

1. Record Nr.	UNINA9910299613403321
Titolo	From Molecules to Materials [[electronic resource]] : Pathways to Artificial Photosynthesis // edited by Elena A. Rozhkova, Katsuhiko Ariga
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-13800-6
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (324 p.)
Disciplina	541.37 620.11 621.042
Soggetti	Renewable energy resources Biomaterials Electrochemistry Renewable and Green Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Preface -- Semiconductors for Photocatalytic and Photoelectrochemical Solar Water Splitting -- Artificial Photosynthesis Producing Solar Fuels: Natural Tactics of Photosynthesis -- The evolution of artificial-photosynthesis from molecular to organic/inorganic hybrid nano-systems -- Enzymes as exploratory catalysts in Artificial Photosynthesis -- Solar photoelectrochemical water splitting with bio-conjugate and bio-hybrid electrodes -- Hybrid (enzymatic and photocatalytic) systems for CO ₂ -water co-processing to afford energy rich molecules -- Current challenges of CO ₂ photocatalytic reduction over semiconductors using sunlight -- Functionalized Nano-carbons for Artificial Photosynthesis; from Fullerenes to SWCNTs and graphene -- Plasmonic Photocatalysts with Wide Light Absorption Spectra and High Charge Separation Efficiency -- Soft X-ray Spectroscopy and Electronic Structure of 3d Transition Metal Compounds in Artificial Photosynthesis Materials -- Assessment of the electronic structure of photo-electrodes with X-ray and electron spectroscopy.

Sommario/riassunto

This interdisciplinary book focuses on the various aspects transformation of the energy from sunlight into the chemical bonds of a fuel, known as the artificial photosynthesis, and addresses the emergent challenges connected with growing societal demands for clean and sustainable energy technologies. The editors assemble the research of world-recognized experts in the field of both molecular and materials artificial systems for energy production. Contributors cover the full scope of research on photosynthesis and related energy processes.
