
BASED ON CASCADED BOOST**

Hossein Gholizadeh (Shahid Beheshti University); Niloufar DIZANGIAN (Université de Lorraine, CNRS, IJL, F-54000 Nancy, France); Philippe Poure (please add your institution)*; Slavisa Jovanovic (Nil)

N3-TS2 58**ON SMALL-SIGNAL MODELLING
OF ADVANCED PHASE-LOCKED LOOPS F
OR THREE-PHASE GRID-CONNECTED APPLICATIONS**

Saeed Golestan (Aalborg University)*; Ali Akhavan (Aalborg University); Juan C. Vasquez (Aalborg University)

N3-TS2 96**NON-INTRUSIVE MEASUREMENT OF TWO-PORT IMPEDANCE
PARAMETERS BY CLAMP-ON INDUCTIVE PROBES**

Simone Negri (Politecnico di Milano)*; Giordano Spadacini (Politecnico di Milano); Flavia Grassi (Politecnico di Milano); Sergio Pignari (Politecnico di Milano)

N3-TS2 105**CONTROL SYSTEM DESIGN
FOR GRID-FORMING INVERTERS IN GRIDS
WITH BACKGROUND HARMONIC VOLTAGES**

"Ali Akhavan (Aalborg University)*; Saeed Golestan (Aalborg University); Mohammad Reza Habibi (Aalborg University); Juan C. Vasquez (Aalborg University); Josep M. Guerrero (Aalborg University) "

N3-TS2 107**EFFECT OF TORQUE LOAD AND VOLTAGE DROP OBSERVERS
ON ROBUSTNESS IN FLATNESS-BASED CONTROL OF PMSM DRIVES**

Milad Akrami (University of Strasbourg)*; EHSAN JAMSHIDPOUR (Université de Lorraine); serge pierfederici (LEMETA); Vincent Frick (University of Strasbourg)

N3-TS2 154**EVALUATING VOLTAGE UNBALANCE IMPACT
ON GRID-FOLLOWING INVERTER HARMONIC EMISSIONS**

Gerald A Taylor (Auburn University)*; Mark Halpin (Auburn University)



IEEE EMC SOCIETY

WEDNESDAY NOON SESSION

N3-TS3

H 11:30 > 13:30

Sala degli Affreschi

INDUSTRY APPLICATIONS - 1

Session Chair

Osama Mohammed

Florida International University

N3-TS3 29

ANFIS ENERGY MANAGEMENT SYSTEM FOR FUEL CELL HYBRID DRONES

Mohammad N Alzyod (King Fahd University of Petroleum and Minerals)*; Ali T. Al-Awami (King Fahd University of Petroleum & Minerals)

N3-TS3 32

EXPERIMENTAL VALIDATION OF MULTICONDUCTOR CELL ANALYSIS BY OVERHEAD LINE FIELD MEASUREMENTS

Roberto Benato (University of Padova); Sebastian Dambone sessa (University of Padova); Giovanni Gardan (Department of Industrial Engineering - University of Padova); Luca Rusalen (Università di Padova)*; Francesco Sanniti (Unipd); Luciano Minto (Terna S.p.A.); Gilberto Ricci (Terna S.p.A.); Michele Schiavinato (Terna S.p.A.); Fabio Trombini (Terna S.p.A.)

N3-TS3 108

ON-FIELD APPLICATION OF A TRAVELLING WAVE BASED FAULT LOCATION METHOD FOR UNEARTHED OVERHEAD LINE NETWORKS

Roberto Benato (University of Padova); Sebastian Dambone sessa (University of Padova)*; Francesco Del Pizzo (Terna); Michele Poli (Terna); Francesco Sanniti (Unipd)

N3-TS3 117

OPTIMAL SIZING OF PREMAGNETIZATION TRANSFORMERS TO MITIGATE THE INRUSH CURRENT OF POWER TRANSFORMERS

Kumar Mahtani (Universidad Politécnica de Madrid); Ruben Pascual-Jimenez (Universidad Politécnica de Madrid); Jose M. Guerrero (Universidad del País Vasco/Euskal Herriko Unibertsitatea); Carlos A. Platero (Universidad Politécnica de Madrid)*; David Talavera (Universidad Politécnica de Madrid); Maria D Lopez (Comunidad de Madrid)

N3-TS3 142

SENSITIVITY OF THE MODEL OF INTERFERENCE PARAMETERS AT THE INPUT OF TRACK CIRCUIT RECEIVER TO THE VARIABILITY OF RAIL PARAMETERS

Volodymyr Havryliuk (Ukrainian State University of Science and Technologies)*

N3-TS3 214

PERFORMANCE BASED SIZING OF BATTERY ENERGY STORAGE SYSTEM FOR AC SHIPBOARD MICROGRID

Daniele Kaza (University of Genova)*; Fabio D'Agostino (University of Genova); Marco Gallo (University of Genova); Federico Silvestro (Università di Genova); Antonio Chiarelli (Fincantieri); Federico Olcese (Fincantieri)



IEEE CMCXXIV

WEDNESDAY NOON SESSION

N3-TS4

H 11:30 > 13:30

Aula 17**MOBILITY**

Session Chairs

Hamed Jafari Kaleybar Politecnico di Milano**Alessandro Ruvio** Sapienza University of Rome**N3-TS4 42****ANALYSIS OF LITHIUM IRON PHOSPHATE BATTERY AGING IN PUBLIC TRANSPORT ELECTRIC BUSES**Brandon Poonah (Stellenbosch University)*;
Fredrick M Mwaniki (Stellenbosch University);
Johann Strauss (Stellenbosch University)**N3-TS4 50****EV CHARGER INTRODUCTION PLANNING FOR AIRPORT PARKING UTILIZING SURPLUS ENERGY OF DAYTIME SOLAR PANEL**

Tomoki Suzuki (The University of Tokyo)*; Kenji Tanaka (The University of Tokyo)

N3-TS4 160**PRELIMINARY STUDY OF BATTERY SWAP STATIONS FOR ELECTRIC VEHICLES ON HIGHWAYS**

Daniele Martini (Politecnico di Milano)*; Sofia Borgosano (Politecnico di Milano); Gianluca Mongiu (Politecnico di Milano); Michela Longo (Politecnico di Milano); Wahiba Yaici (CanmetENERGY Research Centre / Natural Resources Canada); Seyed Mahdi Miraftebzadeh (Politecnico di Milano)

N3-TS4 194**COMPAIRING BATTERY AND HYBRID DIESEL-BATTERY FREIGHT TRAINS FOR HEAVY INDUSTRIAL**

Alessandro Ruvio (Sapienza University of Rome); Luigi Martirano (University of Rome); Alessandro Galasso (Sapienza University of Rome)*; Giovanni Vescio (Technip Energies)

