1. Record Nr. UNINA9910130557003321

Titolo	Bioinorganic photochemistry [[electronic resource] /] / Grazyna Stochel ... [et al.]
Pubbl/distr/stampa	Chichester, West Sussex, : Wiley, 2009
ISBN	1-4051-9327-1 1-4443-0884-X
Descrizione fisica	1 online resource (400 p.)
Altri autori (Persone)	StochelGrazyna
Disciplina	572.435
Soggetti	Bioinorganic chemistry Photobiochemistry
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 and index.
Nota di contenuto	Bioinorganic Photochemistry; Contents; Preface; Abbreviations; Part I: Introduction; 1: Philosophy of Bioinorganic Photochemistry; Part II: Fundamentals; 2: Light and Matter; 2.1 Nature of Light; 2.2 Accessible Light Sources; 2.3 Interaction between Light and Matter; 3: Formation and Properties of Electronic Excited States; 3.1 Wave Mechanics and Quantum Numbers; 3.2 Electronic Excitation; 4: Photophysical Deactivation of Electronic Excited States; 4.1 Spontaneous Deactivation; 4.2 Quenching; 4.3 Coordination and Organometallic Compounds; 5: Kinetics of the Excited-State Decay 6: Photochemical Reactions6.1 Photochemical Reaction Channels; 6.2 Intramolecular Photoreactions; 6.2.1 Photodissociation and Photoionization; 6.2.2 Photoisomerization; 6.3 Intermolecular Photoreactions; 6.4 The Coordination Compound Specificity; 6.4.1 Ligand Field Photochemistry; 6.4.2 Photochemistry from LC or LLCT States; 6.4.3 Inner-Sphere Charge Transfer Photochemistry; 6.4.4 Outer-Sphere Charge Transfer Photochemistry; 6.5 Photosensitized Reactions; 6.6 Homogeneous Photocatalysis; 7: Photochemistry and Photophysics of Supramolecular Systems and Nanoassemblies 7.1 From Molecules through Clusters to Crystals7.2 Metallic Nanoparticles: Metals in the Embryonic State; 7.3 Formation and Decay of the Excited States of Semiconductors; 7.3.1 Optical Excitation of Semiconductors; 7.3.2 Electrons and Hole Trapping; 7.3.3 Radiative vs

Non-Radiative Decay; 7.3.4 Surface-Molecule Interaction: General Description; 7.3.5 Heterogeneous Photocatalysis; Part III: Natural Photoprocesses Involving Inorganic Compounds; 8: From Interstellar Space to Planetary Atmospheres; 8.1 Homogeneous Systems: From Interstellar Space to Planetary Atmospheres and Primitive Soup Models 8.2 Heterogeneous Photochemistry in Ice Phases9: Solar Radiation and Terrestrial Environment; 9.1 Solar Radiation; 9.2 Atmospheric Photochemistry; 9.3 Photochemistry in the Hydrosphere and Soil; 9.3.1 Nitrate Photochemistry; 9.3.2 Role of Humic Substances; 9.3.3 Photocatalysis by FeIII/FeII Complexes; 9.3.4 Photocatalysis by CuII/CuI Complexes; 9.3.5 Photocatalysis by Chromium Compounds; 9.4 Photochemical Self-Cleaning in the Environment; 10: Heterogeneous (Photo)Catalysis and Biogenesis on Earth; 10.1 (Photo)catalysis of Chalcogenide Semiconductors; 10.2 Photocatalytic Nitrogen Fixation 10.3 Photocatalytic Carbon Dioxide Reduction10.4 'Fossils' of Prebiotic Catalysts: Metal Clusters in Active Centres of Metalloenzymes; 11: Foundation and Evolution of Photosynthesis; 11.1 Photosynthetic Structures; 11.2 Aerobic Photosynthesis; 11.2.1 Photosystem II (PSII); 11.2.2 Photosystem I (PSI); 11.3 Light Harvesting Antennae (LHC); 11.3.1 Chlorophyll; 11.3.2 Bacteriochlorophyll; 11.4 Electron Transfer Pathways in PSII and PSI; 11.5 Oxygen-Evolving Complex (OEC); 11.5.1 Inorganic Species in OEC; Part IV: Photochemistry and Photophysics in Bioinspired Systems: Studies and Modelling
12: Photoenzymes

Sommario/riassunto

Bioinorganic photochemistry is a rapidly evolving field integrating inorganic photochemistry with biological, medical and environmental sciences. The interactions of light with inorganic species in natural systems, and the applications in artificial systems of medical or environmental importance, form the basis of this challenging inter-disciplinary research area. Bioinorganic Photochemistry provides a comprehensive overview of the concepts and reactions fundamental to the field, illustrating important applications in biological, medical and environmental sciences. Topics covered include:Cos