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Nota di contenuto	Electronic transport in solids -- Optical (or dielectric) properties of solids -- Deviations from the ideal, three-dimensional crystal structure -- Solids in the external magnetic field -- Superconductivity -- Collective magnetism -- Solutions to the exercise problems.
Sommario/riassunto	The present volume 2 covers advanced topics in theoretical solid state physics and thus ties in directly with the fundamentals. Solids in external fields or more generally in non-equilibrium and deviations from the ideal 3-dimensional crystal structure (surfaces, impurities, low-dimensional structures, quantum dots, etc.) are treated. The consideration of collective phenomena such as superconductivity and magnetism complete the presentation. The reader is assumed to have knowledge of the contents of Volume 1 (electrons and phonons in ideal crystals, Bloch theorem, occupation number representation or 2nd quantization, electron-electron and electron-phonon interaction) as well as the basic knowledge of general theoretical physics (mechanics, electrodynamics, quantum mechanics, and statistical physics) usually available after a bachelor's degree in physics. Volume 2 is thus ideally suited for students in the master's program in physics who wish to specialize in (experimental or theoretical) solid-state physics. Addressing current topics (e.g., Kondo effect, fractional quantum Hall

effect, 2-dimensional crystals such as graphene, giant magnetoresistance effect, and others) provides an optimal transition to modern research. The new edition has been completely revised, with numerous exercises added and existing ones redesigned, with the associated solutions now included in the book. The author Studied physics in Cologne, diploma in 1974, doctorate in 1977 at the University of Cologne, then postdoc (scientific assistant) at the University of Dortmund and 1983-84 at Stanford University, habilitation in 1985 at the University of Dortmund, then temporary professorships in Dortmund and 1987-1990 at RWTH Aachen. Since 1991 Professor of Theoretical Physics at the University of Bremen. The translation was done with the help of artificial intelligence. A subsequent human revision was done primarily in terms of content.