Special Issue

Wide- and Ultra-Wide-Bandgap Semiconductors: Properties, Synthesis and Devices

Message from the Guest Editor

The field of wide- and ultra-wide-bandgap (WBG and UWBG) semiconductors is rapidly evolving, driven by the increasing demand for high-performance electronic, optoelectronic, and sensing devices capable of operating under extreme temperature, power, and radiation conditions. This Special Issue aims to provide a comprehensive platform for recent advances in the material science, device engineering, and application developments of key WBG and UWBG materials, including diamond, aluminum nitride (AlN), silicon carbide (SiC), and gallium nitride (GaN). Both single-crystalline and polycrystalline forms of these materials are of interest. Topics of interest include, but are not limited to, the following:

- Growth and doping of diamond, AlN, SiC, and GaN crystals;
- Epitaxial layer engineering and heterostructure design;
- Defect characterization and control;
- Novel transistor architectures (e.g., HEMTs, MESFETs, JFETs, FinFETs);
- Device fabrication and packaging for high-temperature and high-voltage operation;
- Electrical, thermal, and reliability measurements;
- TCAD simulation and multiphysics modeling;
- Application in power electronics, energy systems, aerospace, automotive, and sensor technologies.

Guest Editor

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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