

Special Issue

Advances in Ultra-Wide Bandgap Semiconductors and Their Applications

Message from the Guest Editor

Ultra-Wide Bandgap Semiconductors (UWBGs) refer to materials with bandgaps higher than gallium nitride (GaN), which is 3.4 eV. These materials include aluminum gallium nitride (AlGaN), gallium oxide (Ga₂O₃), diamond, and hexagonal and cubic boron nitride (h- and c-BN). Larger bandgaps open new areas of application due to higher figures-of-merit than their narrow band gap counterparts. Interest in UWBS has not diminished over time; as one material system reaches maturity, another emerges as its competitor; as AlGaN has developed considerably, Ga₂O₃ has started to show promise. Similarly, h-BN, a two-dimensional material (2D), can be applied to aid other material systems, and c-BN has the largest bandgap of any known semiconductor. Every member of the UWBGs family has issues to be resolved, leading to opportunities for innovators and researchers. The applications of UWBGs are even more exciting that include numerous types of field-effect transistors (FETs), deep ultraviolet light-emitting diodes (DUVLED), solar blind detectors, and high-power and radio frequency (RF) electronics, to name a few. Due to these reasons, the interest in UWBGs material research leads to new applications.

Guest Editor

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Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

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