



Advances in Electrochemical Energy Storage Devices

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

There is a growing interest in electrochemical energy storage devices to empower portable electronics, electric vehicles and to fulfil the need for the large-scale storage of stationary applications. Despite significant research efforts in recent years, there remain key challenges to be overcome in the near future. These include improvements to storage energy density and power density, conversion efficiency, cost, cycle life, battery weight and volume, and battery safety.

Chemical and conceptual developments are progressing, with electrolytes, packaging materials, and electrode materials and structures also advancing. There has been a simultaneous focus on the development of flexible energy storage devices, motivated by the rise of wearable electronics. Furthermore, theoretical and experimental studies are seeking to understand the fundamentals of physicochemical processes, including electronic and ionic transport in electrodes, electrolyte phases and stability, electrochemical reactions, material phase changes, and mechanical and thermal stresses.

Assoc. Prof. Dr. Amor M. Abdelkader

Guest Editor





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Message from the Editor-in-Chief

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