

P. W. Atkins: Molecular Quantum Mechanics, 2nd Ed. Oxford: University Press, 1983, 471 pp., hardcover price: £29.50, paperback price: £13.95

P. W. Atkins, successful author of an introductory textbook on physical chemistry, presents here the second completely revised edition of his book on "Molecular Quantum Mechanics" which appeared firstly in 1970. It is addressed to graduate students of chemistry who are interested in a more detailed presentation of the quantum mechanical background than it is offered in the common one-volume textbooks on physical chemistry. Emphasis is laid on the foundations of quantum mechanics into which the reader is introduced on two different levels: The first is the historical approach basing on the important experimental findings at the turn of this century. In this part some exact solutions of Schrödinger's equation for linear and rotational motion are treated. The second approach is more abstract making consequent use of operator calculus. This part includes chapters on angular momentum, group theory and techniques of approximation. The applications are confined to free atoms and molecules, i.e. to atomic spectra and atomic structure, molecular spectra and molecular structure, leaving apart specialized techniques of approximation. The last part, denoted "advanced application", deals with the electric and magnetic properties of molecules. Each chapter is followed by a set of problems, the total number exceeding 260; moreover, 50 worked examples are inserted into the text. To avoid disruption of the text all longer mathematical derivations are collected together in an appendix of about 40 pages. What makes this book so attractive is the lucid organization of the material, the crisp and clear style of the author who has the talent to present abstract problems attracting the interest of the reader and to give him the conviction that he has understood the main ideas. The layout is such that the many well-drawn illustrations, among which numerous computer graphs, are arranged at the margin, thus avoiding disruption of the text. The book can be highly recommended as an introductory textbook of quantum mechanics for students of chemistry.

F. Becker, Frankfurt a.M.

Received April 17, 1984