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Titolo	Problems in Classical and Quantum Mechanics : Extracting the Underlying Concepts // by J. Daniel Kelley, Jacob J. Leventhal
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Descrizione fisica	1 online resource (XVI, 368 p. 71 illus., 2 illus. in color.)
Disciplina	531
Soggetti	Mechanics Quantum theory Mechanics, Applied Chemistry, Physical and theoretical Classical Mechanics Quantum Physics Theoretical and Applied Mechanics Theoretical and Computational Chemistry
Lingua di pubblicazione	Inglese
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Nota di contenuto	Classical Mechanics -- Newtonian Physics -- Lagrangian and Hamiltonian Dynamics -- Central Forces and Orbits -- Normal Modes and Coordinates -- Quantum Mechanics -- Introductory Concepts -- Bound States in One Dimension -- Ladder Operators for the Harmonic Oscillator -- Angular Momentum -- Bound states in Three Dimensions -- Approximation Methods -- The Variational Method -- Non-degenerate Time Independent Perturbation Theory -- Degenerate Time Independent Perturbation Theory -- Time Dependent Perturbation Theory.
Sommario/riassunto	This book is a collection of problems intended to aid students in their graduate courses in physics and in preparing for the PhD qualifying exam. Thus, the included problems are of the type that could be on a qualifying exam or are problems that are meant to elucidate a principle that is important for the exam. Unlike other compilations of problems, the problems in this text are placed in the broader context of the

subject. The goal of the book is to develop the problem solving skills of the reader to insure a complete understanding of the physics. Problems and solutions are presented in detail, and, additionally, their significance is discussed within the context of the physical principle(s) that they illustrate. The solution of the problem is only the beginning of the learning process--it is in manipulating the solution and changing the parameters that a great deal of insight can be gleaned. This technique is referred to by the authors as "massaging the problem," and it is a technique that the authors have found to considerably increase the pedagogical value of any problem.
