Book Review

Modern Molecular Photochemistry of Organic Molecules

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The book will be of interest to scientists doing organic chemistry, as well as nanotechnology, chemical biology, physical chemistry and polymer and materials science. It contains a wealth of information on photochemical and photophysical processes with a systematic approach and readers will not be disappointed.

Organic photochemistry first emerged in the 1960s as a significant discipline. Now, some 50 years later, the book shows how diverse the field has become. The authors who are well-recognized photochemists connect topics old and new, from the incorporation of quantum and molecular orbital theory to the present state of the discipline. There are 15 chapters; each contains many subsections, where the authors pay close attention to the basic principles of photochemistry and photophysics of organic compounds.

Chapters 1–3 include an introduction and overview to organic photochemistry in the 21st century, and the merits for studying it. Descriptions of atomic and molecular orbitals and electronic configurations are provided, including a vector model of electron spin. I found it particularly interesting to read about the role of orbital orientation in spin–orbit coupling. The topics were written making it easy to follow, and lacked any lengthy mathematical treatments.

Chapters 4 and 5 cover radiative transitions between electronic states in processes, such as light absorption and emission of compounds. Pictorial representations are given that always help the reader in what is being explained. There are many diagrams to help visualize processes, such as spin–orbit coupling-induced radiationless transitions in intersystem crossing and other electronic relaxations.

A theoretical treatment of organic photoreactions is given in Chapter 6. This treatment is based on potential energy surfaces and correlation diagrams, among other things, including funnels that effectively “mate” surfaces. One discussion was aimed at an energy surface paradigm for organic photochemical reactions.

Chapters 7 and 8 describe energy transfer and electron transfer reactions, including triplet–triplet annihilation of energy transfer from electron exchange interactions. Mechanistic organic photochemistry is introduced with the focus on a way that it offers researchers of diverse backgrounds an opportunity to grasp the material to understand how it can be used to complement their own research effort.

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Modern Molecular Photochemistry of Organic Molecules. This title presents a totally integrated theory of organic photochemistry, including the first visualization of the role of electron spin at all levels. Chapters describing how experiment and theory can be applied to an understanding of the fundamental chromophors of organic chemistry are included.

Specifications:
- Publisher: 1
- 1.2 Learning Molecular Organic Photochemistry through the Visualization of Molecular Structures and the Dynamics of Their Transformations
- 1.3 Why Study Molecular Organic Photochemistry?
- 1.4 The Value of Pictorial Representations and Visualization of Scientific Concepts
- 1.5 Scientific Paradigms of Molecular Organic Photochemistry


Absorption and Emission Spectra of Organic Molecules: Benchmarks

The Nature of Light: From Particles to Waves to Wave Angewandte Books Chemie Modern Molecular Photochemistry of Organic Molecules Photochemical reactions involving electronic (and spin) isomers of ground-state molecules continue to get attention, as demonstrated by the recent publication of several books in this field, e.g., two other books besides this one within the last few months. A problem often encountered in connection with photochemical reactions is that they are still considered too exotic and unpredictable for wide synthetic application. On the other hand, predicting how an organic molecule will behave upon absorption of light
I would like to invite you to submit a paper to an upcoming Special Issue on "Supramolecular Organic Photochemistry" to be published early next year in Molecules. The issue should highlight this vibrant field. Manuscripts that address photochemical processes in all types of confined environments from rigid crystals to flexible micelles, liquid crystals or solvent cages in solutions are of interest. Your contribution would be very welcome for possible publication in this issue. Please submit your article online at https://www.mdpi.com/user/manuscripts/upload/?journal=molecules. If you have any Modern Molecular Photochemistry book. Read 3 reviews from the world's largest community for readers. During the last two decades the photochemistry of organic molecules has grown into an important and pervasive branch of organic chemistry. In Modern Molecular Photochemistry, the author brings students up to date with the advances in this field - the development of the theory of photoreactions, the utilization of photoreactions in synthetic sequences, and the advancement of the photochemistry of organic molecules has grown into an important and pervasive branch of organic chemistry.