Special Issue

Properties and Defects of Silicon Carbide

Message from the Guest Editors

Silicon carbide (SiC) is an attractive material for semiconductor devices operating under extreme conditions because it exhibits extraordinary physical properties such as a high electrical breakdown field, high thermal conductivity, and high electron saturation velocity. For these reasons, many types of SiC-based micro-electronic devices such as white light-emitting diodes (WLEDs), metal-semiconductor field effect transistors (MESFETs), P-i-N diodes, Schottky diodes, metal-oxide-semiconductor field effect transistors (MOSFETs), insulated gate bipolar transistors (IGBTs), and thyristors have been widely fabricated and used. The thermal properties of SiC are critical in determining the operating limits and boundaries for safe device operation. The resistivity of the SiC substrate is vital for power devices and radio frequency devices. However, a large number of crystal defects still exist in SiC crystals, which influence the properties of the SiC devices. In summary, the study of the properties and defects of silicon carbide, as well as the influence of defects on the electrical characteristics of the device, is crucial.

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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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