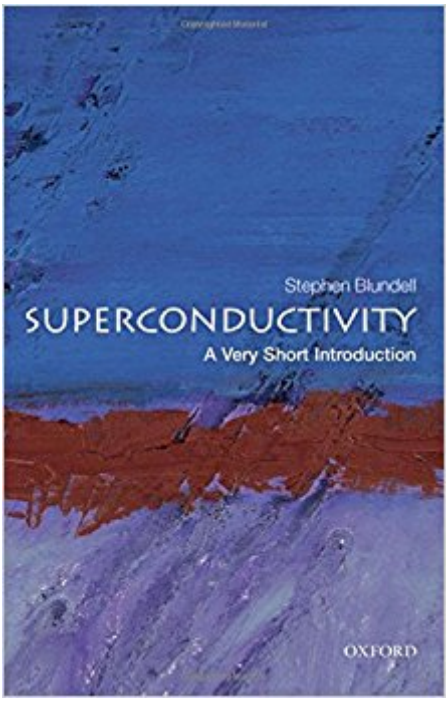
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Superconductivity: A Very Short Introduction



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Synopsis

Superconductivity--the flow of electric current without resistance in certain materials as temperatures near absolute zero--is one of the greatest discoveries of 20th century physics, but it can seem impenetrable to those who lack a solid scientific background. Outlining the fascinating history of how superconductivity was discovered, and the race to understand its many mysterious and counter-intuitive phenomena, Stephen Blundell explains in accessible terms the theories that have been developed to explain it, and how they have influenced other areas of science, including the Higgs boson of particle physics and ideas about the early Universe. This Very Short Introduction examines the many strange phenomena observed in superconducting materials, the latest developments in high-temperature superconductivity, the potential of superconductivity to revolutionize the physics and technology of the future, and much more. It is a fascinating detective story, offering invaluable insights into some of the deepest and most beautiful ideas in physics today.About the Series: Combining authority with wit, accessibility, and style, Very Short Introductions offer an introduction to some of life’s most interesting topics. Written by experts for the newcomer, they demonstrate the finest contemporary thinking about the central problems and issues in hundreds of key topics, from philosophy to Freud, quantum theory to Islam.

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Customer Reviews

"Superconductivity is an excellent addition to Oxford’s ’Very Short Introductions’ series. Blundell effectively weaves the history of discovery with theoretical understanding in a seamless,

entertaining fashion. The reader is provided with both the progression of ideas and an insightful glimpse at the personalities involved in unraveling the phenomenon of superconductivity...Highly recommended." --CHOICE Reviews

Stephen Blundell is Professor of Physics at Oxford University. He was joint winner of the Daiwa-Adrian Prize in 1999 for his work on organic magnets.

Having heavily criticized the author’s other book I must say this was surprisingly good. I understand superconductivity well now, and the book leaves no nagging questions about it’s central themes, unlike ’Magnetism: A Very Short Introduction’. However, some tangential details like why do gases cool when expanded (when basic thermodynamics would lead you to guess the opposite was true) could have been explained as I don’t really know that much of physics. 4 stars if such details were added.

A very good, concise, and qualitative overview of the mechanisms (and their discoveries) in superconductivity. Not a single math equation in the entire book, but as someone in their last year of a dual math and physics undergraduate education, I don’t consider that to be a downfall in any way whatsoever.

Awesome historical story of development. As well as a general discussion and perspective on the foundations of superconductivity, which is necessary for true physical analysis of the state.

A solid Introduction to the very fascinating story of superconductivity. Discusses the history and some theory and discusses the great scientists who helped put this theory together.

Almost a non-technical introduction of superconductivity. By non-technical, I mean "without equation", but you will need some background in Solid State Physics to understand some chapters.

This short introduction does a very good job of explaining both the relevant physics and the history of superconductivity. The author begins by tracing back to the roots of low temperature physics and explains how advances led to the discovery of superconductivity. This historical approach of tracing the ideas as they happened is used throughout the book, and is very helpful in guiding the discussion about what superconductivity is, and the possible mechanism through which it works; it

allows you to understand the evolution of physicists' thoughts on superconductivity and have an idea of the progress made in the past century (and of the amount of progress that still needs to be made). This approach also works to bring the human element into the picture, often talking about the physicists who made the discoveries (giving some attention to two-time Nobel Prize winner John Bardeen).In the end, superconductivity remains to be thoroughly understood, and the author does a good job explaining in a non-technical manner what is understood about superconductivity, and, perhaps as importantly, what is not fully understood. The author also points to the very important applications of superconductors in the modern world and possible future uses.If you are interested in physics, condensed matter in general is an underrepresented subject for popular audiences, and this book does an excellent job of not only remedying this, but showing that this branch of physics can be just as interesting as particle and astrophysics.

This is really good. Reading this short book gave me incentive to look for more information on this aspect of physics. As an introduction to superconductivity, it is excellant.

very good.

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