

Summer School 2024

Energy Storage Systems to face the Climate Challenge: Sustainable development of Li ion batteries XXX International Summer School 'Nicolás Cabrera'

Miraflores de la Sierra, Madrid, Sept. 2-9, 2024

Program

The program will consist of invited lectures, as well as oral contributions and a poster session.

Scope and goals

Climate change and environmental degradation represent a global challenge that will mark future generations, heading to radical changes both at the economic and social level. Batteries are a key element in the transition to a sustainable, carbon-neutral future. Through energy storage we can use energy more effectively, minimizing carbon emissions. Currently, only 3-4% of the electricity generated globally is stored. To limit global warming below 2°C, energy storage capacity should triple by 2050. Therefore, the development of energy storage systems is crucial to explore and advance in this area, as well as the overcoming the different obstacles (social and economic) that stand in the way of its industrial implementation. New and emerging battery technologies, as successors to the Li-ion battery, will be greener, more powerful, intrinsically safe, and based on non-critical and abundant materials.

This Summer School focuses on the analysis of energy storage systems, highlighting their crucial role in addressing challenges related to intermittent renewable sources and integrating with electric vehicles. The primary objective is to equip experimental and theoretical PhD students or PostDocs with a solid background for initiating successful research in condensed matter and materials physics. International experts from academia, research and industry will present and discuss current advances in electrochemical energy storage systems and their application in different fields, showing the latest advances in research of relevant materials and devices.

The program will try to reflect the state of the art and the wide range of advanced analysis techniques used by the battery community, as well as the research-industry connection. We invite you to join us to learn about the latest advances in the field while enjoying an incomparable natural landscape.

Confirmed Invited Speakers

- Pilar Ocón, Universidad Autónoma de Madrid (Spain)
- Alec Talin, Sandia National Laboratories (United States)
- Kristina Edström, Uppsala University (Sweden)
- Philippe Knauth, Aix-Marseille Université (France)
- Enrique Vasco, Spanish National Research Council (Spain)
- Christine Kranz, Ulm University (Germany)
- Enrique García Michel, Universidad Autónoma de Madrid (Spain)
- Santhana Eswara, Luxembourg Institute of Science and Technology (Luxembourg)

- Qiong Cai, University of Surrey (United Kingdom)
- Martin Meedom, Technical University of Denmark (Denmark)
- Maider Zarrabeitia, Helmholtz Institute Ulm (Germany)

History and venue

The International Summer School “Nicolás Cabrera”, financially supported by the BBVA Foundation, deals with current topics in materials science, condensed matter and material physics since 1994. The School is a meeting point for numerous scientists all over the world, who share a few days in Madrid in a particularly pleasant and interacting environment.

The venue of the School is Residence “La Cristalera” in Miraflores de la Sierra, a small village in the mountains 50 km away from Madrid. There will be a welcome reception on Sunday evening (Sept. 1th 2024) with lectures taking place from the morning of Monday (Sept. 2th) until lunch on Friday (Sept. 6th). A few shuttle buses between airport and the residence will be arranged those days.

Organizers

- Carmen Morant (Dept. of Applied Physics, UAM)
- Celia Polop (Dept. of Condensed Matter Physics and Condensed Matter Physics Center IFIMAC, UAM)

Contact

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Local organizing committee

- María Jesús Ramírez Peral (UAM-CSIC)
- Jesús Díaz Sánchez (UAM)
- Arturo Galindo Sanz (CSIC)