



COIN2022

CONTEMPORARY BATTERIES AND SUPERCAPACITORS

INTERNATIONAL SYMPOSIUM
BELGRADE 2022

PROGRAM AND BOOK OF ABSTRACTS

June 1-2, 2022,
Serbian Academy of Sciences and Arts
Belgrade, Serbia

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SCOPE

Serbian Academy of Sciences and Arts will host world-renowned professors and their collaborators to share their activities and achievements in the energy storage and conversion field, thus shedding light on future opportunities. Besides, Alumni of University of Belgrade will present their ongoing research activities.

The conference will cover different research and industrial perspectives in Europe and also educational activities within the prestigious MESC+ study program. Students will get acquainted with possibilities of upgrading their skills and knowledge through postgraduate studies in the best European and world institutions.

FOCUS

- Advances and challenges of contemporary batteries and supercapacitors
- Interactive opportunities for students within MESC+ activities.
<https://mesc-plus.eu>
- Future perspectives on battery research within Battery 2030+ initiative.
<https://battery2030.eu>
- Future industrial battery developments in Serbia
- Activities within research projects in Europe and especially those in Serbia and Montenegro funded by Science Fund of the Republic of Serbia and NATO Science for Peace and Security Programme

RESEARCH TOPICS

- Battery and supercapacitor systems
- Metal-ion (Li-, Na-...) batteries
- Metal-air batteries
- Multivalent charge storage systems
- Materials for energy storage and conversion

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The Role of Surface Chemistry, Structure and Interactions in the Electrochemical Charge Storage Properties of Graphene Oxide and 12-tungstophosphoric Acid Nanocomposites

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Gaining a momentum from newly emerging properties of nanomaterials the further enhancement and integration of various functionalities have been made possible. Also, it became apparent that interaction between nano-objects can provide additional synergy capable of yielding new or significantly improved properties. This particularly applies to the surfaces and interfaces of nanomaterials where the intimate contact between components amplifies possible contributions of interfacial interactions. Since this aspect of interaction-property relation in many nanocomposites is still insufficiently explored, it is of interest to identify to what extent the properties emerge as a result of interaction-based synergy or a co-action of individual components. To address these aspects, we have investigated a nanocomposite of graphene oxide (GO) and 12-tungstophosphoric acid (WPA) – a combination of materials that are known for the rich “portfolio” of properties. In the talk the novel findings will be presented that contribute to better the understanding of interactions between nano-objects and how they contribute to novel properties. The results are showing how simple temperature treatment and weight ratio of components is influencing the evolution of surface, structural properties and charge storage properties – all closely connected to interactions between components. Finally, the implications on synthetic approaches and fine-tuning of the functionality of GO/WPA nanocomposites will be discussed from the perspective of the obtained results.