**DESCRIPTION**

**Presents unparalleled coverage of Na-ion battery technology, including the most recent research and emerging applications**

Na-ion battery technologies have emerged as cost-effective, environmentally friendly alternatives to Li-ion batteries, particularly for large-scale storage applications where battery size is less of a concern than in portable electronics or electric vehicles. Scientists and engineers involved in developing commercially viable Na-ion batteries need to understand the state-of-the-art in constituent materials, electrodes, and electrolytes to meet both performance metrics and economic requirements.

*Sodium-Ion Batteries: Materials, Characterization, and Technology* provides in-depth coverage of the material constituents, characterization, applications, upscaling, and commercialization of Na-ion batteries. Contributions by international experts discuss the development and performance of cathode and anode materials and their characterization - using methods such as NMR spectroscopy, magnetic resonance imaging (MRI), and computational studies - as well as ceramics, ionic liquids, and other solid and liquid electrolytes.

- Discusses the development of battery technology based on the abundant alkali ion sodium
- Features a thorough introduction to Na-ion batteries and their comparison with Li-ion batteries
- Reviews recent research on the structure-electrochemical performance relationship and the development of new solid electrolytes
- Includes a timely overview of commercial perspectives, cost analysis, and safety issues of Na-ion batteries
- Covers emerging technologies including Na-ion capacitors, aqueous sodium batteries, and Na-S batteries
The handbook *Sodium-Ion Batteries: Materials, Characterization, and Technology* is an indispensable reference for researchers and development engineers, materials scientists, electrochemists, and engineering scientists in both academia and industry.

---

**ABOUT THE AUTHOR**

**Maria-Magdalena Titirici** is Chair of Sustainable Energy Materials, Imperial College London, UK, and a Chair in Emerging Sustainable Technologies with the Royal Academy of Engineering.

**Philipp Adelhelm** is Professor for Physical Chemistry at the Humboldt University Berlin, Germany, and heads a joint research group on operando battery analysis at the Helmholtz-Zentrum Berlin für Materialien und Energie, Germany.

**Yong-Sheng Hu** is Full Professor and Director of Key Laboratory for Renewable Energy, Chinese Academy of Sciences, and Founder of HiNa Battery, China.

---

To purchase this product, please visit [https://www.wiley.com/en-es/9783527347094](https://www.wiley.com/en-es/9783527347094)