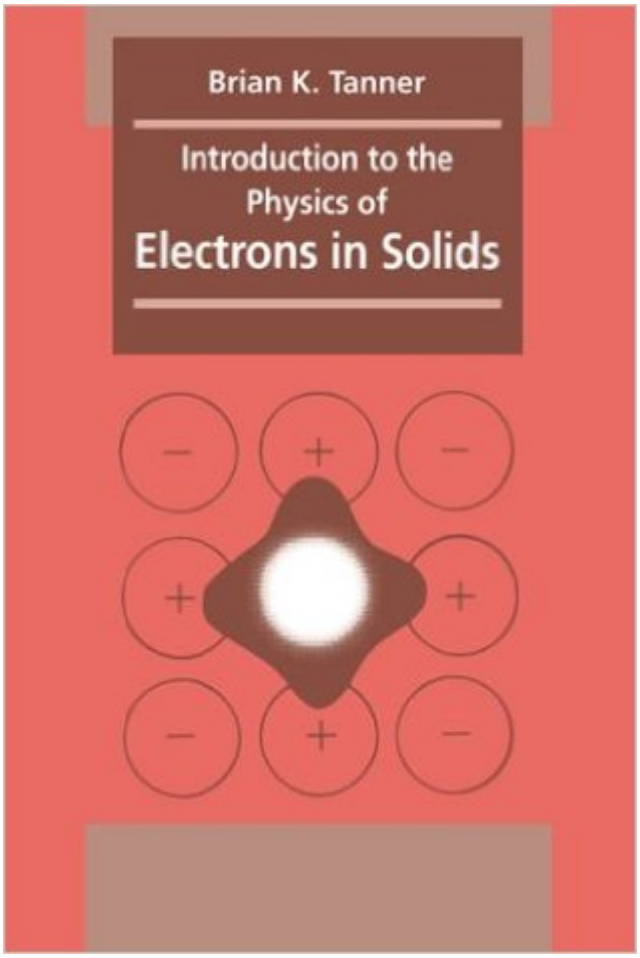
Introduction To The Physics Of Electrons In Solids



Synopsis

In this upper-level text, Professor Tanner introduces the reader to the behavior of electrons in solids, starting with the simplest possible model. Unlike other solid state physics texts, this book does not begin with complex crystallography, but instead builds up from the simplest possible model of a free electron in a box and introduces higher levels of complexity only when the simple model is inadequate. The approach is to introduce the subject through its historical development, and to show how quantum mechanics is necessary for an understanding of the properties of electrons in solids. The author also includes an examination of the consequences of collective behavior in the phenomena of magnetism and superconductivity. Examples and problems are included for practice.

Book Information

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Customer Reviews

Great introduction into sold state physics! This book was recommended for my solid state physics course I took as a graduate student. Tanner does a great job starting with newtons equations and working up to the Drude-Sommerfeld model. I enjoyed how everything built up slowly which made more complex (Fermi-Dirac) models easy to understand. I used another textbook for the class as well but the tanner book was way better!

I was a math major as an undergraduate but found myself doing experimental solid state physics in graduate school. I had never had an undergraduate course in solid state and needed something that would allow me to catch up quickly, so I got this book. It is very thin and very accessible. You can read the whole thing and do all the problems in your spare time over the course of a few weeks.

Less, if you put your mind to it. The standard textbook for solid state physics, Ashcroft and Mermin, is, in my opinion, a little too long for an introduction if you've never been exposed to the subject before. I'm also not fond of Kittel's undergraduate solid state book. Tanner's is just right. Read this one, then use Ashcroft and Mermin for a reference.I graduated in 1997 and am teaching now. I recommend Tanner's book to my students, both graduate and undergraduate.

Introduction to the Physics of Electrons in Solids Introducing Solids & Making Your Own Organic Baby Food: A Step-by-Step Guide to Weaning Baby off Breast & Starting Solids. Delicious, Easy-to-Make, & Healthy Homemade Baby Food Recipes Included. Electronic Structure and the Properties of Solids: The Physics of the Chemical Bond (Dover Books on Physics) Chemical Physics: Electrons and Excitations The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) The Friction and Lubrication of Solids (The International Series of Monographs on Physics) (v. 1) Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles There Are No Electrons: Electronics for Earthlings Pushing Electrons: A Guide for Students of Organic Chemistry Behavior of Electrons in Atoms. Structure, Spectra, and Photochemistry of Atoms Interacting Electrons: Theory and Computational Approaches An Introduction to Biomechanics: Solids and Fluids, Analysis and Design Introduction to Chemical Physics (International Series In Pure And Applied Physics) Programming 3D. Solids, Meshes & Surfaces. (AutoCAD expert's Visual LISP) The Electronic Structure and Chemistry of Solids (Oxford Science Publications) Quantum Theory of Solids A Modern Course in the Quantum Theory of Solids Mechanics of Solids and Structures Fracture of Brittle Solids (Cambridge Solid State Science Series) Engineering Mechanics of Solids (2nd Edition)