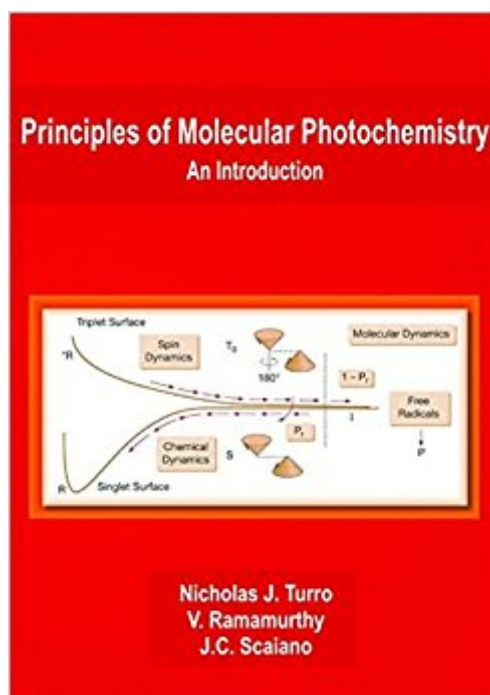


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# Principles Of Molecular Photochemistry: An Introduction



## Synopsis

This book develops photochemical and photophysical concepts from a small set of familiar principles. Derived in part from Nick Turro's best-selling text for three decades *Modern Molecular Photochemistry* this updated primer introduces an initial paradigm that relates the photon and a reactant molecular structure to photochemistry through the structure and dynamics of electronically excited states, reactive intermediates and products. The same paradigm is readily adapted to incorporate the photon and a reactant molecular structure to photophysics. The book provides brilliantly clear descriptions in pictorial terms that can be readily understood by the student and applied to systems of interest. This text will be of interest to not only practicing photochemists and their students, but also to biological scientists, polymer scientists, material scientists and nanoscientists who use photochemistry and photophysics in their research and teaching.

## Book Information

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## Customer Reviews

Exceptionally thorough and well written, *Principles of Molecular Photochemistry* will be useful to every active researcher in the field. Filled with reference material for experts, the book also gives an excellent introduction to photochemical reactivity for students. - --Malcolm Forbes, University of North Carolina, Chapel Hill

Nicholas J. Turro is a professor of chemistry at Columbia University. V. Ramamurthy is a professor of chemistry at University of Miami. J.C. Scaiano is a professor of chemistry at University of Ottawa.

This book is absolutely impossible to read. Turro just repeats the same points over and over and over. All the information in Chapters one and two are repeated again and again and AGAIN for the rest of the book in an apparent attempt to make a document that can be turned into a hardcover book and sold for nearly \$100. This book is literally the most useless book I have ever purchased. I also purchased the longer version of this book by Turro and had the same experience! My instructor forced his students to buy this book. He was a Turro student and admitted to being a reviewer of this book, so it was obvious that he had some financial stake in us purchasing the book and wanted to increase his own prestige by trying to increase the popularity of Turro. Ultimately the course wasn't useful and the book even less so. Now if I was going to write this review in Turro style I would repeat what I just said seven more times to make this comment long, boring, and undigestable. Look to other sources to try to learn Photochemistry and skip this atrocity.

Simply the best in photochemistry and photophysics textbooks like its precedent "Modern molecular photochemistry". I pre-ordered it upon the first news of its coming. Dr. Turro is a great teacher as well as a great scientist. I listened to his speech a few years ago and he can really explain abstract ideas in an easy way for you. Generations have benefited from his previous book. This new one has exactly that quality and tradition to remain the best in the business. It rearranges the chapters and adds some of the effect of spin and electron transfer on photochemistry. I recommend also his organic photochemistry lecture videos to the readers.

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Useful book, has a few typos and errors. To be expected. Good Price with nice information. Diagrams are helpful and theory is well explained.

Very clear description of concepts. This is one of my favorite books.

A good introduction.

This is an excellent book of a team of prominent scientists. The book considers both basics of the science and recent achievements in modern photochemistry. I strongly recommend it to the readers.

