

Research Description

GaN light emitting diodes (LEDs) are the forerunners in “green” lighting applications. Typical LED lighting systems are comprised of large, discrete lamps. My research is concerned with the development of an array of GaN LEDs on a secondary substrate. Using standard photolithographic techniques, very dense arrays of micro-LEDs ($\geq 25 \times 25 \mu\text{m}^2$) can be created. When an appropriate material is used for GaN growth, etching characteristics of that material can be exploited to serve as a sacrificial release layer of the GaN film. Subsequent transfer printing of the released LEDs to a secondary substrate followed by device interconnects results in the formation of an array of GaN LEDs.