Book Reviews

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Organic Spectroscopy, 3rd Edition. WILLIAM KEMP. W.H. Freeman and Company, 41 Madison Avenue, New York, NY 10010. 1991. xxii + 393 pp. 15.5 × 23 cm. $24.95 (paper) $34.95 (cloth). ISBN 0-7167-2227-5 (paper), 0-7167-226-7 (cloth).

The author indicates in the introduction that the need for a 3rd edition is catalyzed by the recent rapid advances in nmr techniques and mentions three important changes from the second edition. The changes are (1) less discussion of obsolete instruments and techniques and more coverage of the details of spectrometer operation such as Fourier transforms and computers, (2) the introduction of 100 new student exercises, and (3) the extensive elaboration of the chapter on nmr.

A wide scope of spectroscopic techniques is presented in a six-chapter format. The chapters are listed as (1) Energy and the Electromagnetic Spectrum, (2) Infrared Spectroscopy, (3) Nuclear Magnetic Resonance Spectroscopy, (4) Ultraviolet and Visible Spectroscopy, (5) Mass Spectrometry, and (6) Spectroscopy Problems. A special feature is the extensive use of chapter supplements to describe the more sophisticated techniques. The stated purpose of the supplements is to enable beginning students to come to grips with the simpler ideas of spectroscopy and then to be able to move at their own pace to conquer the more complex techniques.

This reviewer is of the opinion that the author achieves his goal of providing a text that can be used by the beginning student as well as the established chemist. The main body of each chapter is written in a clear and concise manner which is instructive in nature. The use of extensive correlation tables of all types, along with the supplements on the more complex techniques such as 2D nmr, make this an excellent reference book for the experienced chemist. It is a well-balanced presentation, and the problems are excellent. The only criticism is that the company uses no color or contrast. However, this may be why the price is quite reasonable.

In conclusion, this text is worth reading and having on your shelf as a reference book. It is also suitable for use in advanced undergraduate and graduate courses on instrumental techniques.

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Reviews in Computational Chemistry, Volume 2. Edited by K.B. LIPKOWITZ and D.B. BOYD. VCH Publishers, 220 East 23rd Street, Suite 909, New York, NY 10010. 1991. xvi + 527 pp. 15.5 × 23.5 cm. $125.00. ISBN 1-56081-515-9.

This series is intended to provide scientists with the latest information on how computers can help them better understand molecules. The first four chapters review conformational analysis, molecular mechanics, and molecular dynamics. Midway we find four chapters on quantum chemistry. Topics include: the calculation of properties of hydrogen bonds, calculation of molecular electric and electrostatic potentials, and semiempirical molecular orbital methods. Lastly, there are two chapters on quantitative structure-activity relationships. Readers of this journal will probably find these to be the most interesting. Chapter 9, Molecular Connectivity Chi Indexes and Kappa Shape Indexes in Structure-Property Modeling, provides a good introduction to formalizing molecular features for computer use in structure-activity calculations. It is written for the uninitiated; the method is illustrated with simple examples, and results of several QSAR studies are shown. Numerous references are given at the end of the chapter to facilitate further study. Chapter 10, The Electron-Topological Approach to the QSAR Problem, reviews methods for describing electronic feature of molecules as well as the topological. The authors proceed quickly through the basic ideas of the approach and then show several specific applications. The material is appropriate for readers who are unfamiliar with the subject. For those who wish to proceed in greater depth there is an extensive list of references.

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