N3-TS4 238**V-CYCLE DESIGN OF PERMANENT MAGNET ASSISTED SYNCHRONOUS RELUCTANCE MACHINE LIGHT VEHICLE PROPULSION**

Martis Radu (Tehnicul University of Cluj-Napoca)*; Claudia Martis (Tehnicul University of Cluj-Napoca); Cristina Adascalitei (Technical University of Cluj-Napoca)

N3-TS4 360**OPTIMAL SELF-SCHEDULING FOR ULTRA-FAST EV CHARGING STATION ON HIGHWAY: A TUNNEL CASE STUDY**

Erfan Shirdare (Sapienza University of Rome); Mostafa Kermani (SAPIENZA University)*; Cristina Moscatiello (University of Roma La Sapienza); Luigi Calcara (Sapienza University of Rome); Luigi Martirano (University of Rome)

MI-TS2 343**ENERGY CONSUMPTION OF ELECTRIC BUSES UNDER OPERATIONAL DATA OF TRANSIT SYSTEM**

Arsalan Najafi (Department of of Architecture and Civil Engineering Chalmers University of Technology); Omkar Parishwad (Department of of Architecture and Civil Engineering Chalmers University of Technology); Antonia Wise (Department of of Architecture and Civil Engineering Chalmers University of Technology); Kun Gao (Department of of Architecture and Civil Engineering Chalmers University of Technology); Zbigniew Leonowicz (Wroclaw University of Science and Technology)*



EETEC M MXXIV

WEDNESDAY NOON SESSION

N3-TS5

H 11:30 > 13:30

Aula 15**SS - INNOVATIVE ELECTRICAL APPLICATIONS FOR ENERGY EFFICIENCY IN BUILDINGS AND INDUSTRIAL PROCESSES - 2**

Session Chair

Alessandro Palma

ENEA

N3-TS5 5**A COMPUTATIONALLY EFFICIENT MODEL FOR HOME ENERGY MANAGEMENT SYSTEM APPLICATIONS**

Mohammadamin MAM Mobtahej (Lamar University)*; Milad Hadizadeh (Lamar University); Hasan Zargarzadeh (Lamar University)

N3-TS5 71**FLEXIBILITY MEASUREMENT OF RESIDENTIAL CONSUMERS THROUGH CAUSAL INFERENCE**

Zohreh Kaheh (University of Vaasa)*; Hamidreza Arasteh (Niroo Research Institute); Miadreza Shafie-Khah (University of Vaasa)

N3-TS5 148**ANALYSING THE EFFECT OF EMBEDDING ELECTRICITY CONSUMPTION OPTIMIZATION IN SCHEDULING MODEL FOR A MANUFACTURER AS A DEMAND RESPONSE PROVIDER**

Zohreh Kaheh (University of Vaasa)*; Hamidreza Arasteh (Niroo Research Institute); Miadreza Shafie-khah (University of Vaasa); Pierluigi Siano (University of Salerno)

N3-TS5 289**INFLUENCE OF PLANT EVAPOTRANSPIRATION PROCESS ON THE SUMMER COOLING OF A SOLAR BIOCLIMATIC GREENHOUSE INTERNAL ENVIRONMENT**

Arianna Latini (ENEA)*; Carlo Alberto Campiotti (ENEA); Carlo Bibbiani (University of Pisa); Patrizia De Rossi (ENEA)

N3-TS5 290**SUPERCAPACITORS AS A SYSTEM-LEVEL SOLUTION FOR ENHANCED SELF-CONSUMPTION STRATEGIES**

Alessandro Lorenzo Palma (ENEA)*; Luca La Notte (ENEA); Biagio Di Pietra (ENEA); Ruggero Nissim (ENEA)

N3-TS5 304**ENHANCING SME ENERGY MANAGEMENT: DEVELOPMENT OF AN ASSESSMENT TOOL TO IDENTIFY IMPROVEMENT OPPORTUNITIES AND SUPPORT THEIR IMPLEMENTATION**

Annalisa Santolamazza (Tor Vergata University of Rome)*; Vito Introna (Tor Vergata University of Rome); Fabrizio Martini (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA))

N3-TS5 336**DESIGNING A PLATFORM FOR ENERGY RECOVERY AND MONITORING IN BUILDINGS APPLICATIONS**

Luca La Notte (ENEA)*; Giovanni Landi (Enea); Alessandro Lorenzo Palma (ENEA); Paolo Sdringola (ENEA); Guerino Avallone (University of Salerno); Carlo Barone (University of Salerno); Sergio Pagano (University of Salerno)



EEEC M M X X I V

WEDNESDAY AFTERNOON SESSION

A3-TS1

H 15:00 > 17:00

Sala del Chiostro

RENEWABLE ENERGY SOURCES AND STORAGE- 3

Session Chair

Alessandro Nicolai

Politecnico di Milano

- A3-TS1 222** **A DESIGN OPTIMISATION OF GREEN HYDROGEN PRODUCTION IN SOUTH AFRICA USING CONCENTRATED SOLAR-THERMAL POWER**
Tsepile T Malemane (University of Stellenbosch)*;
Karen Garner (University of Stellenbosch)
- A3-TS1 225** **A REVIEW ON METHODS FOR LONG-TERM FORECASTING OF RES INSTALLED CAPACITY**
Elena Benedetti (La Sapienza University of Rome)*;
Maria Carmen Falvo (University of Rome Sapienza);
Vitanonio Di Dio (Terna Rete Italia)
- A3-TS1 244** **INNOVATIVE SOLUTIONS ADDRESSING SOUTH AFRICA'S ENERGY PARADOX: INTEGRATING RENEWABLE ENERGY RESOURCES FOR INCREASED GRID STABILITY AND MAINTENANCE SCHEDULE PLANNING**
Francisca M Daniel-Durandt (Stellenbosch University)*;
Chantelle Y van Staden (Stellenbosch University);
Arnold J Rix (Stellenbosch University);
Bernard Bekker (Stellenbosch University)
- A3-TS1 275** **DATA-DRIVEN OPTIMAL SCHEDULING OF ISOLATED MICROGRID USING RANDOM FOREST REGRESSOR**
Seyed Farhad S.F. Zandrazavi (University of Vaasa)*; Miadreza Shafie-khah (University of Vaasa); Meysam Pashaei (University of Vaasa)
- A3-TS1 276** **REAL-TIME MODEL PREDICTIVE CONTROL FOR TECHNO-ECONOMICAL BATTERY MANAGEMENT IN DISTRIBUTED POWER GRIDS USING DAY-AHEAD OPTIMIZATION**
Fatemeh Shojaei (RMIT University)*;
Arash Vahidnia (RMIT University);
Ali Moradi Amani (RMIT University)
- A3-TS1 349** **EXPLOITING THE ENERGY POTENTIAL OF ELECTRIC VEHICLES FOR IMPROVING THE RELIABILITY OF ELECTRICITY SUPPLY TO THE END USER**
Krzysztof Zagrajek (Institute of Electrical Power Engineering);
Desire D. Rasolomampionona (Institute of Electrical Power Engineering);
Mariusz Klos (Institute of Electrical Power Engineering);
Enrico De Tuglie (Politecnico di Bari);
Giulia Amato (Politecnico di Bari)*;
Luigi Pio Savastio (Politecnico di Bari)



