



High Electron Mobility Transistor (HEMT) Devices and Applications

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Message from the Guest Editors

Dear Colleagues,

Ever since the demonstration of the first high-electron mobility transistors (HEMTs) by Dr. Mimura in 1981, HEMTs have been developed rapidly and commercialized in different material systems for a myriad of applications. At the early development stage, AlGaAs/GaAs, GaAs/InGaAs, and InP-based HEMTs were widely implemented into high-speed electronics communication applications with excellent noise and power performance. The development of GaN HEMTs has opened the gate to more applications, such as power electronics, mm-wave frequency systems, biosensing, and radiation-hardened electronics. Recently, ultrawide bandgap materials such as AlGaN- and Ga₂O₃-based HEMTs have been introduced and demonstrated encouraging results. This Special Issue will cover innovative HEMT devices, applications based on HEMT technology, HEMT-related material research, including epitaxy growth, material characterization, and fabrication techniques, and HEMT simulation.

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