

## Research projects presentation to stakeholders

PhD in 'ENERGY' cycles XXXVI-XXXVII-XXXVIII-XXXIX

December 5<sup>th</sup> 2024 - 9:30-14:00 Aula Capità – Building 7

Viale delle Scienze – Dipartimento di Ingegneria

Università di Palermo

### 9:00 Registration

Introduction from the coordinator of the PhD in 'Energy' – Prof. E. Riva Sanseverino

Institutional greetings:

- Prof. Vincenzo Di Dio – Ordine Ingegneri Palermo
- Prof. Andrea Mazza – IEEE Italy Section Education Chapter
- Ing. Antony Vasile – AEIT Sezione di Palermo

### 9:30 – 9:55

**Session “Multi-energy systems and energy communities” (Chairs: D. Arnone – Engineering SPA, E. Riva Sanseverino – Università di Palermo)**

9:30-9:35 SHORT PRESENTATIONS: AZAM MUHAMMAD FAROOQ, BABAR SHERAZ AHMAD

9:35-9:40 RUFFINO SALVATORE 'Technical-Economic Analysis of Green Hydrogen Production Plants from RES/Electrolysis. Impact on the Power Grid and comparison with other Energy Supply Solutions'

9:40-9:45 SABER GHASHGHAEI 'Game theory for energy communities'

9:45-9:50 ZINNO AURELIO 'Study and development of innovative IoT measurement algorithms and devices for smart grids, smart buildings and for industrial applications intended for the production and distribution of electricity'

9:50-9:55 BILAL SHARIF 'Innovative Tools for Electricity End Uses Management'

### Q&A

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**10:20-11:05**

**Session “Power systems and components reliability for e-mobility and HVDC systems”  
(Chairs: G. Rizzo – EOSS Srl, P. Romano – Università di Palermo)**

10:20-10:25 DI FATTA ALESSIO ‘Partial Discharge Diagnostics in HVDC Application’

10:25-10:30 AKBAR GHULAM ‘Diagnostic and Reliability assessment of electronic components and Power Modules for automotive applications’

10:30-10:40 ALI Qais ‘Demand Side management Strategies for Electric Vehicles Charging/Discharging to support the Intermittent and Variable Nature of renewable Energy Sources’

10:40-10:45 SHORT PRESENTATIONS

SCOZZARO MANUELA, GERLANDO FREQUENTE, GIUSEPPE SORRENTINO

10:45-10:55 UR RAHMAN AQEEL ‘Advance Control and Energy Management of Green Microgrid Integrating Hybrid Energy Storage System for E-Mobility’

10:55-11:05 SCAGLIONE GIOACCHINO ‘Design and implementation of Cascaded H-Bridge based electric drive for E-Mobility applications’

**Q&A**

**11:30 – 12:55**

**Session “Low Carbon energy technologies” (Chairs: M. Ferraro - CNR, M. Beccali – Università di Palermo, G. Poma – AMG Gas)**

11:30-11:35 SHORT PRESENTATIONS

MANTEGNA MIRIAM, SESSA EMILIO, MUNAFO’ FILIPPO, MARTORANA PIERLUCA

11:35-11:40 BABU ANSON Energy harvesting and energy efficiency solutions in a flexographic printing machine

11:40-11:45 RINCIONE ROBERTA Negative spillover effects of low-carbon energy technologies: application to the Italian context

11:45-11:55 BABY BEN ALEX Technologies for production, distribution and use of hydrogen in urban contexts

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11:55-12:05 BRUNETTI ALBERTO, Development of a simplified tool for assessing the carbon footprint of a positive energy district in a life cycle perspective

12:05-12:15 BUSCEMI ALESSANDRO Solid systems for sensible heat storage for solar plants

12:15-12:25 DINO GIUSEPPE EDOARDO Integration of thermal energy systems in Renewable Energy Communities

12:25-12:35 JAFARGHOLI HAMED Sviluppo e validazione di pompe di calore ad aria

12:35-12:45 JUDGE MALIK ALI A neurofuzzy based controller for handling dynamic response of combined set of different resources

12:45-12:55 TESTASECCA TANCREDI Digital Twins of Buildings and Energy Systems

**13:00 – 13:30**

**Session “Fusion reactors” (Chairs: A. Di Maio – Università di Palermo)**

13:00-13:05 VACCA SILVIA Studio del comportamento termo-fluidodinamico e termomeccanico del divertore del reattore a fusione DEMO in condizioni stazionarie e transitorie

13:05-13:15 GIOE' ALBERTO Integrated thermofluid-dynamic and thermo-mechanical assessment of the breeding blanket concepts foreseen for the DEMO fusion reactor

13:15-13:30 GIAMBRONE Salvatore Multi-physical study of the nuclear, thermofluidodynamic and thermostructural response of plasma- facing components of the DEMO nuclear fusion reactor

**Q&A**

**Closing Section**