Abstract:
Rapid and high precision measurements are and always have been of interest in science and technology partly because of their numerous practical applications. Since their development, optical methods based on frequency combs have revolutionized optical measurements. They simultaneously provide high resolution, high sensitivity, and rapid acquisition times. These methods are being developed for use in many fields, from atomic and molecular spectroscopy, to precision metrology, to spectral LIDAR and even atmospheric monitoring. However they suffer from limitations arising from inhomogeneous broadening and identifying species in a mixture using these methods is challenging. This is especially important for remote chemical sensing applications.

In this talk I will discuss a novel optical method, that I recently developed, which overcomes these limitations. The method is a combination of multidimensional coherent spectroscopy and dual-comb spectroscopy. I will demonstrate its capabilities for probing extremely weak fundamental processes as well as its applications for rapid and high resolution chemical sensing.

Thursday, November 29, 2018
4:30 PM in SCI 242

Refreshments will be served at 4:20 in SCI 242