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Wide Bandgap Semiconductor Photonic Devices

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Deadline for manuscript submissions:
closed (31 May 2021)

Message from the Guest Editors

The pursuit of wide bandgap semiconductor photonic devices has led to a series of fundamental breakthroughs, especially the Nobel prize winning blue light-emitting diodes (LEDs) based on group III-Nitride materials. For shorter wavelengths, wide bandgap semiconductor ultraviolet (UV) photonic devices have been explored for both photon emission and detection. For the past decades, developments have been carried out for wide bandgap semiconductor photonic devices on novel materials, device physics, active region design, and device fabrication/packaging.

This Special Issue focuses on the most recent advances in the field of wide bandgap semiconductor photonic devices such as LEDs, lasers or photodetectors. Topics will include, but are not limited to development of advanced device physics; research of novel wide bandgap materials including 2D materials; exploration of nanostructured active regions such as nanowires or quantum dots; as well as study of non-classical device concepts. New methods of fabricating semiconductor photonic devices to achieve higher output power and quantum efficiency are also welcome.