Date:	**Wednesday, 28 November 2018**
Time:	**11:00 – 12:20**
Speaker:	**Kelly BACKES**
Institution:	**Department of Physics, Yale University**

Title:

Phase II of the HAYSTAC Axion Dark Matter Experiment: A New Application of Quantum Measurement Techniques

Abstract:

HAYSTAC is an axion dark matter haloscope. Axions are resonantly converted into microwave photons in a high Q microwave cavity which can then be detected. The small scale and flexibility of HAYSTAC's platform allows for the development of new microwave cavities and amplifier technologies in an operational environment, allowing us, for the first time, to explore the axion model band above 20 μeV. Phase I of HAYSTAC concluded in late 2017 and excluded axions in the range $23.15 < m_a < 24.0$ μeV. HAYSTAC is now being upgraded in preparation for Phase II. This includes a refurbished cavity, improved cryogenics, and the addition of a squeezed-state receiver. I will discuss recent upgrades to our experiment, the current status of HAYSTAC, and what we expect from Phase II.

Notes: