

## Hydrogen and Fuel Cells

Clean energy technologies using hydrogen as a storage medium are gradually making the transition from a vision to a technological demonstration and finally to industrial reality. The recent worldwide efforts towards clean transport, and the impressive growth in the use of fluctuating renewable power sources such as wind or solar to generate electricity, are stimulating a renewed drive towards a “hydrogen economy”.

The topic has been covered from the very beginning in the proceedings of the series of World Hydrogen Energy Conferences (WHEC) that began in 1976. The volume *Hydrogen and Fuel Cells: Fundamentals, Technologies and Applications* is a collection of contributions from the 18th WHEC, which took place on May 16th to 21st, 2010, in Essen, Germany. These cover a wide range of topics, starting from scientific and technical fundamentals and leading on to strategic, political, socio-economic, and market issues, as well as perspectives on infrastructure and applications.

The book contains a total of 41 contributions written by more than 100 authors, who are all recognized experts in their fields. The individual chapters are structured in sections that cover fuel cell basics, fuel infrastructure, hydrogen production technologies, storage, policy perspectives, strategic analyses, emerging markets, stationary applications, and transportation applications. The individual chapters are of high quality, and are written in a review or even an encyclopedic style. Through this wide coverage of the field, the book serves both as

an introduction for newcomers and as an update for experts on the state of the art of hydrogen and fuel cell technologies. Nevertheless, in order to fully benefit from the contents it would be advantageous to already have a sound understanding of the technical and socio-economic basics of hydrogen energy technology.

Due to the character of the book, the level of detail given in the individual chapters varies widely, from global surveys, such as the chapters on introduction into markets or on regulations, codes, and standards, to scientific reviews like those in the chapters on electro-catalysis or on electrolytic processes in alkaline or PEM (polymer electrolyte membrane) fuel cells.

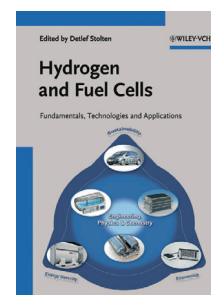
It is obvious that even a book containing 878 pages cannot cover every detail of hydrogen and fuel cell technology. It would have benefited greatly from a few extra chapters, such as one on the state of development of stacks and systems for polymer electrolyte membrane fuel cells (PEFCs), and chapters on state-of-the-art hydrogen purification technologies and on membrane diffusion. A more in-depth discussion of hydrogen filling technology would also have been beneficial.

In summary, the book is a very valuable reference source on the state of the art of hydrogen and fuel cell technologies. For those interested in more in-depth information, the literature references listed at the end of each chapter provide a good starting point.

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