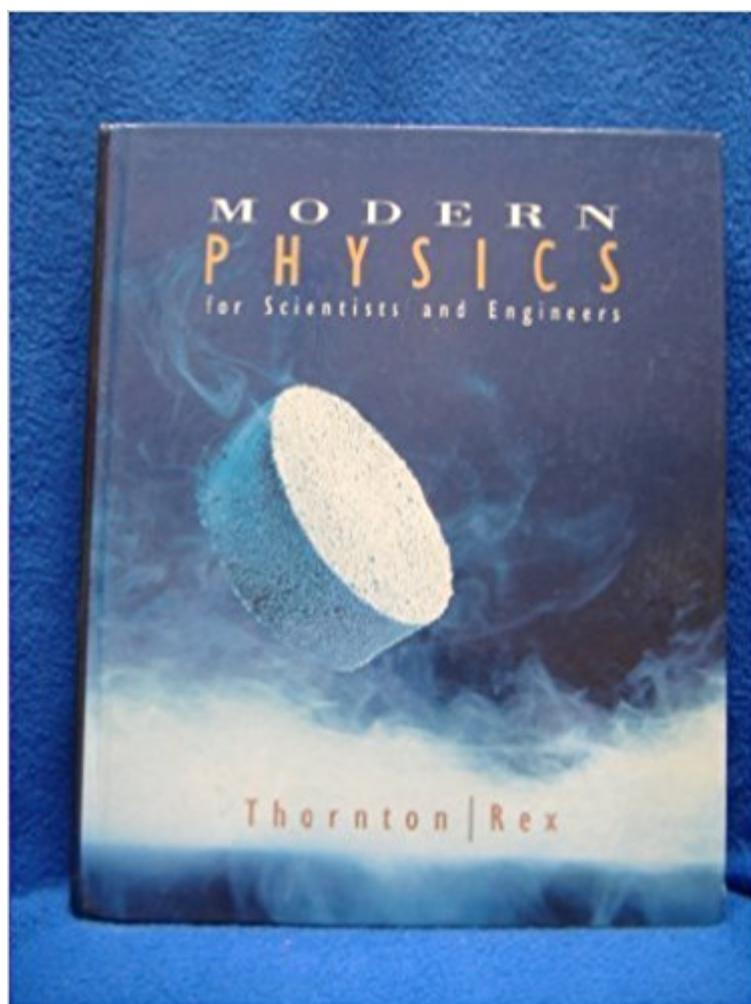


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# MODERN PHYSICS F/SCIENTISTS &ENGINEERS (Saunders Golden Sunburst Series)



## **Synopsis**

Comprehensive, contemporary coverage and a strong emphasis on applications make this a superior text for physics, engineering, and science majors. The modern approach incorporates a flexible organization, numerous examples and problems, and cutting-edge topics such as superconductivity. Unique "Special Topic" boxes containing up-to-date applications of interest to physicists and engineers show the relevance of modern physics to the real world and look more in depth at particularly engaging topics. A focus on the history of physics throughout the text places it in a human perspective and helps students understand how science works.

## **Book Information**

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## **Customer Reviews**

Stephen Thornton is Professor of Physics at the University of Virginia. He has over 130 research publications in experimental nuclear physics and has done research at several accelerator facilities in the United States and Europe. He has directed the research for 25 graduate students. He has held two U.S. Senior Fulbright-Hays Fellowships and a Max-Planck Fellowship to do research at the Max Planck Institute for Nuclear Physics in Heidelberg, Germany on two occasions. He was the founding Director of the University of Virginia Institute of Nuclear and Particle Physics. He has published three college textbooks for physics: "Classical Dynamics" and "Modern Physics" (both published with Brooks Cole, a part of Cengage Learning), and "Physics for Scientists and Engineers." He is currently Director of the Master of Arts in Physics Education program at the University of Virginia, which has graduated more than 70 high school physics teachers. He is a

Fellow of the American Physical Society and a member of several organizations including American Association of Physics Teachers, American Association for the Advancement of Science, National Science Teachers Association, Virginia Association of Science Teachers (past President), and the Virginia Math and Science Coalition. He has developed multiple courses for undergraduate students and high school physics teachers. Andrew Rex has been Professor of Physics at the University of Puget Sound since 1982. He frequently teaches the Modern Physics course, so he has a deep sense of student and instructor challenges. He is the author of several textbooks, including "Modern Physics," "Essential College Physics," and "Integrated Physics and Calculus." In addition to textbook writing, he studies foundations of the second law of thermodynamics, which has led to the publication of several papers and the widely acclaimed book, "Maxwell's Demon: Entropy, Information, Computing." --This text refers to an out of print or unavailable edition of this title.

I almost never feel I fully understand the chapters, but then again it's Quantum Mechanics which I hear is quite difficult to really understand. That said, the book tries to ease the student in with broad introductions that tie in with chapters previous and to come... then it proves with the math and some figures.

I used this book as the text in my modern physics course last fall. I chose the book because it seemed to cover the material at a level appropriate for the students, there were some good examples, enough homework problems, and there was enough material for a two semester course. Unfortunately, problems were apparent within a week of the beginning of class. These problems include serious typos in the text and homework problems, different printings producing different problem numbering in different texts (i.e. one student's problem 29 was another's problem 31), and poorly worded homework problems (to the point of being nonsensical). Some of the student's texts, about 40%, had missing or illegible pages. In addition to the physical problems, there were some problems with the content. The explanations tended to be a bit terse and unclear. In summary, this book has a good layout and thoughtful organization but the devil is in the details. The detailed handling of various topics and the general production of the book make it a poor choice for an introductory modern physics text.

Andy Rex, one of the text's authors, was in my Physics Department when I attended the University of Puget Sound, so I naturally used this textbook when I took Modern Physics (taught by another professor). The book is not good for students who are in the process of learning the material it

presents for the first time. It is history- and derivation-heavy, but nearly devoid of analysis and ignores "the big picture." It was a wonderful reference when I was doing graduate work -- I already had a very solid background in Calculus, dimensional analysis, Quantum Mechanics, and so forth -- but it is not a good textbook if you are learning the material for the first time.

I used this book as my first book covering Modern Physics. Though other reviewers stated the book has typos, that's not what I remember about it. What I do recall is just how clearly these authors were able to present some of the difficult topics in modern physics. I have shared the book with other students preparing for boards, and they too felt like it was an excellent text that was very well written and easy to understand!

I just finished a Modern Physics course using this book and was not happy with it at all. The exposition is less than clear in many places and the problem set is sub-standard in my opinion. Some sections were so poor that I found myself searching through other texts for a better treatment of the subject. That was when I stumbled upon a 1981 version of "Concepts of Modern Physics" by Arthur Beiser. To my dismay, Thornton's text seems to be a cheap knock-off of this much older (and better) text. Or, perhaps it's just a case of most Modern Physics texts being very similar. All I know is I won't be using this text again.

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