

Inorganic Photochemistry

This completely updated text provides introduction to the fundamental principles of modern inorganic photochemistry, with an emphasis on its applications. This text presents the material in a didactically skillful and lucid manner.

This is the most updated, comprehensive collection of monographs on all aspects of photochemistry and photophysics related to natural and synthetic, inorganic, organic, and biological supramolecular systems. Supramolecular Photochemistry: Controlling Photochemical Processes addresses reactions in crystals, organized assemblies, monolayers, zeolites, clays, silica, micelles, polymers, dendrimers, organic hosts, supramolecular structures, organic glass, proteins and DNA, and applications of photosystems in confined media. This landmark publication describes the past, present, and future of this growing interdisciplinary area.

Features surveys of all areas of organic, inorganic, physical and biological photochemistry. The text serves as a source of scientific findings pertinent to chemistry and biochemistry. It addresses the state of developments in the field, employing reviews of active research, including recent innovations, techniques and applications.

The handbook comprehensively covers the field of inorganic photochemistry from the fundamentals to the main applications. The first section of the book describes the historical development of inorganic photochemistry, along with the fundamentals related to this multidisciplinary scientific field. The main experimental techniques employed in state-of-art studies are described in detail in the second section followed by a third section including theoretical investigations in the field. In the next three sections, the photophysical and photochemical properties of coordination compounds, supramolecular systems and inorganic semiconductors are summarized by experts on these materials. Finally, the application of photoactive inorganic compounds in key sectors of our society is highlighted. The sections cover applications in bioimaging and sensing, drug delivery and cancer therapy, solar energy conversion to electricity and fuels, organic synthesis, environmental remediation and optoelectronics among others. The chapters provide a concise overview of the main achievements in the recent years and highlight the challenges for future research. This handbook offers a unique compilation for practitioners of inorganic photochemistry in both industry and academia.

Theory, Experiments, and Applications

Photochemistry and Photophysics

Inorganic Photochemistry: State-of the Art Symposium

Photochemistry

Multimetallic and Macromolecular Inorganic Photochemistry

The main streams of development of the photochemistry of coordination compounds are summarized and related to current areas of major activity. Several are illustrated in terms of work in progress in the author's laboratory. The d³ system of Cr(III) complexes has become the paradigm one for the field, and detailed studies of emission lifetimes and of rates of primary photoproduct formation clarify the chemistry of the first doublet and quartet thermally equilibrated excited (thexi) states. New rules governing emission lifetimes are presented. Excited state absorption spectra and possible resonance Raman spectroscopy of thehexi states are described for Rh(III) complexes. Results on the photochemistry of Co(III) amines having a Co-S bond are given, and on the chemistry and photophysics of aqueous polymers of Pt(CN)₄(²⁻). Likely directions of development in the next decade are discussed. Existing and new model systems will be explored in increasing depth; there will be major advances in elucidating the reaction mechanisms of thehexi states and on their spectroscopy and thermodynamics. Studies on solar energy conversion systems will continue, with some laboratory but no economic success. (Author).

The Advances in Inorganic Chemistry series present timely and informative summaries of the current progress in a variety of subject areas within inorganic chemistry, ranging from bio-inorganic to solid state studies. This acclaimed serial features reviews written by experts in the field and serves as an indispensable reference to advanced researchers. Each volume contains an index, and each chapter is fully referenced. Features comprehensive reviews on the latest developments Includes contributions from leading experts in the field Serves as an indispensable reference to advanced researchers

This anthological description of the history and applications of photochemistry provides photochemistry practitioners with complementary information about the field, currently not covered in existing textbooks and handbooks. The first part focuses on the historical development of the field, including light-matter interaction, the discovery of photochemical reactions and the development of modern photochemical mechanisms. This section provides useful background to the second part which outlines applications of photochemistry in the present day, such as in synthesis, green chemistry, diagnostics, medicine and nanotechnology. Furthermore, the author provides an outlook on promising areas for future developments. The broad scope of "Photochemistry: Past, Present and Future" is also of interest to the wider chemical audience and it makes a pleasant read while not compromising on scientific rigor.

