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Fundamental Process Steps; 1.6 Photoelectrode Implementations; 1.6.1 Single-Junction Performance Limits; 1.6.2 Multijunction Performance Limits; 1.6.3 A Shining Example; 1.7 The PEC Challenge; 1.7.1 What's Needed, Really?; 1.7.2 Tradeoffs and Compromises
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2.5.3 Description of Local Excited States2.5.4 Nonadiabatic Behavior of a System and Interfacial Electron Transfer; Acknowledgments; References; 3 Photocatalytic Reactions on Model Single Crystal TiO2 Surfaces; 3.1 TiO2 Single-Crystal Surfaces; 3.2 Photoreactions Over Semiconductor Surfaces; 3.3 Ethanol Reactions Over TiO2(110) Surface; 3.4 Photocatalysis and Structure Sensitivity; 3.5 Hydrogen Production from Ethanol Over Au/TiO2 Catalysts; 3.6 Conclusions; References; 4 Fundamental Reactions on Rutile TiO2(110) Model Photocatalysts Studied by High-Resolution Scanning Tunneling Microscopy
4.1 Introduction

Sommario/riassunto

More energy from the sun strikes Earth in an hour than is consumed by humans in an entire year. Efficiently harnessing solar power for sustainable generation of hydrogen requires low-cost, purpose-built, functional materials combined with inexpensive large-scale manufacturing methods. These issues are comprehensively addressed in On Solar Hydrogen & Nanotechnology - an authoritative, interdisciplinary source of fundamental and applied knowledge in all areas related to solar hydrogen. Written by leading experts, the book emphasizes state-of-the-art materials and characterization techniqu