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## Electrochimica Acta

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## Special issue: Electrochemical energy for a greener and more sustainable future society

The present special issue collects 35 original research articles related to contributions presented at the 37<sup>th</sup> Topical Meeting of the International Society of Electrochemistry (ISE) “Electrochemical energy for a greener and more sustainable future society” held in Stresa (Italy) from June 9<sup>th</sup> to 12<sup>th</sup> 2024. These papers represent a snapshot of the state of the art in energy-related electrochemical technologies, spanning secondary batteries (lithium, sodium, and beyond), fuel cells, electrolyzers, and redox flow batteries. Several contributions also address sustainable synthesis routes, environmentally benign materials, and safe, recyclable components, actually demonstrating the community’s commitment to reducing the impact of critical raw materials and the overall carbon footprint of electrochemical systems.

The Topical Meeting took place in the scenic town of Stresa (Photo 1), on Lake Maggiore, at the “Stresa Conference Palace”. The Congress Palace can accommodate up to 650 people in its main auditorium (Photo 2) and offers facilities suitable for hosting parallel sessions.

The interest in and centrality of the meeting’s topics, the appeal of the chosen location, and the prospect of meeting top-notch scientists in the field generated considerable interest, attracting more than 520 scientific contributions, with 15% non-European participants, including

240 students, 102 postdoctoral researchers, 23 professionals from industry, and 155 senior scientists, reflecting the vitality and inclusiveness of the electrochemical energy research community. The Topical meeting was opened by a speech from the ISE President-Elect, Plamen Atanassov (Photo 3) and it featured four parallel sessions namely, (i) Lithium-based technologies, (ii) Beyond lithium: New chemistries and approaches, (iii) Hydrogen production technologies, and (iv) Hydrogen conversion technologies, each introduced by a plenary keynote lecture offering an overview of the latest advances in the field: i) Yi Cui (Stanford University) outlined the state of the art and future directions of lithium battery research, ii) Maria Rosa Palacín (University of Barcelona) explored opportunities in next-generation beyond-lithium batteries, (iii) Radenka Maric (UCONN) discussed cutting-edge technologies for hydrogen production, and (iv) Marian Chatenet (University of Grenoble Alp) focused on recent developments in fuel cells. Remarkably, two round tables were organized, one on energy storage and one on hydrogen, involving mainly industrial stakeholders in order to better connect the academic research community with the relevant production sectors. The discussions across symposia covered a broad scientific spectrum, from fundamental investigations of materials and interfaces to applied

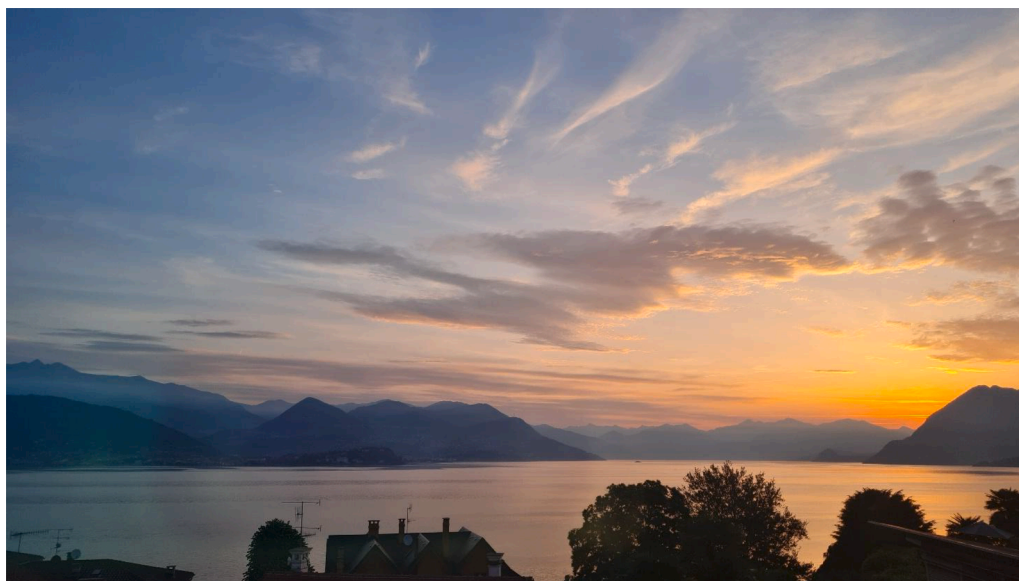


Photo 1. A glimpse from Stresa, the scenographic venue of the meeting.

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research, device prototyping, and system integration, highlighting the cross-disciplinary nature of this rapidly evolving field. The social events, such as the lunches, coffee breaks, the gala dinner and the dancing party (inside the “Stresa Conference Palace”), together with the relaxed atmosphere of the calm town on Lake Maggiore, provided further opportunities for discussion among participants and fostered future collaborations.

Students from all groups of the Italian ISE community contributed to the organization of the Topical Meeting and worked hard to ensure its success (Photo 4). They deserve special thanks for their support and the excellent work carried out. A great number of sponsors took also part in the conference, exhibiting their most relevant technologies at booths in the conference main hall and, through their generosity, helped to make this event possible: CATL, Chemistry Europe, Elsevier, and TecnoGas as sponsors, Amira S.r.l., BioLogic, EL-CELL, emme3, ENEA, FAAM, GAMRY, IVIUM, GEOL, Metrohm, Quantum Design, SpectroInlets, Sphere as exhibitors.

The 37<sup>th</sup> ISE Topical Meeting gathered an exceptionally diverse and vibrant community of scientists working on the electrochemical production, conversion, and storage of energy. The meeting confirmed once

again how electrochemistry plays a central role in building a sustainable energy future, by enabling highly efficient technologies capable of supporting both societal progress and environmental preservation. Together, the works published in this issue not only demonstrate scientific excellence and technological innovation, but also embody the spirit of collaboration and openness that characterized the conference itself. They stand as a testament to the global effort of researchers who, through electrochemistry, are shaping a more sustainable and resilient energy landscape for the future.

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