IEEE EMC XXIV

ENERGY EFFICIENT SYSTEMS - 2

Session Chair

Zbigniew Leonowicz

Wrocław University of Science and Technology

A3-TS2 9

**IMPROVED WIND POWER FORECASTING
BASED ON BILSTM-BO HYBRID MODEL
AND DATA PREPROCESSING ALGORITHM**

Reinier Herrera Casanova (Autonomous University of Nuevo León); Arturo Conde (UANL)*; Zbigniew Leonowicz (Wrocław University of Science and Technology)

A3-TS2 13

**ELECTRICAL FLEXIBILITY FORECASTING
AND ASSESSMENT FOR HEAT-PUMP-BASED DISTRICT HEATING SYSTEMS**

Roberto Rocca (CIRCE Technology Centre)*; Lorena Elorza-Uriarte (CIRCE Technology Centre); Arjen Schamhart (Energie Samen Rivierenland); Gerwin Verschuur (Thermo Bello BV); David Miguel Rivas-Ascaso (CIRCE Technology Centre)

A3-TS2 18

**OPTIMAL SIZING ALGORITHM
OF PV-BESS SYSTEMS CONSIDERING
A PRICE-DRIVEN RULE-BASED ENERGY MANAGEMENT STRATEGY**

Luis Luengo-Baranguan (CIRCE Technology Centre)*; Marcos Remiro-Cinca (CIRCE Technology Centre); David Rivas-Ascaso (CIRCE Technology Centre); Roberto Rocca (CIRCE Technology Centre); Gregorio Fernandez (CIRCE Technology Centre); Lorena Elorza-Uriarte (CIRCE Technology Centre)

A3-TS2 49

**OPTIMAL ENERGY MANAGEMENT SYSTEM
FOR STORAGEINTEGRATED MULTI-ENERGY MICROGRIDS**

EHSAN HOSEINI (Cadiz University)*; Pablo Horrillo-Quintero (University of Cadiz); Pablo García-Triviño (University of Cadiz); Carlos Andrés García-Vázquez (University of Cadiz); Higinio Sánchez-Sainz (University of Cadiz); Luis M. Fernández-Ramírez (University of Cadiz)

A3-TS2 190

**DEVELOPMENT OF INTELLIGENT MODELS
FOR BUILDING ENERGY MANAGEMENT**

Reza Abbas (Politecnico di Milano); Morris Brenna (Politecnico di Milano); Alessandro Saldarini (Politecnico di Milano); Roberto La Capruccia (FANTINI COSMI S.p.A.); Michela Longo (Politecnico di Milano)*; Seyed Mahdi Miraftebza-deh (Politecnico di Milano)

A3-TS2 237

THERMAL MODEL FOR HOMES WITH TWO AC UNITS

Yahia Baghzouz (UNLV)*



WEDNESDAY AFTERNOON SESSION

A3-TS3

H 15:00 > 17:00

Sala degli Affreschi

**SS - APPLICATION
OF MACHINE LEARNING IN POWER SYSTEMS**

Session Chair

Alice La Fata

University of Genoa

A3-TS3 84

**DEEP NEURAL NETWORKS
FOR IDENTIFYING MODES OF TRANSPORT USING GPS DATA**

seyedhassan hosseini (Sapienza University of Rome); guido gentile (Sapienza University of Rome); lory michelle Bresciani Miristice (Sapienza University of Rome); francesco viti (University of Luxembourg); Siavash Pourkhosro (Sapienza University of Rome)*

A3-TS3 118

**REPRESENTATIVE TIME-SERIES SCENARIOS OF RESIDENTIAL POWER
DEMAND, ELECTRIC VEHICLE CHARGING, AND SOLAR PHOTOVOLTAIC
GENERATION BASED ON UNSUPERVISED LEARNING ALGORITHMS**

Gustavo Aschidamini (Simon Fraser University)*; Amir Shabani (Simon Fraser University); Bradley Reinholz (Generac Power Systems Inc.); Malcolm Metcalfe (Generac Power Systems Inc.); Mariana Resener (Simon Fraser University)

A3-TS3 127

**STRUCTURALLY TUNED LSTM NETWORKS
TO NOWCAST PHOTOVOLTAIC POWER PRODUCTION**

Alice La Fata (University of Genoa - DITEN)*; Muhammad Asim Amin (University of Genoa - DITEN); Marco Invernizzi (University of Genoa - DITEN); Renato Procopio (University of Genoa)

A3-TS3 259

**FIRST STEP IN REAL-TIME ENERGY MANAGEMENT:
FORECASTING ENERGY PRODUCTION
USING MACHINE LEARNING MODELS**

Wassila TERCHA (University of bourmerdes); Sid Ahmed TADJER (UNIVERSITE M'HAMED BOUGARA); Fathia Chekired (Unité de Développement des Equipements Solaires, UDES, Centre de Développement des Energies Renouvelables, CDER); Laurent Canale (LAPLACE Lab., CNRS, Université Toulouse III - Paul Sabatier)*

A3-TS3 326

**ADAPTIVE SOC ESTIMATION FOR LITHIUM-ION BATTERIES
USING CLUSTER-BASED DEEP LEARNING MODELS
ACROSS DIVERSE TEMPERATURES**

Mohammed Khalifa Amur Al-Alawi (Canterbury Christ Church University)*; James Cugley (Canterbury Christ Church University); Hany Hassanin (Canterbury Christ Church University); Ali Jaddoa (Canterbury Christ Church University)

A3-TS3 332

**CLUSTERING SPATIOTEMPORAL WIND POWER
FOR PATTERN ANALYSIS IN SOUTH AFRICA**

Lise M Prinsloo (Stellenbosch University)*; Chantelle Y van Staden (Stellenbosch University)



IEEEICM MXXIV

WEDNESDAY AFTERNOON SESSION

A3-TS4

H 15:00 > 17:00

Aula 17

SS - ELECTRICAL CHALLENGES IN ENERGY COMMUNITIES

Session Chair

Dimitri Thomopoulos

University of Pisa

A3-TS4 30

ELECTROMAGNETIC INTERFERENCIES IN POWER NETWORKS

Tetiana Serdiuk (Ukrainian State University of Science and Technologies)*;
Ksenija Serdiuk (Ukrainian State University of Science and Technologies);
Ivan Struzhko (University of Twente)

A3-TS4 53

ENERGY MANAGEMENT STRATEGY FOR RENEWABLE ENERGY COMMUNITY: A CASE STUDY

Bianca G Magalhães (University of Beira Interior)*; José Pombo (UBI);
Maria Rosario (UBI); Sílvio Mariano (UBI); Miguel Louro (E-REDES)

