

Plenary Talk PV V Tue 8:30 HSZ 01
Status, Progress, and Future of the Green Semiconductor Laser — ●SHUJI NAKAMURA — Materials Department, University of California, Santa Barbara, CA 93106, USA

Blue/green LEDs and laser diodes have been developed and commercialized by using c-plane (polar) GaN. Due to the Quantum Confined Stark Effects (QCSE), the improvement of the Internal Quantum Efficiency of polar emitting devices is considered to be difficult. We have worked for nonpolar/semipolar GaN planes to develop high efficient

emitting devices by minimizing the QCSE. Recently we developed the high efficient semipolar blue LED with the external quantum efficiency (EQE) of 53% and semipolar green LED with the EQE of 29%. Also, we developed the semipolar bluish green laser diodes with a lasing wavelength of 516 nm under pulsed operation. Soraa Inc., (US company) announced true green laser diodes with the lasing wavelength of 520 nm and the output power of 60 mW under CW operations using non-c-plane GaN. The latest performance of Nitride-based blue/green LEDs and laser diodes are described.