Atom interferometers have been used as sensitive instruments to test fundamental laws of physics and measure gravity, acceleration, rotation, as well as fundamental constants with state-of-the-art accuracy. I will report preliminary results of our ten-year effort to measure the fine structure constant as well as the cesium mass with sub-part per billion precision. It allows testing the most accurate prediction ever made in science - of the electron's gyromagnetic ratio and thus of quantum electrodynamics - and may enter the re-definition of the international system of units (SI). We will also report on our search for chameleon dark energy in the laboratory.

Speaker: Holger Müller, UC Berkeley

Monday, December 8, 2014 / 428 Pupin Hall / 4:15 PM
wine and cheese following the colloquium