

RSC Energy and Environment Series

Edited by Hans-Joachim Lewerenz and Laurence Peter

Photoelectrochemical Water Splitting

Materials, Processes and Architectures



RSC Publishing

Written by experts, this book presents the latest knowledge and chemical prospects in developing hydrogen as a solar fuel.

Abstract:

Photoelectrochemical Water Splitting

There has been a resurgence of interest in light-induced water splitting as the search for storable carbon neutral energy becomes more urgent. Although the history of the basic idea dates back more than four decades, efficient, economical and stable integrated devices have yet to be realized.

The field of photoelectrochemistry is entering a new phase where the extraordinary interdisciplinary of the research and development efforts are opening new avenues, and contributing increasingly to the development of novel strategies to develop materials and processes that can be used for the production of solar fuels. The objective of this volume is to provide a meeting ground for these new ideas and to provide background information that places the current research effort in perspective.

The book presents recent progress in materials and devices, with an emphasis on their innovation potential. Materials issues, currently characterized by a rather disordered and often highly empirical approach, are brought together in a more structured discussion and integrated with chapters on characterization methods. At the same time the book offers insights into newly-discovered processes such as those in photosynthesis, and multiple electron transfer.

One hundred years after Ciamician discussed the possibility of harnessing the sun, the book describes the new physics in the area of photonics and excitation energy transfer for solar fuel production. In summary, the book will present a comprehensive overview of current activity in the field, and development horizons provided by the impressive collection of internationally renowned authors therefore represents a unique reflection of current thinking regarding water splitting by light.

Access the first chapter for free!

Click on 'Access to Photoelectrochemical Water Splitting' on the left of the screen, register for a FREE RSC Publishing Personal Account and you can read the first chapter of this book in eBook format!