A3-TS4 104

OPTIMAL POWER DISPATCH AND LOAD SCHEDULING FOR FUEL CELL COMMUNITY USING ADMM

Leehter Yao (National Taipei U. of Tech.)*;
J. C. Teo (National Technology University Taipei)

A3-TS4 115

IMPACT OF POWER CONSUMPTION AT VARIOUS AGGREGATION LEVELS IN REC ANALYSIS: A REAL CASE STUDY PERSPECTIVE

Valentina Consolo (Università di Pisa)*;
Roberto Rugani (University of Pisa, DEStec Department);
Elena Mura (IUSS Pavia); Marco Raugi (DEStec Dep, University of Pisa)

A3-TS4 166

OPTIMIZING RENEWABLE ENERGY COMMUNITY MANAGEMENT THROUGH MULTI-OBJECTIVE APPROACHES

Dimitri Thomopoulos (University of Pisa)*;
Claudia D'Ambrosio (CNRS, Ecole Polytechnique);
Marco Raugi (DEStec Dep, University of Pisa)

A3-TS4 291

MODELS AND METHODS FOR SUSTAINABLE ROAD TUNNELS OPERATING AS MICROGRID AND RES ENERGY COMMUNITY

Antonio Bracale (University of Naples Parthenope)*;
Pierluigi Caramia (University of Naples Parthenope);
Enrico Carpaneto (Politecnico di Torino);
Giovanni Mercurio Casolino (Università degli Studi di Cassino e del Lazio Meridionale);
Pasquale De Falco (University of Napoli Parthenope);
Angela Russo (Politecnico di Torino);
Pietro Varilone (Università degli studi di Cassino e del LM);
Paola Verde (Università di Cassino e del Lazio Meridionale)



EEEICM MXXIV

WEDNESDAY AFTERNOON SESSION

A3-TS5

H 15:00 > 17:00

Aula 15

SS - INTEGRATION OF RENEWABLE ENERGY SOURCES AND ELECTRIC MOBILITY SYSTEMS: ADVANCES IN MODELLING, PLANNING AND OPERATIONAL MANAGEMENT

Session Chair

Matteo Fresia

University of Genoa

A3-TS5 147

ALTERNATIVE POWERTRAINS FOR NON-ELECTRIFIED RAILWAYS: A COMPARATIVE CASE STUDY

Marco Antonelli (University of Pisa - DESTEC);
Giovanni Lutzemberger (University of Pisa - DESTEC)*;
Gianluca Pasini (University of Pisa - DESTEC);
Francesco Giuseppe Mr Quilici (Università di Pisa);
Claudio Scarpelli (University of Pisa)

A3-TS5 201

SMART GRID SOLUTION FOR FAST POWER SYSTEM BALANCING

Zoran Bunčec (HOPS Plc.)*; Ana Kekelj (HOPS Plc.); Igor Ivankovic (Croatian Transmission System Operator Ltd); Dejan Liović (HOPS Plc.);
Renata Rubeša (HOPS Plc.); Tin Bobetko (Uprise Ltd.)

A3-TS5 230

IMPACT OF RESERVATION ON THE PERFORMANCE OF OPTIMAL CONTROL IN ELECTRIC VEHICLES FAST CHARGING STATIONS

Emanuele De Santis (Sapienza University of Rome)*;
Francesco Liberati (Sapienza University of Rome);
Alessandro Di Giorgio (University of Rome "La Sapienza")

A3-TS5 239

ENERGY MANAGEMENT SYSTEM FOR OPTIMAL OPERATION OF A PROSUMER WITH RENEWABLE GENERATION AND ELECTRIC VEHICLE FLEET WITH VEHICLE-TO-BUILDING

Matteo Fresia (University of Genoa)*;
Miguel de-Simón-Martín (Universidad de León);
Stefano Bracco (University of Genoa-Savona)

A3-TS5 252

ENERGY MANAGEMENT SYSTEM FOR THE OPERATION OF AN ELECTRIC VEHICLE CHARGING HUB FED BY SOLAR AND WIND ENERGY SOURCES

Alphonse Francis (University of Genoa)*; Matteo Fresia (University of Genoa);
Stefano Bracco (University of Genoa-Savona); Edoardo Barabino (FERA srl)

A3-TS5 327

EVALUATION OF GRID HARMONIC DISTURBANCES INJECTED BY DC ELECTRIC VEHICLE CHARGING STATIONS

Giorgio Benedetto (politecnico di torino);
Ettore Bompard (Politecnico di Torino);
Samuele Gugliotta (Politecnico di Torino);
Andrea Mazza (Politecnico di Torino)*;
Enrico Pons (Politecnico di Torino); Paolo Tosco (Edison SpA);
Marco Zampolli (Edison SpA); Remi Jaboeuf (Edison SpA)

A3-TS5 339

K-MEAN ALGORITHM TO SUPPORT ENERGY FUTURE DECISION FOR HOUSEHOLD WITH PV AND EV

Michał Jasiński (Wrocław University of Science and Technology)*;
Elżbieta Jasińska (Wrocław University of Science and Technology); Zbigniew Leonowicz (Wrocław University of Science and Technology); Marek Jasiński (VWWSIS „Horyzont”); Miroslava Gono (VSB Technical University of Ostrava);
Luigi Martirano (University of Rome); Meng Yen Shih (Universidad Autónoma de Campeche (UAC)); Radomir Gono (VSB - Technical University of Ostrava)



EEIICM MXXIV



GALA DINNER

June 19th 2024

START 08.00 PM

@ Chostro di S. Pietro in Vincoli

Via Eudossiana, 18 | Rome

THURSDAY MORNING SESSION

M4-TS1

H 9:00 > 11:00

Sala del Chiostro**MATERIALS**

Session Chair

Luigi Calcara

Sapienza University of Rome

M4-TS1 8**LIGHTNING IMPULSE BREAKDOWN VOLTAGE OF NATURAL ESTER OIL-BASED NANOFUIDS WITH FE2O3 NANOPARTICLES**

Evangelos T Staikos (Aristotle University of Thessaloniki)*; Alexandros Hadjicostas (Aristotle University of Thessaloniki); Pavlos Samaras (Aristotle University of Thessaloniki); George Peppas (Technical University of Crete); Vasileios Zagkanas (Aristotle University of Thessaloniki); Zacharias G Datsios (High Voltage Laboratory, Aristotle University of Thessaloniki); Pantelis Mikropoulos (Aristotle University of Thessaloniki); Thomas Tsovilis (High Voltage Laboratory, Aristotle University of Thessaloniki)

M4-TS1 28**DIELECTRIC PERFORMANCE OF VEGETABLE OIL-BASED NANOFUID AFTER LONG-TIME AGING**

"Konstantinos Koutras (University of Patras)*; Georgios Peppas (University of Patras); Ioannis Gonos (National Technical University of Athens); Eleftheria Pyrgioti (University of Patras)"

