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See why the selection of materials is crucial to successful commercialization of PEMFCs

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PROTON EXCHANGE MEMBRANE FUEL CELLS

Materials Properties and Performance

EDITED BY

David P. Wilkinson
UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, CANADA

Jiujun Zhang and **Rob Hui**
NATIONAL RESEARCH COUNCIL INSTITUTE FOR FUEL CELL INNOVATION, VANCOUVER, BRITISH COLUMBIA, CANADA

Jeffrey Fergus
AUBURN UNIVERSITY, ALABAMA, USA

Xianguo Li
UNIVERSITY OF WATERLOO, ONTARIO, CANADA

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A Detailed, Up-to-Date Treatment of Key Developments in PEMFC Materials

The potential to revolutionize the way we power our world

Because of its lower temperature and special polymer electrolyte membrane, the proton exchange membrane fuel cell (PEMFC) is well-suited for transportation, portable, and micro fuel cell applications. But the performance of these fuel cells critically depends on the materials used for the various cell components. Durability, water management, and reducing catalyst poisoning are important factors when selecting PEMFC materials.

Written by international PEMFC scientists and engineers from top-level organizations, **Proton Exchange Membrane Fuel Cells: Materials Properties and Performance** provides a single resource of information for understanding how to select and develop materials for improved PEMFC performance. The book focuses on the major components of the fuel cell unit, along with design and modeling aspects. It covers catalysts and catalyst layers, before discussing the key components of membranes, diffusion layers, and bipolar plates. The book also explores materials modeling for the PEMFC.

This volume assesses the current status of PEMFC fuel cell technology, research and development directions, and the scientific and engineering challenges facing the fuel cell community. It demonstrates how the production of a commercially viable PEMFC requires a compromise of materials with adequate properties, design interaction, and manufacturability.

FEATURES

- Focuses on solutions for PEMFC materials improvement
- Reviews the most recent progress of several key materials and components for PEMFCs
- Presents excellent sources for PEMFC materials selection and improvement
- Discusses principles for selecting materials for other types of fuel cells and electrochemical devices

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