

Fundamentals of Photochemistry (Third Edition). K. K. Rohatgi-Mukherjee. New Age International (P) Limited Publishers, 7/30A, Daryaganj, New Delhi 100 002. 2014. xvi + 370 pp. Price: Rs 299.

This book, since its first edition about four decades ago, has been one of the most useful and popular introductory-level textbooks on photochemistry in India. The second edition was a substantial improvement over the first and was more comprehensive in its coverage of fundamental concepts of photochemistry and its applications. The third edition is virtually same as the second, the only changes being removal of typographical errors present in the previous edition and the figures made clearer.

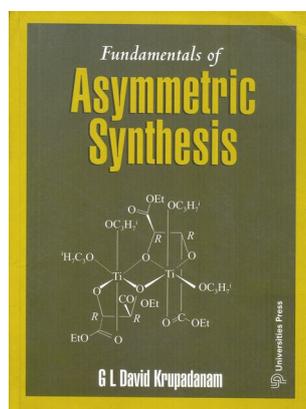
The book has a good logical organization. The concepts have been developed starting from the very beginning: light-matter interaction. It then progresses to the quantum mechanical basis of photoinduced transitions, components of optical spectroscopy relevant to photochemistry, energetics and kinetics of excited state processes, instrumentation and some examples. Special emphasis has been made on the kinetics of bimolecular processes due to their great importance and applications in diverse areas. The discussion on electronic energy transfer processes is detailed and lucidly puts across some difficult concepts. The chapter on instrumentation is short, but brings out the essential features well. Emphasis on 'physical photochemistry' is the strength of the book. Photochemical reactions, both organic as well as inorganic, are given less importance. Having been designed as a textbook, the presentation style is generally concise. The lack of an

'exercise' section at the end of each chapter has been a shortcoming of this book. It would have been better if the issue had been addressed in this edition.

Overall, this third edition, even without any restructuring, continues to be a useful textbook for physical photochemistry at the introductory level.

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Fundamentals of Asymmetric Synthesis. David Krupadanam. Universities Press (India), Private Limited, 3-6-747/1/A and 3-6-754/1, Himayatnagar, Hyderabad 500 029. 2013. viii + 460 pp. Price: Rs 650.

The book under review is an excellent reference book for new faculty, practitioners of asymmetric synthesis in the laboratory and also for students pursuing their Ph D or Master's programme in organic chemistry. Bringing in all aspects of asymmetry in about 450 pages is a difficult task and the author has executed this rather efficiently. The introduction part is informative and one need not be a chemist to appreciate it. The description and examples chosen in this part for chiral drugs, food additives and insecticides will certainly inspire the readers and impress upon them the importance of asymmetry in organic synthesis.

The book has 17 chapters with sufficient introduction to each chapter and the definition of technical words is given in simple English. The author David Krupadanam has brought in his entire teaching

experience in putting this book together. The chapter on the methods of monitoring the enantioselectivity and diastereoselectivity would be useful to the student community. The author has taken special interest in introducing some technical material, which is not used in day-to-day operations now, however it would be of interest to the faculty of yesteryears. Exercises at the end of each chapter are provided for students to attempt and gauge the level of their understanding. Both, stoichiometric and catalytic versions of asymmetric synthesis are described adequately for understanding the concepts. The annexures at the end of the book describing the symmetry elements, point groups and description of molecules with multiple chiral centres are useful to the reader.

Some limitations of this book are – non-inclusion of a dedicated chapter on asymmetric organocatalysis (a recent fast developing field), importance of asymmetry in natural products and chronological improvements in asymmetric synthesis. A dedicated chapter on all the names of reactions discovered so far would have been a good addition.

This book systematically deals chapter-wise with various aspects of asymmetric synthesis. Initially, the author describes the importance of asymmetry with many chiral drug examples like (S)-ibuprofen, (S)-naproxen, (S)-omeprazole, etc. which have a proper diagnostic receptor site due to their steric orientation. Later, he nicely explains the asymmetric synthesis terms, definitions, properties and prochirality in chapters 2, 3 and 4 respectively. The mechanistic aspects of asymmetric induction in substrate-controlled diastereoselective nucleophilic addition reactions are rationalized elaborately with well-established Cram, Felkin-Anh, Prelog's models in chapter 8. Most of the classical asymmetric reactions are covered in chapters 9–17 with proper introduction, suitable transition states and novel applications. Even though supplementary references to each chapter are limited, the author has chosen precise and appropriate citations.

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