



# Physics Seminar

**Friday, 3:30 pm Feb. 4, 2011**

## **Optical frequency combs: a laser-based tool for trace chemical detection**

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A mode-locked laser produces a series of ultra-short pulses separated in time by the round trip time of the laser cavity. The wavelength spectrum of such a pulse is a series of sharp spectral lines separated by the repetition rate (the inverse of the cavity round trip time), termed an "optical frequency comb". A typical frequency comb can have near a million comb modes in a 100 nm bandwidth, with precise knowledge of the wavelength of each spectral line. These light sources are a powerful tool for molecular spectroscopy, as molecules have specific absorption signatures that can be used to identify small amounts of chemicals, such as atmospheric pollutants, trace explosives on surfaces, or chemical markers in breath analysis.

Location: Ross 0220 (Ground level of Ross Hall)

(Refreshments will be served at 3:30pm.)

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