

Special Issue

III-V Semiconductor Optoelectronics: Materials and Devices

Message from the Guest Editors

III-V semiconductor materials, such as GaN, GaAs, InAs, InP, and GaSb, possess excellent optical properties, which normally act as a gain medium of light sources with large-scale emission wavelengths from visible to mid-infrared bands. Nowadays, tremendous progresses have been made in the field of III-V light sources and detectors, such as near-infrared InAs quantum dot-based lasers and mid-infrared GaSb-based quantum cascade lasers, among many others. In addition, III-V materials (InAs, InSb, etc.) have much higher electron mobilities than Si, which have broad applications in high-speed electronic and radio frequency (RF) devices, including field effect transistors (FETs) and high-electron-mobility transistors (HEMTs). The heterogeneous integration and direct growth of III-V materials marks a fundamental step towards next-generation optoelectronics. Many methods, including metal-organic chemical vapor deposition (MOCVD), molecular beam epitaxy (MBE), and heterogeneous bonding, have been developed to achieve high-quality III-V functional structures, such as quantum well structures, quantum dots, and nanostructures.

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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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