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Research on the Electrochemical Performance of Sodium-Ion Battery

Guest Editors:

Dr. Wei-Jie Li
Institute for Superconducting and Electronic Materials, University of Wollongong, Wollongong 2522, Australia

wl347@uowmail.edu.au

Dr. Chao Han
School of Civil and Environmental Engineering, Faculty of Engineering and Information Technology, University of Technology Sydney, Sydney 2007, Australia

ch861@uowmail.edu.au

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Message from the Guest Editors

Dear Colleagues,

Due to the exhaustion of fossil fuels and environmental pollution, the utilization of renewable energy has become imperative. Renewable energy, such as wind and solar energy, however, is intermittent due to weather variation. To store these types of renewable energy, a large amount of rechargeable battery capacity is needed. Owing to the low cost and abundant resources of sodium, sodium ion batteries (SIBs) have attracted more attention in the past ten years and are considered as a new generation of energy storage devices to replace lithium ion batteries (LIBs) in certain applications. Hitherto, the commercialization of SIBs, however, has been hindered by their low energy density and unsatisfactory cycle life. Therefore, research is still required on: 1) development of cathode candidates with both high energy density and stable cycle life for sodium ion storage; 2) development of anode candidates with high coulombic efficiency and high capacity; 3) development of novel electrolytes with high safety, such as solid-state electrolytes and polymer electrolytes.

Dr. Wei-Jie Li and Dr. Chao Han

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