



N. Kamaraju

NIR femtosecond pulses to probe electron-phonon dynamics in condensed matter systems

**Indian Institute of Science Education
Research Kolkata
Email: nkamaraju@iiserkol.ac.in**

Femtosecond pulses of electromagnetic radiation offer many ways to control and also probe the elementary and quasi particle excitations of condensed matter systems around us. Understanding of the underlying physics upon excitation of femtosecond pulse on a semiconductor for example still is very much important in the development of photonics and spintronics as alternatives to traditional electronics, crossing the boundaries of physics, materials science, and electrical engineering. Here in the talk, I will present some of the recent results from our laboratory[1, 2] demonstrating this capability to understand the effect of carrier density on the electron-phonon coupling in wide band gap semiconductor nanoparticles and single crystals of topological insulator systems.

SHORT BIO:

N. Kamaraju received his PhD degree in March 2011 on ultrafast experimental condensed matter physics from Department of Physics, IISc Bangalore. After his Ph.D, he worked in the field of terahertz physics in Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin (for two years), and Department of Electrical and Computer Science Engineering, RPI, Troy, NY, USA (for one year). Later he did his final postdoctoral research in Los Alamos National labs, NM, USA on using THz to study two dimensional systems under high magnetic fields. He is now an assistant professor in Dept of Physical Sciences, Indian Institute of Science Education and Research Kolkata, India.