



Quantum Chemistry

By R.K. Prasad

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KEY FEATURES:

- An excellent textbook for postgraduate students majoring in quantum chemistry, and for chemistry graduates.
- Basics, exposition of principles, applications, mathematical derivations, sufficient examples and practice problems are the advanced features of this updated edition.
- A self-educator for students of chemistry and a reference for associated research activities.

ABOUT THE BOOK:

The fourth edition of Quantum Chemistry is an updated textbook on the subject covering the model syllabi of various undergraduate and postgraduate courses. The book contains the basics of quantum mechanics and quantum mechanical laws; applications of translational, vibrational and rotational motions of sub-atomic particles; theories of harmonic oscillator and atomic structure etc. The Hartree Fock self-consistent field methods, configuration, interaction, extended Huckel theory etc. are all presented with utmost clarity and examples.

The present edition contains a chapter on matrix-vector methods of quantum mechanics as well as one on density functional theory along with molecular symmetry and group theory with applications to molecular orbital treatment. Steps involved in mathematical derivations are presented in full, leaving no ambiguity. Illustrative examples and practice problems, with hints are provided in each chapter.

ABOUT THE AUTHOR(S):

Dr. R. K. Prasad is an eminent physical chemistry teacher. He is credited with guiding 25 students for research related projects and has published about fifty research papers in various journals. His works are mostly in the areas of molecular spectroscopy, quantum chemistry and chemical kinetics.

CONTENTS:

- Quantum Theory
- Matter Waves
- Quantum Mechanical Formalism
- Translational Motion of a Particle

- Vibrational Motion of a Particle (Harmonic Oscillator)
- Rotational Motion of a Particle
- Hydrogen and Hydrogen-like Atoms
- Approximation Methods
- Multielectronic Atoms
- Theory of Angular Momentum
- Symmetry, Group Theory and Quantum Chemistry
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Editorial Review

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