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Editors

Black Phosphorus

Synthesis, Properties and Applications

 Springer

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Preface

Two-dimensional materials, for example, graphene and transition metal dichalcogenides (TMDCs), have recognized huge consideration in the earlier decade. Therefore, there are numerous fundamental science motivations to create layered two-dimensional (2D) materials. Phosphorus is stand out amongst the most abundant components found on the earth. Black phosphorus (BP) is the most stable allotrope of phosphorus, having multiple layers with two-dimensional structures. Layered BP and its monolayer flatland material (phosphorene) pulled enormous research enthusiasm since the discovery of BP-based field-effect transistors early in 2014. Since then, black phosphorus is the cutting-edge semiconductor material considering its bandgap, anisotropy, high carrier mobility, phenomenal physical and electrical properties. Black phosphorus possesses unique properties that can bridge the gap between graphene and TMDCs for various potential applications. Therefore, awareness and knowledge about black phosphorous materials with conceptual understanding are essential for the advanced materials community.

Black Phosphorus: Synthesis, Properties and Applications aim to explore down to earth applications in the fields of biomedical, environmental, energy and electronics. This book provides an overview of the structural and fundamental properties, synthesis strategies and various applications of black phosphorus. This book will help the readers to solve fundamental and applied problems faced in the field of black phosphorous applications. The book content incorporates industrial applications and will fill the gap between the laboratory scale to practical applications. This book will target industrialists, scientists, university professors, lecturers, researchers, Ph.D. and master students working in the field of material science, semiconductor technology, energy and environmental science.

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The original version of the book was revised: The book editors' affiliation text has been updated. The correction to the book is available at https://doi.org/10.1007/978-3-030-29555-4_10

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