WOODHEAD PUBLISHING IN MATERIALS

Multifunctional Photocatalytic Materials for Energy

Edited by Zhiqun Lin, Meidan Ye and Mengye Wang

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Contents

Key Features

- Comprehensively covers all aspects of recent developments in multifunctional photocatalytic materials
- Provides fundamental understanding of the structure, properties and energy applications of these materials
- Contributions from leading international experts in the field working in multidisciplinary subject areas

This book discusses recent developments concerning multifunctional photocatalytic materials, such as semiconductors, quantum dots, carbon nanotubes, and graphene, with an emphasis on their novel properties and synthesis strategies, fundamental principles, and their applications in energy fields (for example, hydrogen generation from water splitting, CO_2 reduction to hydrocarbon fuels, degradation of organic pollutants, and solar cells).

Multifunctional Photocatalytic Materials for Energy will serve as not only a valuable reference book for researchers, but also as an instructive text for undergraduate and postgraduate students to increase their knowledge about multifunctional photocatalytic materials and stimulate their interest in designing and creating advanced materials.

Related Titles

- Sorrell et al, Materials for Energy Conversion, 2005, 9781855739321
- Melhem, High Temperature Superconductors, 2011, 9780857090126
- Ye, Handbook of Advanced Dielectric, Piezoelectric, and Ferroelectric Materials, 9781845691868

About the Editors

Zhiqun Lin is currently a professor in the School of Materials Science and Engineering at the Georgia Institute of Technology. His research areas include: solar cells (organic-inorganic hybrid solar cells, dye-sensitized solar cells, and perovskite solar cells), batteries (lithium ion and sodium ion batteries), photocatalysis (e.g., hydrogen generation), polymer-based nanocomposites, block copolymers, conjugated polymers, quantum dots (rods, tetrapods, and wires), functional nanocrystals (metallic, magnetic, semiconducting, ferroelectric, multiferroic, upconversion, and thermoelectric) of different architectures (plain, core/shell, hollow, and Janus), hierarchically structured and assembled materials, and surface and interfacial properties.

Meidan Ye is an associate professor in the Research Institute for Biomimetics and Soft Matter, Department of Physics at Xiamen University. She received her PhD in physical chemistry from Xiamen University in 2014. Her research interests include advanced materials for energy and environment, such as perovskite, dye-sensitized and quantum dot-sensitized solar cells, water-splitting hydrogen production, photocatalytic degradation of organic pollutants, and energy storage devices. She is an author and co-author for over 30 papers published in peer-reviewed journals, including Nano Letters, Journal of the American Chemical Society, Advanced Materials, Advanced Energy Materials, Energy & Environmental Science, etc.

Mengye Wang is a post-doctorate fellow in the Department of Applied Physics at the Hong Kong Polytechnic University. She received her PhD in physical chemistry at Xiamen University in 2015. She did part of her PhD thesis at the Georgia Institute of Technology. She was selected to be a community board member for Materials Horizons in 2015. Her research interests include advanced functional materials for environmental and energy-related applications, such as photocatalytic degradation of organic pollutants, water splitting and dye-sensitized solar cells. She is an author and co-author of 29 papers, including Journal of the American Chemical Society, Energy & Environmental Science, etc.

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