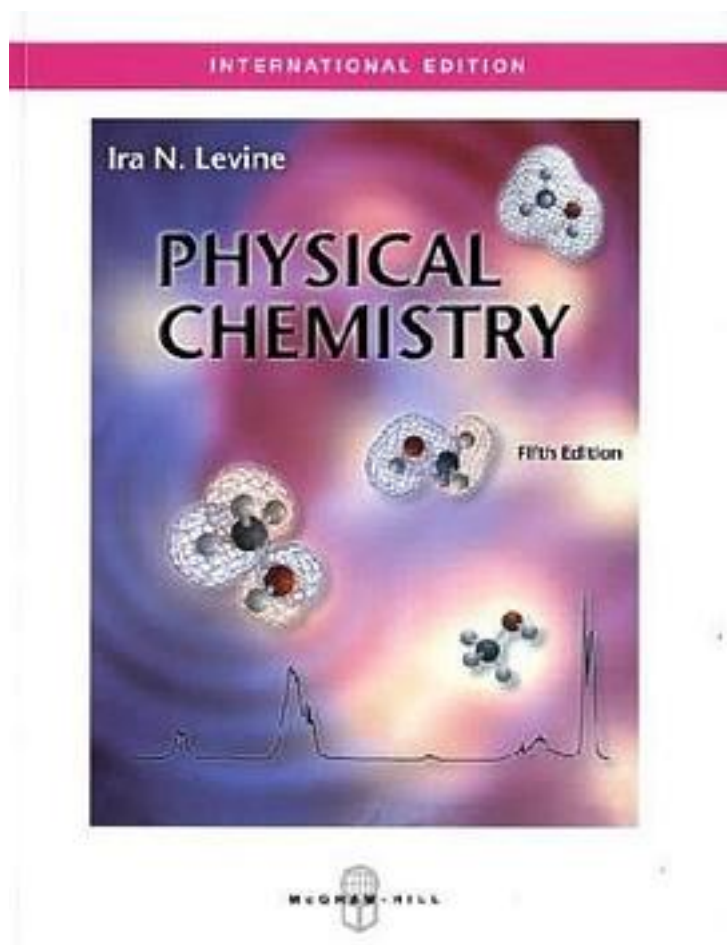


# Physical Chemistry



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著者:Engel, Thomas/ Reid, Philip

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This full-color, modern physical chemistry reference offers compelling applications and arresting illustrations that capture readers' attention and demonstrate the dynamic nature of the subject. The authors focus on core topics of physical chemistry,

presented within a modern framework of applications. Modern applications are drawn from biology, environmental science, and material science. Spectroscopy applications are introduced early in concert with theory; for example, IR and rotational spectroscopy are discussed immediately after the harmonic oscillator and the rigid rotar. Modern research is featured throughout, along with new developments in the field such as scanning tunneling microscopy, bandgap engineering, quantum wells, teleportation, and quantum computing.

Fundamental Concepts of Thermodynamics; Heat, Work, Internal Energy, Enthalpy, and the First Law of Thermodynamics; The Importance of State Functions: Internal Energy and Enthalpy; Thermochemistry; Entropy and the Second and Third Laws of Thermodynamics; Chemical Equilibrium; The Properties of Real Gases; Phase Diagrams and the Relative Stability of Solids, Liquids, and Gases; Ideal and Real Solutions; Electrolyte Solutions; Electrochemical Cells, Batteries, and Fuel Cells; From Classical to Quantum Mechanics; The Schrödinger Equation; The Quantum Mechanical Postulates; Using Quantum Mechanics on Simple Systems; The Particle in the Box and the Real World; Commuting and Noncommuting Operators and the Surprising Consequences; A Quantum Mechanical Model for the Vibration and Rotation of Mole; The Vibrational and Rotational Spectroscopy of Diatomic Molecules; The Hydrogen Atom; Many-Electron Atoms; Quantum States for Many-electron Atoms and Atomic Spectroscopy; The Chemical Bond in Diatomic Molecules; Molecular Structure and Energy Levels for Polyatomic Molecules; Electronic Spectroscopy; Computational Chemistry; Molecular Symmetry; Nuclear Magnetic Resonance Spectroscopy; Probability; The Boltzmann Distribution; Ensemble and Molecular Partition Functions; Kinetic Theory of Gases; Transport Phenomena; Elementary Chemical Kinetics; Complex Reaction Mechanisms.

A useful reference for chemistry professionals.

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