



IBS Center for Molecular Spectroscopy and Dynamics

COLLOQUIUM

- SPEAKER

Dr. Jong Min Lim (IBS Center for Molecular Spectroscopy and Dynamics, Korea University)

- TITLE

Sub-10 fs Time-resolved Vibronic Optical Microscopy

- ABSTRACT

We introduce femtosecond wide-field transient absorption microscopy combining sub-10 fs pump and probe pulses covering the complete visible (500–650 nm) and near-infrared (650–950 nm) spectrum with diffraction-limited optical resolution. We demonstrate the capabilities of our system by reporting the spatially- and spectrally-resolved transient electronic response of MAPbI₃-xCl_x perovskite films and reveal significant quenching of the transient bleach signal at grain boundaries. The unprecedented temporal resolution enables us to directly observe the formation of band-gap renormalization, completed in 25 fs after photoexcitation. In addition, we acquire hyperspectral Raman maps of TIPS pentacene films with sub-400 nm spatial and sub-15 cm⁻¹ spectral resolution covering the 100–2000 cm⁻¹ window. Our approach opens up the possibility of studying ultrafast dynamics on nanometer length and femtosecond time scales in a variety of two-dimensional and nanoscopic systems.

- DATE AND VENUE

March 21, 2017 (Tuesday, 5:00–6:00 p.m.)
Seminar Room 116, KU R&D Center

- LANGUAGE

Korean