M4-TS1 138**PLASTIC RECYCLING VIA CATALYTIC PYROLYSIS FOR ENERGY GENERATION**

Ali Raza (NUST); Asif Khoja (NUST); Abeera Ayaz Ansari (NUST)*; Salman Raza Naqvi (Karlstad University); Waqar Ul Habib Khan (NUST); Kinza Rizwan (NUST); Ghayoor Abbas (Student)

M4-TS1 265**A NEW TECHNOLOGY FOR TERMITE-PROOF UNDERGROUND CABLES**

Gianfranco Di Lorenzo (Sapienza University of Rome)*; Erika Stracqualursi (Sapienza University of Rome); Rodolfo Araneo (Sapienza University of Rome); Riccardo Cecere (Enel Green Power and Thermal Generation); Paolo Audisio (Sapienza University of Rome); Elisabetta Bragagni Capaccini (Tratos Cavi S.p.A.)

M4-TS1 317**NEW DESIGN OF MULTILAYER MICROWAVE ABSORBING STRUCTURES USING CERAMIC/CNT SLABS FOR X-BAND FREQUENCIES**

Karim Benzaoui (Laboratory Electromagnetic Compatibility, Ecole Militaire Polytechnique)*; Youcef Amine MEDJAOURI (Ecole Militaire Polytechnique); Achour ALES (Electromagnetic Compatibility Laboratory, Ecole Militaire Polytechnique, BP 17 Bordj El-Bahri 16111 Algiers, Algeria); Redouane Tahmi (Ecole Nationale Polytechnique, ENP)



THURSDAY MORNING SESSION

M4-TS2

H 9:00 > 11:00

Aula 1

SS - BIO-INSPIRED ALGORITHMS APPLIED TO POWER AND ENERGY CONVERSION SYSTEMS

Session Chairs

M. do Rosário Calado University of Beira Interior and IT**Silvio Mariano** University of Beira Interior and IT

- M4-TS2 103** **IMPROVING SHORT-TERM LOAD FORECASTING ACCURACY WITH RANDOM FOREST METHOD OPTIMIZED BY BIO-INSPIRED PARTICLE SWARM OPTIMIZATION ALGORITHM**
Bianca G Magalhães (University of Beira Interior)*; José Pombo (UBI); Maria Rosario (UBI); Silvio Mariano (UBI); Miguel Louro (E-REDES)
- M4-TS2 124** **A NOVEL MULTI-SWARM AND MULTI-OBJECTIVE OPTIMIZATION ALGORITHM FOR SOLVING ENGINEERING PROBLEMS**
João Pedro Faria (Institute of Telecommunications)*; Carlos Marques (University of Beira Interior); José Pombo (UBI); Silvio Mariano (UBI); Maria Rosario (UBI)
- M4-TS2 195** **SOLAR GRID TIED INVERTERS: CONFIGURATION, TOPOLOGIES, AND CONTROL STRATEGIES**
João Pedro Faria (Institute of Telecommunications)*; José Pombo (UBI); Maria Rosario (UBI); Silvio Mariano (UBI)
- M4-TS2 250** **PHOTOVOLTAIC POWER ESTIMATION OF A POLYCRYSTALLINE SILICON MODULE UNDER PARTIAL SHADING**
H.G.G. Nunes (University of Beira Interior)*; José Pombo (UBI); Silvio Mariano (UBI); Maria Rosario (UBI)
- M4-TS2 251** **A NOVEL HYBRID MPPT METHOD BASED ON PARTICLE SWARM OPTIMIZATION AND P&O ASSISTED BY SPLINE INTERPOLATION TECHNIQUE**
H.G.G. Nunes (University of Beira Interior)*; Filipe Teixeira (UBI); José Pombo (UBI); Silvio Mariano (UBI); Maria Rosario (UBI)
- M4-TS2 256** **A MODIFIED HARRIS HAWKS OPTIMIZATION ALGORITHM FOR SOLVING THE OPTIMAL POWER FLOW PROBLEM**
P.M.R. Bento (University of Beira Interior)*; José Pombo (UBI); Maria Rosario (UBI); Silvio Mariano (UBI)
- M4-TS2 306** **PARAMETER ESTIMATION OF LITHIUM-ION BATTERIES USING GSKPSO HYBRID METHOD BASED ON IMPEDANCE DATA**
H.G.G. Nunes (University of Beira Interior)*; José Pombo (UBI); Silvio Mariano (UBI); Maria Rosario (UBI)



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THURSDAY MORNING SESSION

M4-TS3

H 9:00 > 11:00

Sala degli Affreschi**POWER ELECTRONICS
AND COMPONENTS - 2**

Session Chair

Osama Mohammed

Florida International University

M4-TS3 34**GROUND FAULT DETECTION METHOD
FOR ELECTRIC SYSTEMS WITH PARTIAL POWER CONVERTERS**

Jose M. Guerrero (Universidad del Pais Vasco/Euskal Herriko Unibertsitatea)*; Jon Anzola (Mondragon Unibertsitatea); Carlos A. Platero (Universidad Politécnica de Madrid); Iosu Aizpuru (Mondragon Unibertsitatea)

M4-TS3 83**DYNAMIC INTERACTIONS
OF A HIGH-CURRENT THYRISTOR-RECTIFIER
INTERFACED PEM ELECTROLYSER**

Eduardo R Vasquez Mayen (Universite catholique de Louvain (UCLouvain))*; Guy Wanlongo Ndivwulu (Universite catholique de Louvain (UCLouvain)); Emmanuel De Jaeger (Universite catholique de Louvain (UCLouvain))

M4-TS3 192**ANALYZING SEA ENVIRONMENT'S EFFECTS
ON INDUCTIVE POWER TRANSFER SYSTEMS:
EQUIVALENT CIRCUIT PARAMETERS AND PERFORMANCE ANALYSIS**

Seyed Saeid Heidari Yazdi (Nazarbayev University)*; Sadjad Shafiei (Nazarbayev university); Adilkhan Kapanov (Nazarbayev university); Mostafa Kermani (SAPIENZA University); Amin Hajizadeh (Aalborg University); Mehdi Bagheri (Electrical and Computer Engineering Department, Nazarbayev University)

M4-TS3 241**SUPERCAPACITOR CHARACTERIZATION
OVER A WIDE CURRENT RANGE**

Sabino Pipolo (ENEA)*; Alessandro Lampasi (ENEA Frascati); Francesco Desana (University of Tuscia); Emiliano Guerra (University of Bologna); Simone Minucci (University of Tuscia); Antonio Morandi (University of Bologna)

