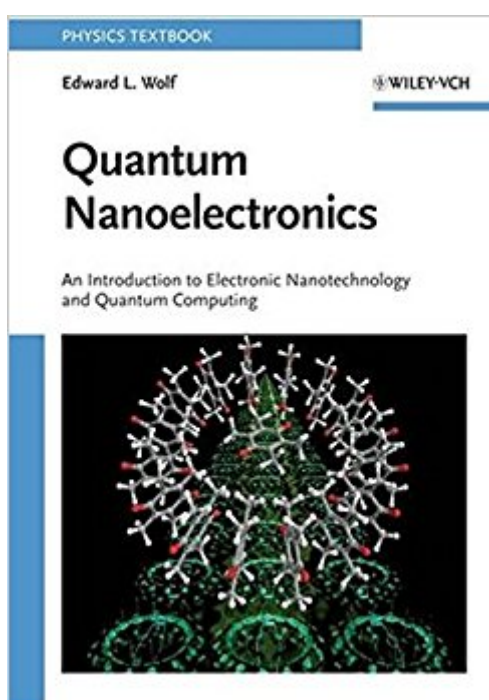


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Quantum Nanoelectronics: An Introduction To Electronic Nanotechnology And Quantum Computing



Synopsis

A tutorial coverage of electronic technology, starting from the basics of condensed matter and quantum physics. Experienced author Ed Wolf presents established and novel devices like Field Effect and Single Electron Transistors, and leads the reader up to applications in data storage, quantum computing, and energy harvesting. Intended to be self-contained for students with two years of calculus-based college physics, with corresponding fundamental knowledge in mathematics, computing and chemistry.

Book Information

Paperback: 472 pages

Publisher: Wiley-VCH (April 27, 2009)

Language: English

ISBN-10: 3527407499

ISBN-13: 978-3527407491

Product Dimensions: 6.7 x 1 x 9.4 inches

Shipping Weight: 2 pounds (View shipping rates and policies)

Average Customer Review: 3.6 out of 5 stars 2 customer reviews

Best Sellers Rank: #3,128,751 in Books (See Top 100 in Books) #76 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics > Solid State #513 in Books > Science & Math > Technology > Nanotechnology #1177 in Books > Science & Math > Physics > Solid-State Physics

Customer Reviews

'Quantum Nanoelectronics' is the first textbook to handle important growth areas not covered in existing books, including adiabatic quantum computing, nanoelectronic aspects of ink-printed thin film solar cells, nanostructured electrodes, solar water splitting, and convenient hydrogen storage, thereby suggesting profitable new directions for nanoelectronic technology. Expanded tutorial coverage is provided for aspects of molecular electronics, from the basics of electronic conduction through chemical bonds to a sixteen-bit computing device as shown in the cover illustration. The interested reader, either a student or a professional interested in a new career direction, is encouraged to use simple theoretical models and to return to the entrepreneurial approach of the pioneers in the Moore's Law revolution. Cover graphics: Anirban Bandyopadhyay

Edward L. Wolf is Professor of Physics at the Polytechnic University in New York City. His long-term

teaching experience ranges from undergraduate courses to the direction of thesis research. His research activities cover solid state physics, scanning tunneling microscopy, electron tunneling spectroscopy and superconductivity. Edward Wolf holds industrial and academic appointments. The former Director of the National Science Foundation is Fellow of the American Physical Society. He has authored over 100 refereed publications as well as a monograph on the principles of Electron Tunneling Spectroscopy. The second edition of his successful textbook 'Nanophysics and Nanotechnology' has been published recently. In 2007, Professor Wolf was honored with the "Jacobs Excellence in Education Award" by the Polytechnical University of New York.

Although the author of this book (also the professor of the class I took this for) claim that all you need to understand this material is Mechanics and E&M as a prerequisite, that is not the case at all. The book discusses advanced topics right off the bat in theoretical physics and would really only benefit someone that has taken courses in Quantum Physics and Solid State Physics, which I did not. It's not at all engaging and put me to sleep throughout the semester. The equations are just thrown at the reader with no examples on how to properly use them (like most physics and calculus books normally have). It dives right into cutting edge technology without starting with the basic physics that led up to the breakthrough. It is a book for physics majors, not engineering majors. I was really disappointed with it and if I could do it over, I would never have taken the course either.

I bought it for my class. If you just interested in the field, you can buy it if you have some physical background.

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