This volume combines reviews on the latest advances in photochemical research with specific topical highlights in the field. Starting with periodical reports of the recent literature on organic and computational aspects including reports on computational photochemistry and chemiluminescence of biological and nanotechnological molecules, photochemistry of alkenes, dienes and polyenes, aromatic compounds and oxygen-containing functions. The final chapter of this section is a review of industrial application of photochemistry from 2014 to 2019. Coverage continues with highlighted topics, in the second part, from ruthenium-caged bioactive compounds, advances in logically and light induced systems, developments of metal-free photocatalysts, photoresponsive organophosphorus materials and applications of photo-fragmentation in synthesis, photo-click chemistry and azo-based

molecular photoswitches. This volume will again include a section entitled 'SPR Lectures on Photochemistry', a collection of examples for academic readers to introduce a photochemistry topic and precious help for students in photochemistry. Providing critical analysis of the topics, this book is essential reading for anyone wanting to keep up to date with the literature on photochemistry and its applications. "A certain amount of energy destroys the same amount of CO₂ according to the whether it is administered continuously or intermittently. In order to rationalize this result there are two possibilities, either the destruction of CO₂ further occurred in the dark periods, which would lead to the same form of energy storing form, or in the illuminated period the reaction goes at twice the rate." O. Warburg, *Biochem. Z.*, 1919, 100, 230-270.

Volume 49

Past, Present and Future

Inorganic Chemistry

Part I. Photochemistry of Rhodium Tris(1,1,1-trifluoro-2,4-pentanedione). Part II. Copper(I) Sensitized Valence Isomerization of Norbornadiene to Quadricyclene

Chemistry of the Upper and Lower Atmosphere

Since the publication of the second edition of this handbook in 1993, the field of photochemical sciences has continued to expand across several disciplines including organic, inorganic, physical, analytical, and biological chemistries, and, most recently, nanosciences. Emphasizing the important role light-induced processes play in all of these fields

Focusing on complex naturally-occurring and synthetic supramolecular arrays, this work describes the mechanism by which transition metal complexes bind to DNA and how the DNA scaffold modifies the photochemical and photophysical properties to bound complexes. It includes details of photoinduced electron transfer between intercalated molecules, and examines thermally and photochemically induced electron transfer in supramolecular assemblies consisting of inorganic molecular building blocks.

Focusing on practical applications, the author provides a balanced introduction to the many possible technological uses of metal complexes. Coverage includes the transition metals, lanthanide and actinide complexes, metal porphyrins, and many other complexes. This volume meets the needs of students and scientists in inorganic chemistry, chemical physics, and solid-state physics.

Photochemistry is an important facet in the study of the origin of life and prebiotic chemistry. Solar photons are the unique source of the large amounts of energy likely required to initiate the organisation of matter to produce biological life. The Miller-Urey experiment simulated the conditions thought to be present on the early earth and supported the hypothesis that under such conditions complex organic compounds could be synthesised from simpler inorganic precursors. The experiment inspired many others, including the production of various alcohols, aldehydes and organic acids through UV-photolysis of water vapour with carbon monoxide. This book covers the photochemical aspects of the study of prebiotic and origin of life chemistry an ideal companion for postgraduates and researchers in prebiotic chemistry, photochemistry, photobiology, chemical biology and astrochemistry.

Biomedical Applications of Inorganic Photochemistry

Advances in Inorganic Chemistry

Volume 47

Supramolecular Photochemistry

Applied Photochemistry

Providing critical analysis of topics, this book is essential reading for anyone wanting to keep up to date with the literature on photochemistry and its applications. This volume combines reviews on the latest advances in photochemical research with specific topical highlights in the field. Starting with periodical reports of the recent literature on physical and inorganic aspects including reviews of the molecules of colour and art, light induced reactions in cryogenic matrices, photobiological systems studied by time-resolved infrared spectroscopy and photophysics and photochemistry of transition metal complexes. This first section is completed by a more expansive review of the literature from 2015-2020 on solar photocatalysis for water decontamination and disinfection. Coverage continues with highlighted topics, in the second part, from C-C and C-Heteroatom bonds photocatalyzed and photoinitiated by carbonyls, development of dye-sensitized solar cells, luminescent water soluble systems, photoinduced and photocatalyzed decarboxylation reactions and applications of plasmonic nanoparticles. This volume will again include a third section entitled 'SPR Lectures on Photochemistry', providing examples for academic readers to introduce a photochemistry topic and precious help for students in photochemistry. Also included is a prize winning PhD from the United States Environmental Protection Agency.

