Joint CQSE and CASTS Seminar

2018
Dec. 14, Friday

TIME   Dec. 14, 2018, 14:30 ~ 15:30
TITLE   An efficient 3D Schrodinger solver with localized landscape
            theory and its applications on device modeling
SPEAKER   Prof. Yuh-Renn Wu
            Institute of photonics and optoelectronics,
            National Taiwan University
PLACE   Rm716, CCMS & New Physics Building, NTU

Abstract

This talk will introduce a novel method to account for quantum disorder effects into the classical Poisson and drift-diffusion model through the localization landscape theory to analyze nitride-based structures. This model can not only solve the carrier dynamics with quantum effects self-consistently, but provide a much faster solver compared with the Schrödinger equation to significantly reduce the computation time. The current-voltage characteristics and efficiency droop modeled by 3-D simulation of a full light emitting diode (LED) structure with compositional material fluctuations represent well the experimental behavior of high quality blue LEDs.