In this experimental atomic optics talk, I will introduce a light-matter interaction called Electromagnetically Induced Transparency (EIT) which causes an otherwise opaque material to become transparent over a small frequency range via a quantum interference process. Using a noise correlation technique with a single “noisy” or wide-linewidth laser, I will show that laser intensity noise derived from EIT contains spectroscopic information about the quantum dynamics of an atomic vapor. Further, this EIT noise can be highly sensitive to magnetic fields, making it an ideal mechanism on which to base a new class of compact and simple atomic magnetometers. Because high-sensitivity magnetometers measure the strength and/or direction of a magnetic field, advancement in magnetometer technology can have a profound impact on a diverse array of scientific fields and medical applications.

Join us for cookies & coffee at 3:00 pm in the physics hearth!