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The Oscillating and Rotating Diatomic Molecule; 6d. The Particle in a Box; 6e. Diffraction by a Crystal Lattice; 7. The Hydrogen Atom; 7a. Solution of the Equations of Motion
 7b. Application of the Quantum Rules. The Energy Levels
 7c. Description of the Orbits; 7d. Spatial Quantization; 8. The Decline of the Old Quantum Theory; Chapter III: The Schrodinger Wave Equation with the Harmonic Oscillator as an Example; 9. The Schrodinger Wave Equation; 9a. The Wave Equation Including the Time; 9b. The Amplitude Equation; 9c. Wave Functions. Discrete and Continuous Sets of Characteristic Energy Values; 9d. The Complex Conjugate Wave Function $\psi^*(x, t)$; 10. The Physical Interpretation of the Wave Functions; 10a. $\psi^*(x, t)\psi(x, t)$ as a Probability Distribution Function
 10b. Stationary States
 10c. Further Physical Interpretation. Average Values of Dynamical Quantities; 11. The Harmonic Oscillator in Wave Mechanics; 11a. Solution of the Wave Equation; 11b. The Wave Functions for the Harmonic Oscillator and their Physical Interpretation; 11c. Mathematical Properties of the Harmonic Oscillator Wave Functions; Chapter IV: The Wave Equation for a System of Point Particles in Three Dimensions; 12. The Wave Equation for a System of Point Particles; 12a. The Wave Equation Including the Time; 12b. The Amplitude Equation
 12c. The Complex Conjugate Wave Function $\psi^*(x_1 \dots x_N, t)$
 12d. The Physical Interpretation of the Wave Functions; 13. The Free Particle; 14. The Particle in a Box; 15. The Three-dimensional Harmonic Oscillator in Cartesian Coordinates; 16. Curvilinear Coordinates; 17. The Three-dimensional Harmonic Oscillator in Cylindrical Coordinates; Chapter V: The Hydrogen Atom; 18. The Solution of the Wave Equation by the Polynomial Method and the Determination of the Energy Levels; 18a. The Separation of the Wave Equation. The Translational Motion; 18b. The Solution of the Equation
 18c. The Solution of the Equation

Sommario/riassunto

When this classic text was first published in 1935, it fulfilled the goal of its authors "to produce a textbook of practical quantum mechanics for the chemist, the experimental physicist, and the beginning student of theoretical physics." Although many who are teachers today once worked with the book as students, the text is still as valuable for the same undergraduate audience. Two-time Nobel Prize winner Linus Pauling, Research Professor at the Linus Pauling Institute of Science and Medicine, Palo Alto, California, and E. Bright Wilson, Jr., Professor Emeritus of Chemistry at Harvard Unive