1. Record Nr. UNINA9910367241603321

Titolo	Black Phosphorus : Synthesis, Properties and Applications / / edited by Inamuddin, Rajender Boddula, Abdullah M. Asiri
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-29555-9
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (VII, 186 p.)
Collana	Engineering Materials, , 1868-1212
Disciplina	620.115
Soggetti	Nanotechnology Semiconductors Ceramic materials Ceramics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Chemistry of Black phosphorous -- Structure and fundamental properties of black phosphorous -- Electronic properties of black phosphorous -- Simulation studies for black phosphorous: From theory to experiment -- Black phosphorous Vander Waals heterostructures -- Functionalization of black phosphorous -- Black phosphorous quantum dots -- Structural characterizations for black phosphorous -- Synthesis strategies for black phosphorous -- Black phosphorous composites and blends -- Black phosphorous based sensors -- Black phosphorous photodetectors -- Electrocatalytic applications of black phosphorous -- Black phosphorous based supercapacitors -- Black phosphorous based photocatalysis -- Biomedical applications of black phosphorous -- Black phosphorous materials for wastewater treatment -- Black phosphorous transistors -- Black phosphorous based battery technology -- Black phosphorous nanoelectronics -- Black phosphorous based thermoelectric devices -- Black phosphorous based solar cells -- Black phosphorous based nanodevices -- Black phosphorous based solar cells -- Future prospects and challenges of BP materials.
Sommario/riassunto	This book exhibits novel semiconductor black phosphorous (BP) materials that are developed beyond other 2D materials (graphene and

TMDs). It accurately reviews their manufacture strategies, properties, characterization techniques and different utilizations of BP-based materials. It clarifies all perspectives alongside down to earth applications which present a future direction in the biomedical, photo, environmental, energy, and other related fields. Hence, the sections accentuate the basic fundamentals, synthesis, properties, applications, state-of-the-art studies about the BP-based materials through detailed reviews. This book is the result of commitments by numerous experts in the field from various backgrounds and expertise. It will appeal to researchers, scientists and in addition understudies from various teaches, for example, semiconductor innovation, energy and environmental science. The book content incorporates industrial applications and fills the gap between the exploration works in the lab and viable applications in related ventures.