

III-nitride photonic devices, structures, and circuits

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Since 1990s GaN-based LEDs and high-frequency electronics have enabled new technologies and impacted our daily living in many aspects such as, respectively, solid state lighting and 5G communications. Important applications of ultraviolet LEDs and micro-scale LEDs are being pursued vigorously. This webinar intends to provide a review and snapshot related to the development of III-nitride devices, structures, and circuits toward active control and manipulation of photons. Using blue laser diode as the springboard into coherent light emission, we will discuss the development of III-nitride vertical cavity surface emitting lasers, followed by a review of GaN photonic crystal structures and applications. III-nitride semiconductors have strong non-linear effects. New advances in III-nitride integrated photonic circuits in frequency conversion and signal transducing will also be included.