Turro's latest version of the photochemistry book is an outgrowth of his lifelong passion for assimilating, subliming and distilling his thoughts spanning tens of thousands of hours on this topic. The hall mark of Turro's writing style - clarity of thought, inimitable presentation style, addressing the reader directly, student friendly exposition of photochemical events, obvious but hidden allusions and suggestions for further thought, and penchant for integrating the latest in his science - is clearly manifested in this latest book. I am not amazed at this extraordinary feat emanating from a pioneering expert who chose to coauthor this book with two other excellent photochemists, probably to penetrate and perpetuate the impact of his pedagogic acumen to posterity. I have been a close follower of his photochemistry classics starting from his prototype like precursor to the present endeavor. Let me proudly recall my tryst with Turro's writings with my discovery of his first book on photochemistry (Molecular Photochemistry, Benjamin, New York, 1965) in the summer of 1976 at the sumptuous library of the Bhabha Atomic Research Centre in Mumbai (where I spent most of my non-experimental hours in that institution during my best youthful days), when I had to initiate my Ph.D. program in the organic photochemistry of laser dyes. Scanning the high energy chemistry shelf at that library, I chose Turro's book with an instant spark of spontaneity, which I never regretted in terms of the gains it entailed in expanding the horizon with minimum effort and maximum efficiency, although some of my then colleagues did not agree with my opinion, which I ever expressed freely being an ardent believer of democratic principles. Eversince, I have been following his later improvements on this topic including the 1978 book [Modern Molecular Photochemistry, University Science Press]. The evolutionary transformations of this topic have been clearly reflected in this book, which is not merely a revision of his old books, but is marked by a novel and superior reorganization skill and definite improvement of the topics. The present book, subtitled as an introduction, encompasses the ground realities of photochemical principles that envelop the photochemical and photophysical processes. These principles are adorned with an extraordinary treatment of quantum mechanical basis. Modern chemical approach of quantum mechanics commences with the enunciation of axiomatic designations and generalizations of quantum mechanical concepts instead of initiating the topics with tortuous mathematical paths. This book dwells upon another level of simplification of quantum mechanical thoughts, which will be

acceptable both to chemistry majors who have finished physical chemistry primers covering quantum mechanics, and bioscience majors who may want to master the photobiological scenario. The wave functions are divided into orbital, nuclear, and spin components, and they are explained confining all the underlying principles necessary in the context of the book without defying comprehension. The principles are annotated with simple pictures and models that serve to illustrate the related concepts, which impart pedagogical ease. Such a trend pervades the whole book extending up to the final chapters that elaborate on the photochemical principles of organic reactions, and concepts on energy transfers. The book is accentuated with electron and nuclear spin concepts, in a scale proportionate to the extreme emerging importance of spintronics in modern material science and nanotechnology, which physicists and mathematicians may consider as an aid to appreciate the physical significance and extra-dimensions of their own work. Linguistically, the book bears the repeated stamp of special terms such as paradigms and exemplars, which carry more weight and meaning in the context of the treatment of the book. Each time they show up, we are reminded of the elevated status of these terms as distinct from mere models and examples, thanks to the exemplary influence of giants like Kuhn and Popper on Turro's genius. There are, I believe, deliberate evasion of usual acronym for Highest Occupied Molecular Orbital by choosing the short form HO from ethical considerations to circumvent the unavoidable connotations linked to the use of the more familiar short form. In general, the language is perennially clear and clever to dismiss ambiguities. This book has a unique position in the firmament of photochemical teaching, and as a reference work for experts and researchers. I have gone through, at various stages of my career, at least seven introductory books on photochemistry, of which Turro's book stands out owing to its positive attributes as a clear representation of photochemistry, as a supplementary source of information for chemists in general, as a structurally significant intellectual product, and as complementary resources for high energy radiation chemistry workers. Inevitably, a book with a high concentration on basic principles should be followed by a sequel elaborating on the application aspects, which, in the context of photochemistry, I guess, should be an admixture of organic reactions, molecular recognition, nanochemistry, photobiology inclusive of chemical biological aspects of inorganic chemistry, and, of course, frontiers of material science. Scientific community, I am sure, will tune for such a development!

Joy T. Kunjappu, D.Sc., Ph.D. Adjunct Professor  
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