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Descrizione fisica	1 online resource (929 pages)
Disciplina	620.11
Soggetti	Materials Materials science Crystallography Condensed matter Mechanics, Applied Solids Materials Engineering Materials Science Crystallography and Scattering Methods Phase Transition and Critical Phenomena Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Atomic Structure -- Algebraic Crystallography -- Basic Quantum Mechanics -- Metallography and Microscopy -- Two-Dimensional Materials -- Crystal Defects -- Mass Transport -- Thermodynamics of Phase Change -- Solidification Heat Transfer -- Solidification and Phase Diagrams -- Solid-State Phase Transformation -- Mechanical Behavior of Solids -- Fracture Mechanics -- Physical Properties of Solids -- Nondestructive Methods -- Electrochemical Corrosion.
Sommario/riassunto	This textbook presents a compilation of class-tested materials and the results of research on a range of topics in into one comprehensive volume for readers engaged in the materials science and engineering aspects of phase transformation in metals. Accordingly, this is a suitable textbook for undergraduate and graduate students in the fields

of mechanical engineering, materials science, metallurgical engineering, and related disciplines. The book incorporates two-dimensional materials, crystal defects, mass transport, thermodynamics of phase, solidification heat transfer, solidification and phase diagrams related to nucleation particle phases and explains solid-state phase transformation, mechanical behaviour and fracture toughness, non-destructive methods, physical and optical properties of solids, and electrochemical corrosion. It also stands as an excellent reference treatise for practicing and consulting engineers. Moreover, the book is appropriate for graduate-level coursework, covering advanced subjects including quantum mechanics, two dimensional materials, fracture mechanics, non-destructive methods for evaluating structural integrity, and advanced analytical techniques in some appendices. Introduces atomic structure of crystalline solids, crystallography, X-ray diffraction, metallography, and microscopy; Explains the theoretical and practical aspects of solid materials subjected to particular engineering conditions; Reinforces concepts presented with many illustrations, example problems, and end-of-chapter problems. Request lecturer material: [sn.pub/lecturer-material](http://sn.pub/lecturer-material).

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