

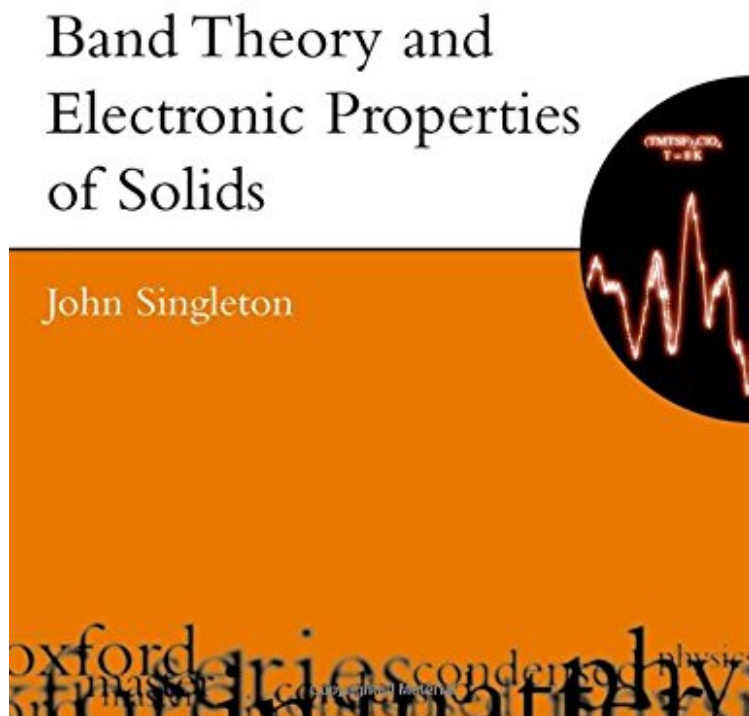
[FREE] Band Theory and Electronic Properties of Solids (Oxford Master Series in Physics)

# Band Theory and Electronic Properties of Solids (Oxford Master Series in Physics)

John Singleton

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**John Singleton : Band Theory and Electronic Properties of Solids (Oxford Master Series in Physics)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Band Theory and Electronic Properties of Solids (Oxford Master Series in Physics):

2 of 2 people found the following review helpful. I found the appendices to be useful for referencesBy Stephen\_NI found the appendices to be useful for references. The text and derivations in the main part are short on detail. So the main text is probably better suited as a quick guide reference for people that already have an understanding of the material. Or for those who really want to get a better understanding by working out all the derivations on their own.7 of 7 people found the following review helpful. Pretty good introductory solid state physics bookBy Steven J. WojtczukThis book is a good bridge between very abbreviated descriptions of solid state physics found in most EE

semiconductor device books and a tome like Ashcroft and Mermin's standard Solid State Physics book. It is mainly descriptive and elementary (the Boltzmann transport equation is barely mentioned). I like it because the author often plainly says useful things like the effective masses of electrons and light holes are similar, or that the heavy hole masses are pretty much the same for common semiconductors. The coverage of optical properties is minimal, apparently by design since the book is part of a series (Optical Properties of Solids by Fox). 0 of 0 people found the following review helpful. Five Stars  
By Shane S. Sims  
As expected.

This latest text in the new Oxford Master Series in Physics provides a much needed introduction to band theory and the electronic properties of materials. Written for students in physics and material science, the book takes a pedagogical approach to the subject through the extensive use of illustrations, examples and problem sets. The author draws on his extensive experience teaching band theory to provide the reader with a thorough understanding of the field. Considerable attention is paid to the vocabulary and quantum-mechanical training necessary to learn about the electronic, optical and structural properties of materials in science and technology. The text also offers several chapters on the newest experimental techniques used to study band structure. Concise yet rigorous, it fills a long overdue gap between student texts and current research activities.

"This textbook for advanced physics and engineering students begins by introducing two tractable limits of Bloch's theorem in three dimensions, and demonstrates that both extreme limits give rise to bands with band gaps between them. Singleton (physics, Oxford) then explains semiconductors bands, the idea of artificial structures, techniques used to measure the bandstructures of solids, and recent research in the field."--SciTech Book News  
"The Oxford Master Series in Condensed Matter Physics offers an appealing alternative to conventional texts: a set of slim volumes, each on a separate topic and complete with exercises, written by active researchers who can combine a current perspective with the presentation of the relevant fundamental principles. ... The warm informality of the style makes us readers feel as if they were attending the lectures. ... this book is highly recommended. Its readable and enjoyable format will help students to develop an intuition for electronic properties."--Physics Today  
About the Author  
Dr. John Singleton,  
Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, Tel: 01865 272236, Fax: 01865 272400,  
Email: j.singleton1@physics.ox.ac.uk. Leave of absence Aug 2000- Aug 2001: National High Magnetic Field  
Laboratory, Los Alamos National Laboratory, Mail Stop E536, Los Alamos, NM 87545, U.S.A., Tel: +1 505 665  
3857, Fax: +1 505 665 4311, Email: jsingle@lanl.gov