M4-TS3 328**A TRIPLE-ACTIVE BRIDGE BASED SOLID STATE TRANSFORMER
FAST CHARGING STATION TOPOLOGY FOR ELECTRIC VEHICLES**

Mohamed Taha Gabriel (EJUST)*; Diaa-Eldin Manosur (EJUST); Masahito Shoyama (Kyushu University); Sobhy Abdelkader (EJUST)

M4-TS3 337**FLEXIBILITY POTENTIAL
FROM INVERTER-BASED GENERATORS IN A 2030 ITALIAN SCENARIO**

Silvia Canevese (Ricerca sul Sistema Energetico - RSE)*; Antonio Gatti (RSE SpA)



THURSDAY MORNING SESSION

M4-TS4
H 9:00 > 11:00
Aula 17

20th

SS - IMPACT OF TOPOLOGY AND SOIL PROPERTIES ON GROUNDING SYSTEMS PERFORMANCE: MODELLING AND SIMULATION OF TRANSIENTS

Session Chair

Erika Stracqualursi

Sapienza University of Rome

M4-TS4 80

IMPACT OF SEQUENCE PARAMETERS IN THE FREQUENCY DOMAIN: UTILIZING PHYSICALLY CONSISTENT LINE PARAMETERS

Jaimis Leon (Unicamp)*;
Jesus Guevara (Unicamp); Sérgio Kurokawa (Unesp);
Jose Pissolato (Unicamp)

M4-TS4 335

OVERVOLTAGES AND CRITICAL BACKFLASHOVER CURRENT OF A 150 KV OVERHEAD LINE: INFLUENCE OF LIGHTNING CURRENT WAVEFORM AND TOWER GROUNDING SYSTEM MODELING

Diamantis G. Patsalis (Aristotle University of Thessaloniki);
Zacharias G Datsios (High Voltage Laboratory, Aristotle University of Thessaloniki);
Erika Stracqualursi (Sapienza University of Rome);
Rodolfo Araneo (Sapienza University of Rome);
Pantelis Mikropoulos (Aristotle University of Thessaloniki);
Thomas Tsovilis (High Voltage Laboratory, Aristotle University of Thessaloniki)*

M4-TS4 341

EQUIPOTENTIAL BONDING OF PHOTOVOLTAIC SYSTEMS

Massimo Mitolo (Irvine Valley College)*;
Gianfranco Di Lorenzo (Sapienza University of Rome);
Erika Stracqualursi (Sapienza University of Rome);
Rodolfo Araneo (Sapienza University of Rome)

M4-TS4 345

GEA SIMULATOR: POWER FREQUENCY AND TRANSIENT SIMULATIONS FOR PRACTICAL APPLICATIONS

Erika Stracqualursi (Sapienza University of Rome)*;
Rodolfo Araneo (Sapienza University of Rome)



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THURSDAY MORNING SESSION

M4-TS5

H 9:00 > 11:00

Aula 15**SS - NOVEL METHODOLOGIES, MODELS, SOLUTIONS FOR RESILIENT AND SECURE SMART GRIDS AND MULTI-VECTORS NETWORKS**

Session Chairs

Giovanna Adinolfi, Giorgio Graditi, Maria Valenti

ENEA

M4-TS5 136**AN INNOVATIVE METHODOLOGY FOR EVALUATING POWER SYSTEM ADEQUACY, INTEGRATING ANALYSES OF BOTH THE RELIABILITY AND ANOMALOUS BEHAVIOUR OF COMPONENTS.**

Roberto Ciavarella (ENEA)*; Amedeo Buonanno (ENEA, Department of Energy Technologies and Renewable Energy Sources); Maria Valenti (ENEA); Gianluca sforza (ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development)

M4-TS5 161**HYDROGEN-BLENDED NATURAL GAS IN A DISTRIBUTION NETWORK - AN ITALIAN CASE STUDY ANALYSIS**

Ben Alex Baby (University of Palermo)*; Yifei Lu (Forschungszentrum Jülich); Andrea Benigni (Forschungszentrum Jülich); Santi Bonanno (AMG Energia S.p.A.); Marco Ferraro (CNR-ITAE); Germana Poma (AMG Energia S.p.A.); Marco Beccali (Università di Palermo - Dipartimento di Ingegneria)

M4-TS5 203**RISK ASSESSMENT IN LOW VOLTAGE DISTRIBUTION NETWORKS**

Tommaso Bragatto (Sapienza University of Rome); Fabio Massimo Gatta (Sapienza University of Rome); Alberto Geri (Sapienza University of Rome); Marco Maccioni (Sapienza University of Rome)*; Ludovico Nati (Areti S.p.A.); Alessandro Palazzoli (Areti S.p.A.); Paolo Sancioni (Areti S.p.A.)

M4-TS5 224**INTEGRATION OF FDIR PRACTICES IN DISTRIBUTION OPTIMAL NETWORK RECONFIGURATION ROUTINES**

Roberto Cometa (DEI - Politecnico di Bari)*; Mohammad Rajabi Nasab (DEI - Polytechnic of Bari); Francesco Lorusso (DEI - Polytechnic of Bari); Angelo Velini (DEI - Polytechnic of Bari); Massimo La Scala (DEI - Politecnico di Bari); Sergio Bruno (DEI - Politecnico di Bari)

M4-TS5 281**PRELIMINARY DESIGN OF A CARBON NEUTRAL ENERGY HUB TO INTEGRATE IN A DIGITAL TWIN**

Salvatore Fabozzi (ENEA)*; Antonio Picarelli (ENEA); Maria Valenti (ENEA); Walter Gaggioli (ENEA); Giorgio Graditi (ENEA)

M4-TS5 302**INNOVATIVE SMALL CO-GENERATIVE CSP PLANTS BASED ON MOLTEN SALTS TECHNOLOGY**

Salvatore Fabozzi (ENEA)*; Giorgio Graditi (ENEA); Walter Gaggioli (ENEA); Giuseppe Petroni (ENEA); Primo Di Ascenzi (ENEA); Maria Valenti (ENEA)

M4-TS5 331**CONTROL OF A PV-ELECTROLYZER-FUEL CELL MICROGRID FOR THE PROVISION OF GRID SERVICES IN DISTRIBUTION SYSTEMS**

Marco Menga (DEI - Politecnico di Bari)*; Francesco Lorusso (DEI - Politecnico di Bari); Cosimo Iurlaro (DEI - Politecnico di Bari); Massimo La Scala (DEI - Politecnico di Bari); Giovanna Adinolfi (ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development-); Sergio Bruno (DEI - Politecnico di Bari)



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THURSDAY NOON SESSION

N4-TSI

H 11:30 > 13:30

Sala del Chiostro**SS - TECHNOLOGIES FOR HEALTH**

Session Chair

Chiara Burattini

Sapienza University of Rome

N4-TSI 121**A COMPUTERIZED MULTIMODAL GALLERY FOR THE SMART MANAGEMENT OF HUMAN EMOTIONS**

Ilaria Di Pompeo (University of L'Aquila); Giulia D'Aurizio (University of L'Aquila); Giuseppe Curcio (University of L'Aquila); Chiara Burattini (Sapienza University)*; Fabio Bisegna (Universita degli studi di Roma Sapienza)

