Title: Ultrafast energy transfer of phonon modes within gold nanorods

Abstract: Gold nanorods (GNRs) are elongated nanoparticles with unique optical properties which depend on their shape anisometry. The GNR-based longitudinal localized surface plasmon resonance (longitudinal LSPR) band is very sensitive to the GNR's aspect ratio and the surrounding local environment. Self-assembly of GNRs (end-to-end geometry) leads to the red shift of LSPR. In my presentation, I'll show the results of our study of GNRs using pulse-shaper-based two-dimensional electronic spectroscopy (2DES). The results shows ultrafast energy transfer within phonon modes followed by electron-phonon coupling with ~3 ps time scale.