

Colloquium Notice

Jianbo Gao

UC Berkeley

When ultrafast meets ultrasmall: carrier dynamics in nanostructured materials

Understanding ultrafast carrier photophysics including photogeneration, recombination, transport, and energy transfer is the foundation of nanostructured material electronic and optoelectronic applications. Nanocrystals constitutes a major class of nanostructured material. They have unique physics property due to strong quantum confinement effect that leads to multiple exciton generation (MEG) effect where more than two pairs of exciton generated by absorbing one photon, and strong multiple exciton interactions that lead to Auger recombination. While the majority research groups rely on all optical spectroscopies to understand novel photophysics, I use a unique ultrafast photocurrent spectroscopy (sub-40 ps) by directly collecting photocurrent *in situ* devices. In this talk, I will demonstrate this unique ultrafast photocurrent spectroscopy (which can be developed to sub- 1ps) to bridge the gap between fundamental photophysics and applied devices research. In addition to nanocrystals, I will demonstrate carrier transport dynamics study in 2D materials of black phosphorus

Wednesday

March 1, 2017

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326