N4-TSI 129**NOISE RISK ASSESSMENT IN HOSPITAL STERILIZATION UNITS**

Francesco Leccese (University of Pisa); Michele Rocca (University of Pisa); Giacomo Salvadori (University of Pisa - DESTeC Department)*; Alessandro Merlini (CESNIR srl); Gabriele Quadrio (CESNIR srl)

N4-TSI 143**SUN EXPOSURE AND VITAMIN D SYNTHESIS: A FIRST LOOK INSIDE THE USEFULNESS OF MOBILE APPS**

Roberta Pozzi (Istituto Superiore di Sanità)*; Sandra Morelli (ISS); Rosa Lasaponara (CNR-IMAA); Alessandro Polichetti (ISS); Fabio Bisegna (Universita degli studi di Roma Sapienza); Chiara Burattini (Sapienza University); Maria Cristina Gauzzi (ISS)

N4-TSI 167**SUN@METHIS: IMPLEMENTING A DASHBOARD FOR COMPREHENSIVE SOLAR ULTRAVIOLET RADIATION RISK MANAGEMENT AT MUNICIPALITY LEVEL**

Luis Lapão (NOVA University of Lisbon); Mélanie Maia (NOVA University of Lisbon); ALBERTO MODENESE (University of Modena & Reggio Emilia); Maria Miguel Castela Batista Dias Santos (NOVA University of Lisbon)*; Jorge Barroso-Dias (Departamento de Saúde, Higiene e Segurança, Câmara Municipal de Lisboa); Marília Silva Paulo (NOVA University of Lisbon)

N4-TSI 171**MANAGING THE USE OF LIGHT IN HEALTH CARE FACILITIES**

Francesco Frigerio (ICS Maugeri Spa)*; Massimo Borra (Italian worker's compensation authority (INAIL))

N4-TSI 240**REVIEW OF PARAMETERS AND TECHNIQUES IN HUMAN-CENTERED INTEGRATIVE LIGHTING**

Hector F. Chinchero (University of Alcalá)*; Javier Ribas (University of Oviedo); Pablo Quintana-Barcia (University of Oviedo); J. Marcos Alonso (University of Oviedo); Alvaro De-la-LLana (University of Alcalá); Jose Lazaro (University of Alcalá); Diego Rodriguez (University of Oviedo)



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THURSDAY NOON SESSION

N4-TS2

H 11:30 > 13:30

Aula 1**POWER SYSTEMS
AND SMART GRIDS - 4**

Session Chair

Luis Luengo

CIRCE

N4-TS2 82**INFLUENCE OF INTERFERENCES IN THE RELATION
BETWEEN AMPACITY AND INDUCED VOLTAGE
ON SHEATH IN DOUBLE-CIRCUIT UNDERGROUND LINES**Jaimis Leon (Unicamp)*; Jesus Guevara (Unicamp);
Sergio Kurokawa (Unesp); Jose Pissolato (Unicamp)**N4-TS2 130****PEACE: PHYSICS-ENABLED AUTOENCODER DETECTION
AND LOCALIZATION OF LOAD-ALTERING ATTACKS IN SMART GRIDS**Mohammad Ali Sayed (Concordia University)*;
Nathalie Wehbe (Concordia University);
Khaled Sarieedline (Concordia University);
Ribal Atallah (Hydro-Quebec Research Institute);
Mourad Debbabi (Concordia University);
Chadi Assi (Concordia University)**N4-TS2 146****COMPARATIVE ANALYSIS OF TRANSIENT RESPONSES
IN SYNCHRONOUS GENERATORS
WITH AND WITHOUT DAMPER WINDING**Nikolay Djagarov (Nikola Vaptsarov Naval Academy)*;
Dimitar Tsvetanov (Nikola Vaptsarov Naval Academy)**N4-TS2 179****CHIL TESTBED OF A DISTRIBUTED CONSENSUS MULTI-AGENT SYSTEM
CONTROL UNDER DENIAL OF SERVICE ATTACKS**Ibtissam Kharchouf (Florida International University)*;
Hossam M Hussein (Florida International University);
Mahmoud Abdelrahman (Florida National University);
S M Sajjad Hossain Rafin (Florida International University);
Osama Mohammed (Florida International University)**N4-TS2 189****DIGITAL TWIN-BASED APPROACH
FOR MONITORING AND EVENT DETECTION IN PV SYSTEMS**Mahmoud Abdelrahman (Florida International University)*; Hossam M Hussein
(Florida International University); Ibtissam Kharchouf (Florida International
University); Rafin Sajjad (FLORIDA INTERNATIONAL UNIVERSITY); Osama
Mohammed (Florida International University)**N4-TS2 217****REAL-TIME SYSTEM FOR DETECTION
AND CLASSIFICATION POWER QUALITY DISTURBANCES**Aleksandra Zlatkova (Faculty of Electrical Engineering and Information
Technologies)*; Dimitar Taskovski (Faculty of electrical engineering and
information technologies Ss Cyril and Meth); Zivko Kokolanski (Faculty of
Electrical Engineering and Information Technologies)**N4-TS2 234****CYBER INDUCED HARMONIC INSTABILITY
OF INVERTER-BASED RENEWABLE GENERATORS**Masoud Zadsar (Concordia University)*;
Masoud Babaei Vaydareh (Concordia University);
Mohsen Ghafouri (Concordia University);
Amir Ameli (Lakehead University)

IEEEICMXXXIV

THURSDAY NOON SESSION

N4-TS3

H 11:30 > 13:30

Sala degli Affreschi**INDUSTRY APPLICATIONS - 2**

Session Chair

Zibigniew Leonowicz

Wroclaw University of Science and Technology

N4-TS3 46**FIELD TEST AND OPERATION OF UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEM FOR FAST FREQUENCY RESPONSE**

Yasuaki Mitsugi (TMEIC)*; Takahiro Terazono (TMEIC);
 Hiroaki Niimi (Nippon Koei Energy Europe B.V.);
 Sarang Boddupalli (Nippon Koei Energy Europe B.V.);
 Masamichi Kitahara (Nippon Koei Energy Solutions Co., Ltd.);
 Takuma Iwaya (Nippon Koei Energy Solutions Co., Ltd.)

