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Special Issue Reprint

Development of Boron-Based Materials

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This Special Issue Reprint, “Development of Boron-Based Materials”, compiles recent advances in the design, synthesis, characterization, and theoretical modeling of boron-based compounds. Boron, with its unique electron-deficient bonding, gives rise to diverse materials including clusters, sheets, glasses, and bulk ceramics with remarkable mechanical, thermal, and electronic properties. The nine contributions, together with the editorial, highlight both fundamental and applied aspects of boron-based materials science. Covered topics include low-dimensional boron allotropes such as borophenes, boron-rich carbides and borides, cluster-based composites, oxyhalide borate glasses, and borometallic molecular structures. The Reprint also addresses emerging applications in areas such as superconductivity, superhard coatings, radiation shielding, and chemical sensing. By combining theoretical and experimental perspectives, this Reprint offers an updated resource for scientists working in chemistry, physics, and materials engineering.

