Femtosecond Stimulated Raman Spectroscopy or FSRS is a novel time-resolved vibrational technique that provides high-quality vibrational spectra on the femtosecond time scale of chemical reaction dynamics. The development and basics of the technique will be described. Then the power of this method for revealing the structure of molecules undergoing chemical reactions will be exemplified by studies of the photochemical isomerization reaction that initiates vision in the pigment rhodopsin and that triggers photoswitching in azobenzene. The structural changes that mediate electron transfer reactions are examined in a noncovalent donor:acceptor pi-complex. Finally, the nature of the reaction coordinate that controls proton transfer in the excited state of the green fluorescent protein is exposed. FSRS provides a novel way to determine vibrational structural changes that occur on the time scale of chemical reaction dynamics.

**CBC SEMINAR ANNOUNCEMENT**

**Professor Richard Mathies**  
Dean, College of Chemistry  
Gilbert Newton Lewis Professor  
University of California, Berkeley

**Femtosecond Stimulated Raman Spectroscopy**

Date: 9th December 2011 (Friday)  
Time: 4:30pm – 6:30pm  
Venue: NTU SPMS CBC Building Level 2, Conference Room  
Host: Professor Lee Soo Ying