Aimed at senior undergraduates and first-year graduate students, this book offers a principles-based approach to inorganic chemistry that, unlike other texts, uses chemical applications of group theory and molecular orbital theory throughout as an underlying framework. This highly physical approach allows students to derive the greatest benefit of topics such as molecular orbital acid-base theory, band theory of solids, and inorganic photochemistry, to name a few. Takes a principles-based, group and molecular orbital theory approach to inorganic chemistry The first inorganic chemistry textbook to provide a thorough treatment of group theory, a topic usually relegated to only one or two chapters of texts, giving it only a cursory overview Covers atomic and molecular term symbols, symmetry coordinates in vibrational spectroscopy using the projection operator method, polyatomic MO theory, band theory, and Tanabe-Sugano diagrams Includes a heavy dose of group theory in the primary inorganic textbook, most of the pedagogical benefits of integration and reinforcement of this material in the treatment of other topics, such as frontier MO acid-base theory, band theory of solids, inorganic photochemistry, the Jahn-Teller effect, and Wade's rules are fully realized Very physical in nature compare to other textbooks in the field, taking the time to go through mathematical derivations and to compare and contrast different theories of bonding in order to allow for a more rigorous treatment of their application to molecular structure, bonding, and spectroscopy Informal and engaging writing style; worked examples throughout the text; unanswered problems in every chapter; contains a generous use of informative, colorful illustrations

Biomedical Applications of Inorganic Photochemistry, Volume 80 in the Advances in Inorganic Chemistry series, highlights new advances in the field, with this new volume presenting interesting chapters written by an international board of authors. Chapters in this new release include Photochemical bio-signaling with Ruthenium complexes, Adventures in the photo-uncaging of small molecule bioregulators, Challenges in medicinal inorganic chemistry and best practices to ensure rigor and reproducibility, Strategic Design of Photo-functional Transition Metal Complexes for Targeted Bioimaging and Therapy, Photoactive Manganese carbonyl Complexes with fac-{Mn(CO)₃} Moiety: Design,

Application, and Potential as Prodrugs in CO Therapy, Mitochondrial Targeting Metal Complexes, and more. Other chapters cover Photoactive Organometallic Compounds with Antimicrobial Properties, Photoactivated platinum anticancer complexes, New ruthenium phthalocyanines liposomal-encapsulated in modulation of nitric oxide and singlet oxygen release: Selectivity cytotoxicity effect on cancerous cell lines, Inorganic Nanoparticles Engineered for Light-Triggered Unconventional Therapies, Mechanistic insight into phot-activation of small inorganic molecules from the biomedical application perspectives, Ruthenium Complexes for Photoactivated Dual Activity: Drug Delivery and Singlet Oxygen Generation, and Leveraging the Photophysical Properties of Rhenium(I) Tricarbonyl Complexes for Biomedical Applications. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in Advances in Inorganic Chemistry series Updated release includes the latest information on Biomedical Applications of Inorganic Photochemistry

This textbook covers the spectrum from basic concepts of photochemistry and photophysics to selected examples of current applications and research. Clearly structured, the first part of the text discusses the formation, properties and reactivity of excited states of inorganic and organic molecules and supramolecular species, as well as experimental techniques. The second part focuses on the photochemical and photophysical processes in nature and artificial systems, using a wealth of examples taken from applications in nature, industry and current research fields, ranging from natural photosynthesis, to photomedicine, polymerizations, photoprotection of materials, holography, luminescence sensors, energy conversion, and storage and sustainability issues. Written by an excellent author team combining scientific experience with didactical writing skills, this is the definitive answer to the needs of students, lecturers and researchers alike going into this interdisciplinary and fast growing field.

Prebiotic Photochemistry

Photochemistry and Photophysics of Metal Complexes

Photochemistry Volume 48

Photochemistry — 7

Concepts, Research, Applications

The latest developments in photochemistry on solid surfaces, i.e. photochemistry in heterogeneous systems, including liquid crystallines, are brought together for the first time in a single volume. Distinguished photochemists from various fields have contributed to the book which covers a number of important applications: molecular photo-devices for super-memory, photochemical vapor deposition to produce thin-layered electronic semiconducting materials, sensitive optical media, the control of photochemical reactions pathways, etc. Photochemistry on solid surfaces is now a major field and this book which provides an up-to-date and comprehensive overview of the subject will be of interest to a wide range of readers.

