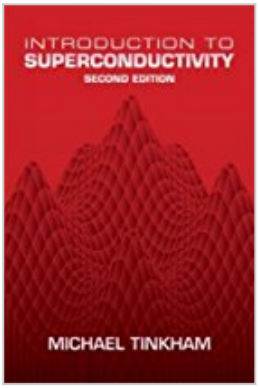

Introduction to Superconductivity: Second Edition (Dover Books on Physics) (Vol i)

By Michael Tinkham

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Well known for its accessibility to graduate students and experimental physicists, this volume emphasizes physical arguments and minimizes theoretical formalism. The second edition of this classic text features revisions by the author that improve its user-friendly qualities, and an introductory survey of latter-day developments in classic superconductivity enhances the volume's value as a reference for researchers. Starting with a historical overview, the text proceeds with an introduction to the electrodynamics of superconductors and presents expositions of the Bardeen-Cooper-Schrieffer theory and the Ginzburg-Landau theory. Additional subjects include magnetic properties of classic type II superconductors; the Josephson effect (both in terms of basic phenomena and applications and of the phenomena unique to small junctions); fluctuation effects in classic superconductors; the high-temperature superconductors; special topics (such as the Bogoliubov method, magnetic perturbations and gapless superconductivity, and time-dependent Ginzburg-Landau theory); and nonequilibrium superconductivity. 1996 edition.

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Editorial Review

From the Back Cover
Using the simplest and most physically intuitive arguments and methods, Introduction to Superconductivity exposes not only graduate students but professionals in academe and industry to the breadth and richness of the phenomenon of superconductivity. Applications as well as fundamental principles are thoroughly covered. The author not only views superconductivity as a macroscopic quantum state, as described by the Ginzburg-Landau phenomenological equation, but also recognizes that the fundamental entity is the paired electrons of the microscopic theory of Bardeen-Cooper-Schrieffer. Special features include a treatment of varied phenomena in a simple way which keeps the microscopic theory of BCS in the background, and a thorough discussion of magnetic properties of type II superconductors, including dissipative effects and the use of twisted multifilamentary wires. After treating the fundamentals of the Josephson effects, an analysis is given of how the popular RF-biased SQUID magnetometer works. An extensive discussion of fluctuation effects is also included. Major changes in this new edition include the following: new chapter on high temperature superconductors; updated and expanded discussion of the Josephson effect; new chapter on the Josephson effect in mesoscopic junctions; new chapter on nonequilibrium superconductivity; introductory treatment of electrodynamics in London theory level; and the deemphasis of nonlocal electrodynamics. The level of treatment presumes a background in Solid State Physics and Basic Quantum Mechanics and avoids the use of Thermal Green's Functions.

Users Review

From reader reviews:

Linda Callaway:

The reason? Because this Introduction to Superconductivity: Second Edition (Dover Books on Physics) (Vol i) is an unordinary book that the inside of the book waiting for you to snap that but latter it will jolt you with the secret it inside. Reading this book alongside it was fantastic author who write the book in such awesome way makes the content inside of easier to understand, entertaining means but still convey the meaning entirely. So , it is good for you for not hesitating having this anymore or you going to regret it. This unique book will give you a lot of gains than the other book get such as help improving your skill and your critical thinking method. So , still want to hold off having that book? If I were being you I will go to the reserve store hurriedly.

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