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GREEN ENERGY COMMUNITIES AND SMART SUSTAINABLE ISLANDS

ORGANIZED BY
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This Special Session is focused on gather research contributions related to the study, design, and integration of innovative equipment, systems, and algorithms able to reach and enable proper energy management of future *smart islands*.
The considered self-sufficient isolated energy system can be represented by strongly automated microgrids integrated with loads, renewable energy sources (RES), distributed generators (DGs), battery energy storage systems (BESS), electric terrestrial and naval vehicles with related charging facilities to meet energy transition needs and ensuring power reliability.
Green and smart islands integrate technically and socially appealing technologies with a crucial role in the smartization and widespread of green Energy Communities. The industrial exploitation of renewable sources, energy storage systems and sustainable mobility, requires a stepwise development of all the processes necessary for building up and managing an independent green island community.

The Special Session will gather contributions of comprehensive conceptual, modelling and manufacturing novel approaches and techniques, starting from multi-physics systems through advanced artificial intelligence approaches, ending to proof of concepts, pilot case study or relevant demonstrators for scientific community, including (but not limited to):

- Advanced solutions and techniques for the integration of renewable energy sources
- Technologies and tools for sustainable energy systems
- Predictive and proactive data-driven techniques for EMS/BMS systems
- Simulation and modelling tools to enable future green energy communities
- Case study and demonstrators of multi-source and multi-goods Microgrids
- Estimation and control systems for SOH and SOC of batteries

This Special Session is organized to disseminate joint research activities of both MESSI (Management Energy Systems for Smart Islands) and BERENICE (Battery EneRgy managemEnt systems for reNewable and cItizen energy CommunitiEs) projects, within the PRIN PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE – 2022).

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