N4-TS3 270**PASSAGEWAY LIGHTING CONTROL SYSTEM EMPLOYING PULSE-BASED VOLTAGE MODULATION FOR ENERGY MANAGEMENT PURPOSES**

Seyyed Mohammad Esmail Ghasemzadeh (South Khorasan Electricity Distribution Company (SKEDC)); Erfan Shirdare (Sapienza University of Rome);
 Mostafa Kermani (SAPIENZA University)*

N4-TS3 333**EMPOWERING RESILIENT HOSPITAL MICROGRIDS IN GAZA WITH A NOVEL TOOLBOX FOR SUSTAINABLE ENERGY SOLUTIONS**

Bharath Kumar Sugumar (University of Pavia)*;
 Norma Anglani (University of Pavia)

N4-TS3 355**TECHNO-ECONOMIC ASSESSMENT FOR FIRST SUBMARINE CABLE PROJECT IN OMAN**

Amjed Ahmed (OETC)*



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THURSDAY NOON SESSION

N4-TS4

H 11:30 > 13:30

Aula 17**SS - SUSTAINABLE INNOVATIONS
IN PHOTOVOLTAICS**

Session Chair

Leonardo Micheli

Sapienza University of Rome

- N4-TS4 36** **COMPARATIVE ANALYSIS OF THE PERFORMANCE OF FLOATING AND GROUND-MOUNTED PHOTOVOLTAIC PANELS: AN EXPERIMENTAL APPROACH**
Giovanni Cipriani (University of Palermo);
Vincenzo Di Dio (University of Palermo);
Alessandro Dioguardi (University of Palermo);
Stefania Guarino (University of Palermo)*
- N4-TS4 74** **DETERMINING THE LIKELY TRACKING CHOICES FOR UTILITY SCALE PHOTOVOLTAIC POWER PLANTS**
Shaniel Lakhoo (Stellenbosch University)*;
Bernard Bekker (Stellenbosch University);
Christina Auret (Stellenbosch University)
- N4-TS4 134** **NOISE CANCELING-FPPT FOR PV SYSTEMS UNDER FLUCTUATING IRRADIANCE CONDITIONS**
Jiang Yuan (Xi'an Jiaotong Liverpool University);
Jieming Ma (Xi'an Jiaotong-liverpool University)*;
Zhongbei Tian (University of Liverpool);
Ka Lok Man (Xi'an Jiaotong-Liverpool University)
- N4-TS4 149** **OPTIMAL DESIGN AND TECHNICAL ANALYSIS OF PHOTOVOLTAIC PANELS: A CASE STUDY IN VAASA, FINLAND**
Arya Ashrafi (University of Vaasa);
Mohammad Fatemi (University of Vaasa);
Zohreh Kaheh (University of Vaasa)*;
Miadreza Shafie-khah (University of Vaasa)
- N4-TS4 200** **AN IMPROVED METHOD TO ESTIMATE PV HOSTING CAPACITY FOR DISTRIBUTION GRID**
Samantha Nakahira (Hawaii Natural Energy Institute)*;
Quynh Tran (Hawaii Natural Energy Institute);
Yan Chen (Hawaii Natural Energy Institute);
Leon Roose (Hawaii Natural Energy Institute)
- N4-TS4 272** **DETECTING ABNORMAL PROFILES IN A PV POWER PLANT DATA USING LEARNING ALGORITHMS**
Hamza Benrabah (Silesian University of Technology);
Michał Jasiński (Wrocław University of Science and Technology)*;
Zbigniew Leonowicz (Wrocław University of Science and Technology)



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THURSDAY NOON SESSION

N4-TS5

H 11:30 > 13:30

Aula 15**SS - ADVANCED SIMULATION TOOLS
AND MODELS FOR POWER SYSTEM DYNAMICS**

Session Chair

Rossano Musca

University of Palermo

N4-TS5 151**IMPACT OF THE CONNECTION OF A 100 MW PROTON EXCHANGE
MEMBRANE ELECTROLYZER ON ROTOR ANGLE TRANSIENT STABILITY**

Francesco Pendola (Università degli Studi di Genova)*; Guy Wanlongo (UCLouvain); Virginie Kluyskens (UCLouvain); Emmanuel de Jaeger (UCLouvain); Federico Silvestro (Università di Genova)

N4-TS5 254**ELECTRICITY DEMAND FORECASTING VIA MRA FOR TÜRKIYE**

Neslihan Hepzarif (Warsaw University of Technology)*

N4-TS5 255**PID CONTROLLER DESIGN WITH A NEW METHOD BASED
ON FRACTIONALIZED INTEGRAL GAIN FOR CRUISE CONTROL SYSTEM**

Abdelhakim Idir (M'sila University)*; Zemmit Abderrahim (University of M'sila); Mokhtar Nesri (Ecole Supérieur Ali Chabati, Reghaia, Algiers); Sifelislam Guedida (UER ELT, Ecole Militaire Polytechnique, 16111 Algiers); Hamza Dr AKROUM (University M'Hamed Bougara of Boumerdes Faculty of Engineering); Laurent Canale (LAPLACE Lab., CNRS, Université Toulouse III - Paul Sabatier)

N4-TS5 318**REAL-TIME SIMULATION OF ISLAND ELECTRIC SYSTEM
WITH GRID-FORMING CONTROLLED BESS**

Rossano Musca (University of Palermo)*; Mariano G Ippolito (DEIM - Università di Palermo); Eleonora Riva Sanseverino (University of Palermo); Gaetano Zizzo (DEIM University of Palermo)

N4-TS5 322**A VIRTUAL POWER TRANSIENT STABILITY ENHANCEMENT METHOD
FOR VIRTUAL SYNCHRONOUS GENERATORS WITH VIRTUAL RESISTANCE**

Emmanuel Ebinyu (Egypt Japan University of Science and Technology)*; Omar Abdel-Rahim (Egypt Japan University of Science and Technology); Sobhy M. Abdelkader (Egypt Japan University of Science and Technology); MASAHITO SHOYAMA (Kyushu University); Daa-Eldin A. Mansour (Egypt Japan University of Science and Technology)

N4-TS5 340**ENERGY STRESS OF NON-GAPPED LINE ARRESTERS
DUE TO LIGHTNING STRIKES TO A 150 KV LINE:****CONCENTRATED TOWER GROUNDING SYSTEM MODELING EFFECTS**

Zacharias G Datsios (High Voltage Laboratory, Aristotle University of Thessaloniki)*; Diamantis G. Patsalis (High Voltage Laboratory, Aristotle University of Thessaloniki); Erika Stracqualursi (Sapienza University of Rome); Rodolfo Araneo (Sapienza University of Rome); Pantelis Mikropoulos (Aristotle University of Thessaloniki); Thomas Tsovilis (High Voltage Laboratory, Aristotle University of Thessaloniki)

N4-TS5 350**RFG NC COMPLIANCE SIMULATIONS
UTILIZING REAL TIME SIMULATOR**

Wiktor Wróblewski (Institute of Electrical Power Engineering); Desire D. Rasolomampionona (Institute of Electrical Power Engineering); Ryszard Kowalik (Institute of Electrical Power Engineering); Giulia Amato (Politecnico di Bari)*; Luigi Pio Savastio (Politecnico di Bari); Enrico De Tuglie (Politecnico di Bari)



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