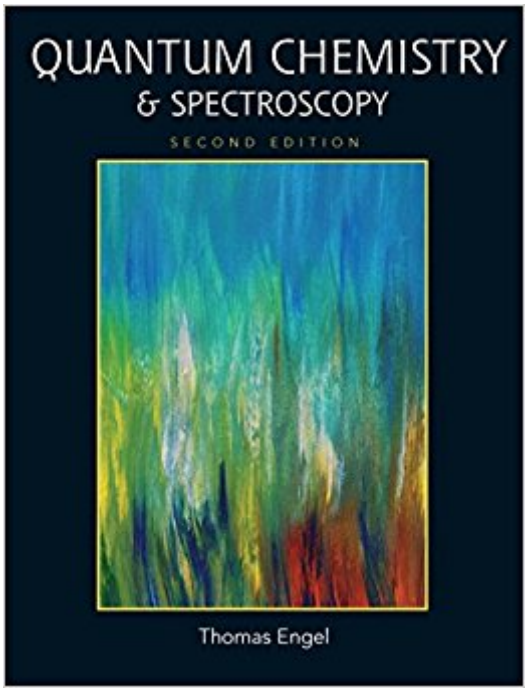
Quantum Chemistry & Spectroscopy (2nd Edition)



Synopsis

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.Ã Â 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. From Classical to Quantum Mechanics; The SchrÃƒÂ¶dinger 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. A useful reference for chemistry professionals.

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Customer Reviews

Thomas Engel has taught chemistry for more than 20 years at the University of Washington, where

he is currently Professor of Chemistry and Associate Chair for the Undergraduate Program. Professor Engel received his bachelor's and master's degrees in chemistry from the Johns Hopkins University, and his Ph.D. in chemistry from the University of Chicago. He then spent 11 years as a researcher in Germany and Switzerland, in which time he received the Dr. rer. nat. habil. degree from the Ludwig Maximilians University in Munich. In 1980, he left the IBM research laboratory in Zurich to become a faculty member at the University of Washington.Ã Â Professor Engel's research interests are in the area of surface chemistry, and he has published more than 80 articles and book chapters in this field. He has received the Surface Chemistry or Colloids Award from the American Chemical Society and a Senior Humboldt Research Award from the Alexander von Humboldt Foundation, which has allowed him to establish collaborations with researchers in Germany. He is currently working together with European manufacturers of catalytic converters to improve their performance for diesel engines. Philip Reid has taught chemistry at the University of Washington since he joined the chemistry faculty in 1995. Professor Reid received his bachelor's degree from the University of Puget Sound in 1986, and his Ph.D. in chemistry from the University of California at Berkeley in 1992. He performed postdoctoral research at the University of Minnesota, Twin Cities, campus before moving to Washington.Ã Â Professor Reid's research interests are in the areas of atmosphere chemistry, condensed-phase reaction dynamics, and nonlinear optical materials. He has published more than 70 articles in these fields. Professor Reid is the recipient of a CAREER award from the National Science Foundation, is a Cottrell Scholar of the Research Corporation, and is a Sloan fellow.

Engel’s "Quantum Chemistry and Spectroscopy" is not the worst p-chem book I’ve looked through. Given the choice however (meaning if my professor did not require the text), I would likely have opted to use a more thorough text. Engel has created a great reference, with enough information to suffice on the go. If however you are trying to use this book as your primary source of literature, in an effort to gain a thorough understanding, be cautious. Throughout the text a number of assumptions are made, rather than simply reiterating previous formulations or blatantly stating the point trying to be made. Unless the reader is absolutely cognitive and has mastered all previous information, this is at times detrimental. The section on spectroscopy is actually quite useful (better than most other texts I referenced) and the math supplement in the appendix is very convenient. I suppose my professor chose this text for the very reason I stated earlier, to be used as a side reference, a supplement to never-ending in-class exercises (i.e. packets) that theoretically should have helped develop the fundamental concepts. Needless to say- I was forced to read another text

from time to time for clarification.

Perfect condition, nothing written on the pages, and nice letter from the seller. Great!

First, I should add that quantum chemistry is difficult for anyone to understand. By default, quantum chemistry is supposed to not make sense. That being said, this textbook could still have been much better.The textbook does not explain any subject in any great detail. The bare minimum is said, and then the student is expected to work out the questions at the end of the chapter. Usually, in quantum chemistry, the questions can be solved without really understanding the concepts, which is not the case in many other subjects, since problems usually involve only mathematical manipulations of wave functions, etc. Questions, therefore, are usually not the problem. I am still trying to find a textbook that can help me ground the concepts in my head.

This book does well in covering quantum chemistry principles. I felt it had good practice problems. I would recommend the book.

Book arrived in excellent condition. I found the explanations of this book to be a little muddled at times, but it is tough to find a good quantum book. Quick shipping too! Very smooth transaction, would definitely buy from in the future.

Teaching from the book, I find it frustrating that I can’t use it to completely answer my students questions, as it is light on many of the derivations necessary to understand the mathematical structure which underlies quantum mechanics. It’s glossy pages and pretty pictures are appealing and can be used as good visual reinforcement-this is one thing this text has over McQuarrie’s Quantum Chemistry, the only other book I’ve taught from. However, McQuarrie provides more derivation than Engel (still not as much as I would like...).Often, Engel refers the reader to other texts, including Irvine and other standards. A more thorough treatment of all of quantum mechanics relevant to chemistry and spectroscopy is to be found elsewhere, but as an introduction it could be worse.

This quantum "chemistry" textbook is such a joke. I would recommend David Griffth’s "Introduction to Quantum Mechanics" for undergrad. quantum course.

This is a great text to understand the underlying principles of quantum chemistry. However, it is not a detailed and thorough account of the topic. It is a great reference on the go but I recommend a more detailed quantum book if you wish to carryout solving more complex problems.

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