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Nota di contenuto	Preface -- Chapter 1: Dilute Bismides for Mid-IR Applications -- Chapter 2: Bismide-based photonic devices for near- and mid-infrared applications -- Chapter 3: Theory of the electronic structure of dilute bismide alloys: Tight-binding and k_p models -- Chapter 4: Dilute bismuthides on an InP platform -- Chapter 5: Atmospheric-pressure metalorganic vapor phase epitaxy of GaAsBi alloy on GaAs substrate -- Chapter 6: Group III-V bismide materials grown by liquid phase epitaxy -- Chapter 7: Spectroscopic Ellipsometry of AP-MOVPE grown GaAs1-xBix dilute alloys -- Chapter 8: Effect of bismuth alloying on the transport properties of the dilute bismide alloy, GaAs1-xBix -- Chapter 9: Localized states in GaAsBi and GaAs/GaAsBi heterostructures -- Chapter 10: Unusual Bi-containing surface layers of III-V compound semiconductors -- Chapter 11: MBE growth of thin hexagonal films Bi2Te3, Bi2Se3, and their alloys on cubic GaAs (001) substrates -- Chapter 12: Vapor Phase Deposition Synthesis of Bismuth-Based Topological Insulator Nanoplates and Their Electrostatic Properties -- Chapter 13: Electronic and optical properties of domain walls and phase boundaries in bismuth ferrite -- Chapter 14: Syntheses and Properties of Some Bi-Containing Compounds with Noncentrosymmetric Structure -- Chapter 15: Bismuth(V)-containing semiconductor compounds and applications in heterogeneous photocatalysis -- Index.
Sommario/riassunto	Bismuth-containing compounds comprise a relatively unexplored materials system that is expected to offer many unique and desirable

optoelectronic, thermoelectric, and electronic properties for innovative device applications. This book serves as a platform for knowledge sharing and dissemination of the latest advances in novel areas of bismuth-containing compounds for materials and devices, and provides a comprehensive introduction to those new to this growing field. Coverage of bismides includes theoretical considerations, epitaxial growth, characterization, and materials properties (optical, electrical, and structural). In addition to the well-studied area of highly mismatched Bi-alloys, the book covers emerging topics such as topological insulators and ferroelectric materials. Built upon fundamental science, the book is intended to stimulate interest in developing new classes of semiconductor and thermoelectric materials that exploit the properties of Bismuth. Application areas for bismide materials include laser diodes for optical communications, DVD systems, light-emitting diodes, solar cells, transistors, quantum well lasers, and spintronic devices. Features comprehensive coverage of novel bismuth-related materials and devices Covers an emerging materials system with high potential for device applications Written by leading experts in the corresponding research areas Provides a foundation for the development of future optoelectronic, thermoelectric, and electronic devices.