QBiC SEMINAR

Speaker	**Thomas T. Perkins, Ph.D.** *JILA, National Institute of Standards and Technology and University of Colorado*
Date & Location	**Friday, November 2, 2012** **12:30 - 13:30** **OLABB 1F Lounge** **(6-2-3, Furuedai, Suita, Osaka 565-0874)** ***There will be a video broadcast in CDB Bldg.D, E-206**
Title	**Pulling on single biological molecules: a powerful tool for studying diverse systems**
Abstract	**Single molecule force spectroscopy is a powerful tool to measure the dynamics of individual bio-molecules. My talk will focus on several distinct results based on a common assay, pulling on single molecules using two different measurement platforms, optical tweezers and atomic force microscopy. First, we studied the dynamics of overstretching DNA and thereby provided insight into the mechanism of overstretching, a 16 year old controversy. Next, we studied the dynamics of a pair of canonical DNA intercalators and learned that binding/unbinding and intercalation/de-intercalation are distinct processes that can occur on very different time scales. By using a state of the art optically stabilized AFM, we studied the folding and unfolding of a model membrane protein. Finally, I will highlight a recent 10-fold improvement in force precision of AFM for biological application.**
Host	**Toshio Yanagida** **Laboratory for Cell Dynamics Observation** yanagida@riken.jp **Tel: 070-6800-3901**