

Contents

Strategic Design of Heterojunction CdS Photocatalysts for Solar Hydrogen	1
Jum Suk Jang and Hyunwoong Park	
Encapsulation for Improving the Efficiencies of Solar Cells	23
Sindhu Seethamraju, Praveen C Ramamurthy, and Giridhar Madras	
Solar Photocatalytic Hydrogen Production: Current Status and Future Challenges	41
Jenny Schneider, Tarek A. Kandiel, and Detlef W. Bahnemann	
Electrochemical and Optical Characterization of Materials Band Structure	75
Suman Parajuli and Mario A. Alpuche-Aviles	
New Cu(I)-Based <i>p</i>-Type Semiconducting Metal Oxides for Solar-to-Fuel Conversion: Investigation and Challenges	97
Upendra A. Joshi	
Theoretical Modeling of Oxide-Photocatalysts for PEC Water Splitting	113
Muhammad N. Huda	
Photo-Fuel-Cells: An Alternative Route for Solar Energy Conversion . . .	135
Maria Antoniadou and Panagiotis Lianos	
Simultaneous Photodegradation and Hydrogen Production with TiO₂/Pt/CdS Using UV-Visible Light in the Presence of a Sacrificial Agent and a Pollutant	153
Aaron Peterson, Winn Wilson, Bratindranath Mukherjee and Vaidyanathan (Ravi) Subramanian	

Stability of the Nanoporous Bismuth Oxide Photoanodes for Solar Water Splitting	173
Kalyan Chitrada and K.S. Raja	
Passivating the Surface of TiO₂ Photoelectrodes with Nb₂O₅ and Al₂O₃ for High-Efficiency Dye-Sensitized Solar Cells	201
Zhaoyue Liu and Lin Li	
Reduction of Carbon Dioxide: Photo-Catalytic Route to Solar Fuels . . .	211
B. Viswanathan	
Index	235

Materials and Processes for Solar Fuel Production

Viswanathan, B.; Subramanian, V.R.; Lee, J.S. (Eds.)

2014, XII, 237 p. 147 illus., 107 illus. in color.,

Hardcover

ISBN: 978-1-4939-1627-6