

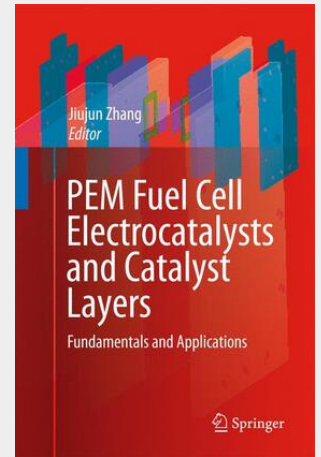
Zhang

## PEM Fuel Cell Electrocatalysts and Catalyst Layers

Fundamentals and Applications

Proton exchange membrane (PEM) fuel cells are promising clean energy converting devices with high efficiency and low to zero emissions. Such power sources can be used in transportation, stationary, portable and micro power applications. The key components of these fuel cells are catalysts and catalyst layers. "PEM Fuel Cell Electrocatalysts and Catalyst Layers" provides a comprehensive, in-depth survey of the field, presented by internationally renowned fuel cell scientists. The opening chapters introduce the fundamentals of electrochemical theory and fuel cell catalysis. Later chapters investigate the synthesis, characterization, and activity validation of PEM fuel cell catalysts. Further chapters describe in detail the integration of the electrocatalyst/catalyst layers into the fuel cell, and their performance validation. Researchers and engineers in the fuel cell industry will find this book a valuable resource, as will students of electrochemical engineering and catalyst synthesis.

Proton exchange membrane (PEM) fuel cells, including H<sub>2</sub>/O<sub>2</sub> (air) and methanol/O<sub>2</sub> (air) fuel cells, are promising clean energy converting devices with high efficiency and low to zero emissions. Such power sources can be used in transportation, stationary, portable and micro power applications. The key components of these fuel cells are catalysts and catalyst layers. PEM Fuel Cell Electrocatalysts and Catalyst Layers covers all of the fundamental aspects and applications of this field. The opening chapters introduce the essential topics on electrochemical theory and fuel cell catalysis, including: electrode thermodynamics, kinetics, and mass transfer; electrode/electrolyte interface electrocatalysis; electrocatalytic reactions, including O<sub>2</sub> reduction and H<sub>2</sub>/CH<sub>3</sub>OH oxidations; quantum chemistry simulations of catalyst activity; catalyst contamination; spectroscopic methods for catalysis research; porous gas electrode theory; and catalyst layers and modeling. Later chapters investigate the synthesis, characterization, and activity validation of PEM fuel cell catalysts. All fuel cell related catalysts are reviewed, including noble and non-noble catalysts and their preparation/performance. Further chapters describe in detail the integration of the electrocatalyst/catalyst layers into the fuel cell, and their performance validation, including; catalyst layer structure function and optimization, catalyst degradation and diagnosis, and strategies to mitigate the failure modes. PEM Fuel Cell Electrocatalysts and Catalyst Layers provides a comprehensive, in-depth survey of PEM fuel cell electrocatalysts and catalyst layers, presented by internationally renowned fuel cell scientists. Researchers and engineers in the fuel cell industry will find this book a valuable resource, as will students of electrochemical engineering and catalyst synthesis.



**267,49 €**

249,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

**Artikelnummer:** 9781848009356

**Medium:** Buch

**ISBN:** 978-1-84800-935-6

**Verlag:** Springer

**Erscheinungstermin:** 12.09.2008

**Sprache(n):** Englisch

**Auflage:** 1. Auflage. 2008

**Produktform:** Gebunden

**Gewicht:** 1876 g

**Seiten:** 1137

**Format (B x H):** 160 x 241 mm

