Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

COLLOQUIUM

- **SPEAKER**
  Prof. Markus B. Raschke (Department of Physics, University of Colorado)

- **TITLE**
  Ultrafast nanoscopy: imaging structure, function, and dynamics of matter on its natural length and times scales

- **ABSTRACT**
  I will present the advances in multimodal linear, nonlinear, and spatio-temporal nano-imaging for the study of fundamental optical and plasmonic phenomena, coupled single molecule or quantum dynamics, with unprecedented nanometer spatial and femtosecond resolution, sensitivity and precision [1-6]. To gain the desired simultaneous nanometer spatial resolution with spectroscopic specificity and femtosecond temporal resolution we combine plasmonic and optical antenna concepts with ultrafast and shaped laser pulses to precisely control optical excitation on femtosecond time and nanometer length scales from the visible to THz spectral range. In the implementation with scattering scanning nearfield microscopy (s-SNOM) or other tip-enhanced microscopy modalities with nonlinear, ultrafast, and IR and Raman vibrational spectroscopies, the resulting enhanced and qualitatively new forms of light-matter interaction enable deep-subwavelength spatially resolved imaging of heterogeneities and nano-confinement as they define the properties of most functional materials. I will present several new concepts extending tip-enhanced spectroscopy into the nonlinear and ultrafast regime for nano-scale imaging and spectroscopy of surface molecules and nanosolids.

- **DATE AND VENUE**
  July 24, 2017 (Monday, 11:00 - 12:00)
  Seminar Room 116, KU R&D Center

- **LANGUAGE**
  English

- **INVITED BY**
  Director Minhaeng Cho

* If you want to discuss with Prof. Markus B. Raschke or have a lunch with him, please contact to Susan Tak (susan_tak@korea.ac.kr).