Inorganic Photochemistry Academic Press

Drawing on the continued wealth of photochemical research, this volume combines reviews on the latest advances in the field with specific topical highlights. Starting with periodical reports of the recent literature on physical and inorganic aspects, light induced reactions in cryogenic matrices, properties of transition-metal compounds, time-resolved spectroscopy, the exploitation of solar energy and the molecules of colour. Coverage continues with highlighted topics, in the second part, from photoresponsive hydrogels, the tunable photoredox properties of organic dyes, light-driven asymmetric organocatalytic processes, dual gold-photoredox catalysis, the preparation and characterization of photosensitizers for triplet-triplet annihilation photon upconversion and the role of photochemistry on traditional synthetic processes. This volume will include for the first time a section entitled 'SPR Lectures on Photochemistry', providing examples for academic readers to introduce a photochemistry topic and precious help for students in photochemistry. Providing critical analysis of the topics, this book is essential reading for anyone wanting to keep up to date with the literature on photochemistry and its applications.

A description of applications to electrical conductors, nonlinear optical devices, polymer light-emitting diodes (LEDs), electronic devices, batteries, antistatic coatings, and transistors. It reviews cases of metal-organic polymers incorporated with traditional organic polymers; assesses key properties of conjugated polymers; discusses features of

Symposium: Applications of Inorganic Photochemistry

Organic Photochemistry

Handbook of Photochemistry

Springer Handbook of Inorganic Photochemistry

Controlling Photochemical Processes

This is one of the few books available that uses unifying theoretical concepts to present inorganic chemistry at the advanced undergraduate and graduate levels--most texts are organized around the periodic table, while this one is structured after bonding models, structure types, and reaction patterns. But the real strength of Porterfield's Second Edition is its clear presentation of ample background description, especially in recent areas of development such as cluster molecules, industrial catalysis, and bio-inorganic chemistry. This information will enable students to understand most current journals, empowering them to stay abreast of the latest advances in the field. Specific improvements of the Second Edition include new chapters on materials-science applications and bioinorganic chemistry, an extended discussion of transition-metal applications (including cuprate superconductors), and extended Tanabe-Sugano diagrams. Extended treatment of inorganic materials science--ceramics, refractories, magnetic materials,

superconductors--in the context of solid-state chemistry Extended coverage of biological systems and their chemical and physiological consequences--02 metabolism, N₂ fixation, muscle action, iron storage, cisplatin and nucleic acid structural probes, and photosynthesis Unusual structures and species--silatranes, metallacarboranes, alkalides and electrides, vapor-deposition species, proton and hybrid sponges, massive transition-metal clusters, and agostic ligands Thorough examination of industrial processes using organometallic catalysts and their mechanisms Entropy-driven reactions Complete discussion of inorganic photochemistry

Photochemistry — 7 is a collection of plenary lectures presented at the Seventh Symposium on Photochemistry held in Leuven, Belgium, on July 24-28, 1978. Contributors explore a wide range of topics relating to photochemistry, including the chemistry of exciplexes and the photo-oxidation of polymers. Excited state electron-transfer reactions of transition metal complexes are also discussed, along with the photochemistry of diazocompounds and azides in argon. This volume is comprised of 12 chapters and begins with a review of the role of exciplex intermediates in photocycloadditions involving polyenes and excited anthracenes. The reader is then introduced to the use of photochemical conversion of one molecule into another as an approach to the synthesis of natural products. The following chapters focus on the use of the Linear Combination of Fragment Configurations approach to generate qualitative potential energy surfaces; reciprocal interactions of polymers with excited solutes or polymer-bound chromophores; photochemistry of some three-membered heterocycles; cis-trans photoisomerization of 4-nitrostilbenes; and electron transfer in monolayer assemblies. This monograph will be of value to chemists.

