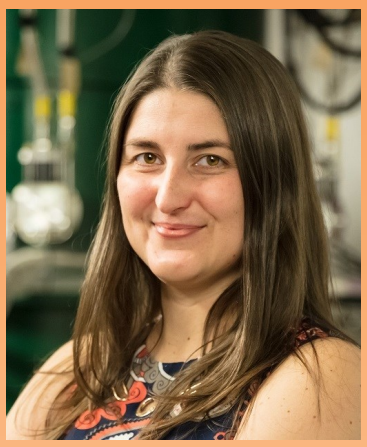
LACNS

Louisiana Consortium for Neutron Scattering

SEMINAR SERIES 2019



Friday, January 18
3:00 pm
1008B Digital Media Center
Louisiana State University

The Nab Experiment: A Laboratory for Neutron Beta Decay

The neutron has been recognized as an excellent target to search for new clues that can lead to an explanation for the lack of antimatter in the universe, insight on the nature of dark matter, and a more complete understanding of the laws and symmetries of nature. When removed from the nucleus, the free neutron is unstable, decaying with a lifetime of about 15 minutes. The kinematic properties of its decay provide a wealth of information about the weak force. The Nab experiment will provide one of the most precise tests of our understanding of the weak interaction by measuring correlations in unpolarized neutron beta decay. The experiment features a 7 m tall magnetic spectrometer that captures the electron and proton resulting from the decay, and silicon-detector based detection systems that allow reconstruction of the momenta of the decay particles. This presentation will introduce you to the unique features of the neutron and why it is important to particle physics, and describe how Nab, now commissioning at the Spallation Neutron Source at Oak Ridge National Laboratory, will study the properties of its decay with the best precision yet.

Guest Speaker

Dr. Leah Broussard

Wigner Fellow

Oak Ridge National Laboratory

Free and open to the public

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