

# Joint CQSE and CASTS Seminar

Weekly Seminar  
May 8, 2015 (Friday)

TIME May 8, 2015, 14:30 ~ 15:30  
TITLE Optical Properties and Lasing Characteristics of Micro-cavity  
with Type-II GaSb/GaAs Quantum Dots (QDs)  
SPEAKER Dr. Min-Hsiung Shih  
Research Center for Applied Sciences, Academia Sinica  
PLACE Rm716, CCMS & New Physics Building, NTU

## Abstract

In recent years, GaSb/GaAs quantum dot (QD) structures have attracted great interest because the type-II band alignment accommodates spatially indirect transitions in which the interface properties will drastically influence the optical and electrical properties. In this study, the optical properties of the type-II QDs were characterized with time-resolved photoluminescence (TRPL) technique and a band-orbital theoretical model. We also demonstrated compact micro-cavity lasers with type-II GaSb/GaAs QDs. The near-infrared (NIR) lasing action was obtained from the compact microdisk and photonic crystal cavities with the low thresholds. The much longer photon lifetime and high Purcell factors from type-II micro-cavity laser were also observed.

