This book explains the aspiring vision of a sustainable hydrogen generating system which employs nanotechnology one way or the other and presents a detailed update on research activities, achievements and challenges. It explores how nanotechnology is reshaping science in general and how this can be applied to the generation and management of hydrogen. The book comprehensively describes the operation and desirable properties of photoelectrochemical systems, with particular emphasis placed on the design of novel solar-to-hydrogen conversion systems.

Solar Hydrogen Production: Processes, Systems and Technologies presents the most recent developments in solar-driven hydrogen generation methods. The book is divided into four parts. The first part presents an overview of solar technologies and their potential for hydrogen generation, including solar cell technology, concentrating solar power, photovoltaics and solar hydrogen. The second part describes the basic principles and technical aspects of solar-to-hydrogen technologies, including water splitting, photoelectrochemical cells, and photovoltaic devices. The third part focuses on the practical aspects of solar-to-hydrogen technologies, including system design, cost analysis, and environmental impact. The fourth part provides an in-depth look at the latest research and developments in the field, including new materials, devices, and technologies. Throughout the book, the authors discuss the current status and future perspectives of solar hydrogen production, including the challenges and opportunities for further development.

This book is intended for researchers, engineers, and policymakers involved in the field of renewable energy, particularly those interested in the potential of solar technologies for hydrogen generation. It is also useful for students and educators in the field of renewable energy, providing a comprehensive overview of the state-of-the-art in solar hydrogen production technologies. Additionally, the book provides an important resource for decision-makers and policy-makers who are interested in the potential of solar technologies for addressing global energy challenges.
advances in chemical engineering 2019-08-09
The cross-disciplinary field of photophysical and photochemical ideas has seen a major breakthrough. This volume of Advances in Chemical Engineering includes original contributions written by leading researchers in the field from around the world. The book presents an overview of the latest developments in photophysical and photochemical processes, as well as their applications in various fields, such as energy, environment, and materials science. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include photophysical processes, photochemical processes, and their applications. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of photophysical and photochemical processes.

Handbook of solid-state chemistry and materials (Beng) 2019-07-25
The Handbook of Solid-State Chemistry and Materials is an indispensable resource for students, researchers, and professionals in the field of materials science. It provides comprehensive coverage of the latest developments in the science of solid-state chemistry and materials, with a focus on the design and preparation of novel materials for technological applications. The Handbook is organized into several sections, each focusing on a specific area of research, such as materials for energy conversion, materials for electronics, and materials for catalysis. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of materials science and engineering.

Solar energy and the climate: linking energy and climate change (Wood) 2019-05-17
This book explores the relationship between solar energy and climate change, and how we can use solar energy to address the challenges of climate change. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include solar energy and climate change, solar energy and energy policy, and solar energy and technology. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of solar energy and climate change.

testing of solar water-gas shift catalysts for solar fuels production (Cassette) 2019-01-01
This book provides a comprehensive overview of the latest developments in the testing of solar water-gas shift catalysts for solar fuels production. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include solar water-gas shift catalysts, solar fuels production, and solar energy. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of solar water-gas shift catalysts and solar fuels production.

Sustainable Hydrogen Production for a low carbon society (Bios) 2018-11-26
This book provides a comprehensive overview of the latest developments in sustainable hydrogen production for a low carbon society. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include sustainable hydrogen production, low carbon society, and energy sustainability. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of sustainable hydrogen production and low carbon society.

Heterogeneous Photocatalysis: From Fundamentals to Applications (Bios) 2018-09-10
This book provides a comprehensive overview of the latest developments in heterogeneous photocatalysis, from fundamentals to applications. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include heterogeneous photocatalysis, fundamentals, and applications. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of heterogeneous photocatalysis.

Handbook of solid-state chemistry and materials (Bios) 2018-07-25
The Handbook of Solid-State Chemistry and Materials is an indispensable resource for students, researchers, and professionals in the field of materials science. It provides comprehensive coverage of the latest developments in the science of solid-state chemistry and materials, with a focus on the design and preparation of novel materials for technological applications. The Handbook is organized into several sections, each focusing on a specific area of research, such as materials for energy conversion, materials for electronics, and materials for catalysis. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of materials science and engineering.

Photocatalysis and pollutant degradation in water treatment (Bios) 2018-05-15
This book provides a comprehensive overview of the latest developments in photocatalysis and pollutant degradation in water treatment. It covers the latest research findings and discusses the future directions of the field. The book is organized into several sections, each focusing on a specific area of research. The sections include photocatalysis, pollutant degradation, and water treatment. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of photocatalysis and pollutant degradation in water treatment.

Handbook of solid-state chemistry and materials (Bios) 2018-03-25
The Handbook of Solid-State Chemistry and Materials is an indispensable resource for students, researchers, and professionals in the field of materials science. It provides comprehensive coverage of the latest developments in the science of solid-state chemistry and materials, with a focus on the design and preparation of novel materials for technological applications. The Handbook is organized into several sections, each focusing on a specific area of research, such as materials for energy conversion, materials for electronics, and materials for catalysis. Each section contains several chapters written by experts in the field. The book is a valuable resource for researchers, students, and practitioners in the field of materials science and engineering.
Hydrothermal Reduction of Catalysts in Low Carbon Fuel Cells

Focusing on recent advances in the field of hydrothermal reduction of catalysts in low carbon fuel cells, this book offers a comprehensive overview of the latest developments in catalyst design and engineering. It covers the key aspects of hydrothermal synthesis, including the role of nanomaterials, and provides a detailed examination of the potential for improving fuel cell performance through innovative catalyst strategies.

Hydrothermal Reduction of Catalysts in Low Carbon Fuel Cells

The book covers advances in hydrothermal synthesis and the use of catalysts in low-carbon fuel cells. It discusses the role of nanomaterials in improving fuel cell performance and the challenges associated with the development of new catalysts. The book also examines the potential for improving fuel cell efficiency through the use of innovative catalyst strategies.

Hydrothermal Reduction of Catalysts in Low Carbon Fuel Cells

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Applied Photocatalysis

Based: - Codeno - 2004-06-07

Applied Photocatalysis: An Introduction to the Chemical Effects of Light on Solids presents an overview of photocatalysis and its applications in a wide range of fields. This book covers the fundamental principles of photocatalysis and provides a detailed examination of the key processes involved. It also explores the potential for using photocatalysis to address a range of environmental and industrial challenges.

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Membrane Systems for Hydrogen Production

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Current Trends in Organometallic Chemistry

Current Trends in Organometallic Chemistry covers the latest research and developments in the field of organometallic chemistry. It explores the fundamental principles and provides a detailed examination of the key processes involved. This book also examines the potential for using organometallic chemistry to address a range of environmental and industrial challenges.

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From Molecules to Materials: Chemistry - From Molecules to Materials: Chemistry: A Comprehensive Guide to the Chemical Effects of Light on Solids presents an overview of the key processes involved in photocatalysis and provides a detailed examination of the potential for using photocatalysis to address a range of environmental and industrial challenges.

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