Edited by Ru-Shi Liu, Lei Zhang, Xueliang (WULLYVVC) Sun, Hansan Liu, and Jiujun Zhang Electrochemical Technologies for Energy Storage and Conversion



# Electrochemical Technologies for Energy Storage and Conversion

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# **Electrochemical Technologies for Energy Storage and Conversion** From Wiley-VCH

In this handbook and ready reference, editors and authors from academia and industry share their in-depth knowledge of known and novel materials, devices and technologies with the reader. The result is a comprehensive overview of electrochemical energy and conversion methods, including batteries, fuel cells, supercapacitors, hydrogen generation and storage as well as solar energy conversion. Each chapter addresses electrochemical processes, materials, components, degradation mechanisms, device assembly and manufacturing, while also discussing the challenges and perspectives for each energy storage device in question. In addition, two introductory chapters acquaint readers with the fundamentals of energy storage and conversion, and with the general engineering aspects of electrochemical devices.

With its uniformly structured, self-contained chapters, this is ideal reading for entrants to the field as well as experienced researchers.

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#### Electrochemical Technologies for Energy Storage and Conversion From Wiley-VCH Bibliography

- Sales Rank: #3560902 in Books
- Published on: 2011-12-12
- Original language: English
- Number of items: 1
- Dimensions: 9.70" h x 1.90" w x 7.00" l, 4.01 pounds
- Binding: Hardcover
- 838 pages

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#### **Editorial Review**

#### Review

"In this handbook gives a comprehensive overview of electrochemical energy and conversion methods." (Energy Database, 2012)

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Ru-Shi Liu is Professor at the Department of Chemistry of the National Taiwan University in Teipei where his research is focused on materials chemistry. After his PhD he joined the Materials Research Laboratories at the Industrial Technology Research Institute in Hsinchu, Taiwan, before returning to Teipei. He received various honors, including the Outstanding Young Chemist Award from the Chinese Chemical Society.

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Hansan Liu is Research Associate at the NRC Institute for Fuel Cell Innovation, Canada. He obtained his PhD from Xiamen University, China. Hansan Liu has ten years of research experience in the field of electrochemical energy conversion and storage devices, including Ni-MH batteries, lithium ion batteries as well as direct methanol and polyelectrolyte membrane fuel cells.

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