Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

COLLOQUIUM

- **SPEAKER**
  Dr. Jayachander Borker (IBS Center for Molecular Spectroscopy and Dynamics)

- **TITLE**
  Resonant Femtosecond Stimulated Raman Scattering Spectroscopy: An Nonperturbative Formalism

- **ABSTRACT**
  Femtosecond stimulated Raman Scattering (FSRS) spectroscopy is a set of vibrational spectroscopic techniques designed to probe nuclear dynamics with high temporal and spectral resolution. In a typical application, FSRS is a three-pulse experimental technique. A short actinic pump initiates the process to be studied, which is subsequently probed by a pair of Raman pulses. The latter are picosecond narrow-band Raman pump and a femtosecond broad-band Raman probe. The theory of FSRS is based on the perturbative solution of time-dependent Schrödinger equation in terms of system-field interaction. Herein, I describe an alternative method of simulation of FSRS spectra, which is based on the solution of nonperturbative equation of motion. Such a method is quite general and applicable for arbitrary shapes and durations of the Raman pulses, accounts for the excited-state absorption, and describes nonstationary preparation of the system by an actinic pulse. Moreover, the present method is applicable for arbitrary field strengths of the photochemical pump.

- **DATE AND VENUE**
  July 19, 2017 (Wednesday, 5:00 - 6:00 pm)
  Seminar Room 116, KU R&D Center

- **LANGUAGE**
  English