Here is the most comprehensive and up-to-date treatment of one of the hottest areas of chemical research. The treatment of fundamental kinetics and photochemistry will be highly useful to chemistry students and their instructors at the graduate level, as well as postdoctoral fellows entering this new, exciting, and well-funded field with a Ph.D. in a related discipline (e.g., analytical, organic, or physical chemistry, chemical physics, etc.). Chemistry of the Upper and Lower Atmosphere provides postgraduate researchers and teachers with a uniquely detailed, comprehensive, and authoritative resource. The text bridges the "gap" between the fundamental chemistry of the earth's atmosphere and "real world" examples of its application to the development of sound scientific risk assessments and associated risk management control strategies for both tropospheric and stratospheric pollutants. Serves as a graduate textbook and "must have" reference for all atmospheric scientists Provides more than 5000 references to the literature through the end of 1998 Presents tables of new actinic flux data for the troposphere and stratosphere (0-40km) Summarizes kinetic and photochemical data for the troposphere and stratosphere Features problems at the end of most chapters to enhance the book's use in teaching Includes applications of the OZIPR box model with comprehensive chemistry for student use

This monograph/reference focuses on those subjects that are considered essential to an understanding of inorganic photochemistry. Graduate students with a background in physical chemistry will find that the quantum mechanical treatments related to the principles of spectroscopy and chemical dynamics are readily accessible. And professionals will find that the tabulated data, equations, and general information makes this book an essential complement to the journal literature required in the daily planning of photochemical work. Chapters cover the nature of light and the uncertainty principle, detection of intermediates, elements of inorganic spectroscopy, kinetics of photoluminescence, photoredox reactions, ligand field photochemistry, and elements of organometallic photochemistry. Extensive appendixes cover physical constants and conversion factors for photochemical work, character tables for symmetry groups, vibrational motions, description of the chemical bonding in coordination complexes, charge transfer transitions, and Born cycles related to charge transfer processes.

Advances in Photochemistry

Principles of Inorganic Chemistry

Plenary Lectures Presented at the Seventh Symposium on Photochemistry, Leuven, Belgium, 24-28 July 1978

Mechanistic Inorganic Photochemistry

Inorganic photochemistry

Applied Photochemistry encompasses the major applications of the chemical effects resulting from light absorption by atoms and molecules in chemistry, physics, medicine and engineering, and contains contributions from specialists in these key areas. Particular emphasis is placed both on how photochemistry contributes to these disciplines and on what the current developments are. The book starts with a general description of the interaction between light and matter, which provides the general background to photochemistry for non-specialists. The following chapters develop the general synthetic and mechanistic aspects of photochemistry as applied to both organic and inorganic materials, together with types of materials which are useful as light absorbers, emitters, sensitizers, etc. for a wide variety of applications. A detailed discussion is presented on the photochemical processes occurring in the Earth's atmosphere, including discussion of important current aspects such as ozone depletion. Two important distinct, but interconnected, applications of photochemistry are in photocatalytic treatment of wastes and in solar energy conversion. Semiconductor photochemistry plays an important role in these and is discussed with reference to both of these areas. Free radicals and reactive oxygen species are of major importance in many chemical, biological and medical applications of photochemistry, and are discussed in depth. The following chapters discuss the relevance of using light in medicine, both with various types of phototherapy and in medical diagnostics. The development of optical sensors and probes is closely related to diagnostics, but is also relevant to many other applications, and is discussed separately. Important aspects of applied photochemistry in electronics and imaging, through processes such as photolithography, are discussed and it is shown how this is allowing the increasing miniaturisation of semiconductor devices for a wide variety of electronics applications and the development of nanometer scale devices. The final two chapters provide the basic ideas necessary to set up a photochemical laboratory and to characterise excited states. This book is aimed at those in science, engineering and medicine who are interested in applying photochemistry in a broad spectrum of areas. Each chapter has the basic theories and methods for its particular applications and directs the reader to the current, important literature in the field, making Applied Photochemistry suitable for both the novice and the experienced photochemist.

A description of applications to electrical conductors, nonlinear optical devices, polymer light-emitting diodes (LEDs), electronic devices, batteries, antistatic coatings, and transistors. It reviews cases of metal-organic polymers incorporated with traditional organic polymers; assesses key properties of conjugated polymers; discusses features of d₁₀ complexes and their interactions with DNA; and more.

Setting the pace for progress and innovation . . . "[Provides] a wealth of information on frontier photochemistry . . . could easily serve as a definitive source of background information for future researchers." —Journal of the American Chemical Society "The overall quality of the series and the timeliness of selections and authors warrants continuation of the series by any library wishing to maintain a first-rate reference series to the literature."

—Physics Today ADVANCES IN PHOTOCHEMISTRY More than a simple survey of the current literature, Advances in Photochemistry offers critical evaluations written by internationally recognized experts. These pioneering scientists offer unique and varied points of view of the existing data. Their articles are challenging as well as provocative and are intended to stimulate discussion, promote further research, and encourage new developments in the field.

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: Cosmic and environmental photochemistry Photochemistry of biologically relevant nanoassemblies Molecular aspects of photosynthesis Photoinduced electron transfer in biosystems Modern therapeutic strategies in photomedicine The book concludes with an outlook for the future of environmental protection, discussing emerging techniques in the field of pollution abatement, and the potential for bioinorganic photochemistry as a pathway to developing cheap, environmentally friendly sources of energy. Written as an authoritative guide for researchers involved in the development of bioinorganic photochemical processes, Bioinorganic Photochemistry is also accessible to scientists new to the field, and will be a key reference source for advanced courses in inorganic, and bioinorganic chemistry.

State of the Art Symposium

Photochemistry on Solid Surfaces

Concepts of Inorganic Photochemistry

Whither Inorganic Photochemistry. A Parochial View

PHOTOPHYSICAL PROCESSES - ENERGY LEVELS AND SPECTRA; KINETICS OF PHOTOPHYSICAL PROCESSES; CHARGE - TRANSFER PHOTOCHEMISTRY; SUBSTITUTIONAL PHOTOCHEMISTRY OF FIRST - ROW TRANSITION ELEMENTS; PHOCHEMISTRY OF THE HEAVIER ELEMENTS; PHOTOCHEMISTRY OF CARBONYL COMPLEXES; PHOTOCHEMISTRY OF 1,3 - DIKETONATE CHELATES; THE PHOTOLYSIS OF SIMPLE INORGANIC IONS IN SOLUTION; PHOTOCHEMISTRY IN THE SOLID STATE; PHOTOCROMISM AND CHEMILUMINESCENCE.

The breadth of scientific and technological interests in the general topic of photochemistry is truly enormous and includes, for example, such diverse areas as microelectronics, atmospheric chemistry, organic synthesis, non-conventional photoimaging, photosynthesis, solar energy conversion, polymer technologies, and spectroscopy. This Specialist Periodical Report on Photochemistry aims to provide an annual review of photo-induced processes that have relevance to the above wide-ranging academic and commercial disciplines, and interests in chemistry, physics, biology and technology. In order to provide easy access to this vast and varied literature, each volume of Photochemistry comprises sections concerned with photophysical processes in condensed phases, organic aspects which are sub-divided by chromophore type, polymer photochemistry, and photochemical aspects of solar energy conversion. Volume 34 covers literature published from July 2001 to June 2002. Specialist Periodical Reports provide systematic and detailed review coverage in major areas of chemical research. Compiled by teams of leading authorities in the relevant subject areas, the series creates a unique service for the active research chemist, with regular, in-depth accounts of progress in particular fields of chemistry. Subject coverage within different volumes of a given title is similar and publication is on an annual or biennial basis.

Drawing on the continued wealth of photochemical research, this volume combines reviews in the latest advances in the field with specific topical highlights. Starting with periodical reports of the literature from 2015-2016 on physical and inorganic aspects, light induced reactions in cryogenic matrices, triplet states on polymers and related materials, properties of transition-metal compounds and the exploitation of solar energy. Coverage continues with highlighted topics in the second part from photoredox systems for building C-C bonds from carbon dioxide, photochemistry in art, photoresponsive devices targeting nucleic acid structures, developments in photodynamic therapy devices and photocatalysis with donor-acceptor polymers. Providing critical analysis of the topics, this book is essential reading for anyone wanting to keep up to date with the literature on photochemistry and its applications.

Inorganic Photochemistry

Organic and Inorganic Photochemistry

Bioinorganic Photochemistry

State of the Art Symposium for Chemical Educators : National Meeting : Papers

From UreyMiller-like Experiments to Recent Findings