

1. Record Nr.	UNINA9910437807503321
Titolo	Applied photochemistry / / Rachel C. Evans, Peter Douglas, Hugh D. Burrows, editors
Pubbl/distr/stampa	Dordrecht, : Springer Science, 2013
ISBN	90-481-3830-2
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (619 p.)
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Disciplina	541.35
Soggetti	Photochemistry Chemistry, Physical and theoretical
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	Foundations of Photochemistry: A Background on the Interaction Between Light and Molecules -- Photochemical Synthesis -- Inorganic Photochemistry -- Photochemical Materials: Absorbers, Emitters, Displays, Sensitisers, Acceptors, Traps and Photochromics -- Atmospheric Photochemistry -- Photodegradation of Pesticides and Photocatalysis in the Treatment of Water and Waste -- Solar Energy Conversion -- Radiolytic and Photolytic Production of Free Radicals and Reactive Oxygen Species: Interactions with Antioxidants and Biomolecules -- Photomedicine -- Photochemistry in Medical Diagnostics -- Photochemical Imaging -- Optical Sensors and Probes -- Photochemistry in Electronics -- The Photochemical Laboratory -- Experimental Techniques for Excited State Characterisation.
Sommario/riassunto	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, sensitisers, 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.
