

Modern Molecular Photochemistry of Organic Molecules

by N. J. Turro, V. Ramamurthy, J. C. Scaiano.

Science Books, 2010, 1120 pp., hardcover, £159.00, ISBN 978-1891389252

Every photochemist knows “The Turro”.^[1] It has given many graduate students a quick start for their research in this area, and has served researchers as well as teachers as both a quick reference book and educational resource. Nicholas J. Turro has now—finally, to speak for a large part of the community—much expanded and updated his book by getting J. C. (Tito) Scaiano and V. Ramamurthy as two additional authors and world-renowned photochemists on board. This new book was already in the making when I was doing my post-doc in Tito Scaiano’s lab more than 15 years ago, highlighting without a doubt the tremendous amount of work that has gone into it. As I can see now, the original title “Modern Molecular Photochemistry” has been conserved, but “of Organic Molecules” has been added to express what it anyway always was, a primary resource for *organic* photochemists. It should be noted here that the first seven chapters of the book have been published separately in unchanged form (even the page numbers of the chapters are the same) as “Principles of Molecular Photochemistry”.^[2] The version reviewed here is the complete one, meaning that it incorporates eight additional chapters dealing with specific photochemical reactions of various classes of organic compounds. These could already be found in the original textbook, but have been reorganized, and expanded by many examples, including a chapter on supramolecular photochemistry.

I have consulted this book during the past few months with real curiosity-driven problems as I encountered them in research and teaching. The textbook definitely serves as an efficient quick resource. The first test is always whether a topic is at least listed in the index. For example, on searching for “exciton” I found no hit; searching for “dual fluores-

cence”, however, pointed me right to the section with dimethylaminobenzonitrile and its derivatives, where I also found what I was interested in, namely the statement that “The large electronic, conformational changes make them ultrasensitive to supramolecular (solvent cage) effects.” Unfortunately, and this brings me to the only critical point of this important textbook, I did not find a reference here which would point me directly to the original primary literature, and allow me to corroborate what I just read and was interested in. The book *does* have many references at the end of each chapter, and added up over all chapters, they are similar in total number to those contained in other recently published textbooks in the same subject area.^[3] However, the references are often mentioned in a general context at the outset of a section. Frequently, references, mostly to reviews, are directly given after the section titles. Many crucial statements and particularly experimental data, and especially in Chapters 2–6, remain thus unsupported by links to the original literature. I have to pick the tables as most substantial examples. Table 4.3 in the new edition contains updated values compared to Table 5.2 in the old edition, but entirely misses the footnotes with the references, which were actually all contained in Turro’s original book. The same applies to Table 5.5 in the old edition versus Table 4.6 in the new edition (here, the spelling of 2,3-diazabicyclo[2.2.2]oct-2-ene has been amended in the new edition, but its quantum yield still stands at 100%, while it actually is only around 20%). The missing references in these powerful tables will make it difficult for me to give away my old worn-out and tattered Turro.

The Turro–Ramamurthy–Scaiano is a great pleasure to read, though its hardcover and doubled weight will make it less attractive for bedtime reading as the old book was (for me, and presumably many more students). It is compelling in its conceptual approach to seemingly difficult and theoretical photophysical aspects. It has been comprehensively updated, now including, for example, explicit reference throughout to conical in-

tersections, which had still not been broadly established when the older edition had been printed. The book contains numerous figures with (original or sketched) experimental spectra and decay traces, which is excellent. If I could pick a chapter that has undergone the most impressive improvement, it would be “Energy Transfer and Electron Transfer”, which now incorporates all key experiments over the last decades that have led, in particular, to the advanced understanding of electron transfer processes. The book is worth getting just for this Chapter 7. Another highlight is Chapter 13, which provides both an introduction to supramolecular effects and how they can be exploited for photochemical reactions as well as photophysical pathways. For the physically oriented photochemist, on the other hand, Chapter 8 is very helpful, since it gives the reader a quick start into time-resolved kinetics, which is what photochemical and photophysical processes are all about. Finally, I found in my version of the book a conversion table for wavelengths into different energy dimensions from eV to kcal mol⁻¹ glued onto the inside front cover. I know how useful such gadgets are for routine photophysical work, because until now I had always consulted Table 14.1 in an older photochemistry book for this purpose.^[4]

To sum up, I can highly recommend the Turro–Ramamurthy–Scaiano textbook. However, I strongly prefer the extended version over the shorter one,^[2] even if it were merely for teaching purposes. It is a substantially revised and expanded, comprehensive textbook, which will equally serve graduate students, university teachers, and researchers in the area of photochemistry. In fact, it is a good investment for every chemist’s office and a must-have for every photochemist. I would recommend having it on the bookshelf side-by-side with the recently published advanced textbook by P. Klan and J. Wirz.^[3]

Prof. Dr. Werner Nau
Jacobs University
28759 Bremen (Germany)
DOI: 10.1002/cphc.201000976

- [1] N. J. Turro, *Modern Molecular Photochemistry*, University Science Books, Mill Valley, 1991.
- [2] N. J. Turro, V. Ramamurthy, J. C. Scaiano, *Principles of Molecular Photochemistry*, University Science Books, Sausalito, 2009.
- [3] P. Klan, J. Wirz, *Photochemistry of Organic Compounds*, John Wiley & Sons, Chichester, 2009.
- [4] H. G. O. Becker, *Einführung in die Photochemie*, Deutscher Verlag der Wissenschaften, Berlin, 1991.



ENABLE DISCOVERY

WILEY ONLINE LIBRARY

Access this journal and thousands of other essential resources.

Featuring a clean and easy-to-use interface, this online service delivers intuitive navigation, enhanced discoverability, expanded functionalities, and a range of personalization and alerting options.

Sign up for content alerts and RSS feeds, access full-text, learn more about the journal, find related content, export citations, and click through to references.

