



LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS (LEPP)

Joint Experimental and Theory Seminar in Particle Physics and Cosmology:



Phillip Barbeau
Duke

The World's Smallest Neutrino Detector

The coherent elastic scattering of neutrinos off nuclei was first predicted 43 years ago with the realization of the neutral weak current. The predicted cross-section is the largest of any known neutrino interactions; however, the process has remained undetected until recently due to the daunting experimental challenges. I will report on the first observation of this process, newly announced by the COHERENT collaboration—an effort which has major contributions from a large team at Duke and the Triangle Universities Nuclear Laboratory. I will also discuss the importance that coherent neutrino scattering plays in many areas of physics, including searches for Dark Matter, nuclear astrophysics, searches for new physics beyond the Standard Model, and even applications to nuclear safeguards and security.

Friday,
March 30, 2018
1:00pm
401 Physical Sciences Bldg.

