

1. Record Nr.	UNINA9910254606103321
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Titolo	Conductors, Semiconductors, Superconductors : An Introduction to Solid State Physics // by Rudolf P. Huebener
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-24010-2
Edizione	[2nd ed. 2016.]
Descrizione fisica	1 online resource (XV, 237 p. 117 illus. in color.)
Collana	Undergraduate Lecture Notes in Physics, , 2192-4791
Disciplina	530.412
Soggetti	Semiconductors Optical materials Electronics - Materials Microwaves Optical engineering Solid state physics Superconductivity Superconductors Optical and Electronic Materials Microwaves, RF and Optical Engineering Solid State Physics Strongly Correlated Systems, Superconductivity
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Spectacular Advances -- Well-Ordered Lattice Structures in Crystals -- Permanent Movement in the Crystal Lattice -- Electric Conductor or Insulator? -- Energy Bands -- Metals Obey the Rules of Quantum Statistics -- Less Can Be More: Semiconductors -- Circling Electrons in High Magnetic Fields -- The Winner: Superconductors -- The Big Surprise: High-Temperature Superconductivity -- Magnetism: Order Among the Elementary Magnets -- Nanostructures: Superlattices, Quantum Wires, and Quantum Dots -- Defects in the Crystal Lattice: Useful or Harmful?.
Sommario/riassunto	This undergraduate textbook provides an introduction to the

fundamentals of solid state physics, including a description of the key people in the field and the historic context. The book concentrates on the electric and magnetic properties of materials. It is written for students up to the bachelor level in the fields of physics, materials science, and electric engineering. Because of its vivid explanations and its didactic approach, it can also serve as a motivating pre-stage and supporting companion in the study of the established and more detailed textbooks of solid state physics. The textbook is suitable for a quick repetition prior to examinations. This second edition is extended considerably by detailed mathematical treatments in many chapters, as well as extensive coverage of magnetic impurities.

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