



Old Dominion University

Department of Physics

Colloquium

Tuesday, November 14, 2017

"Exploring beyond the Standard Model with Lattice QCD"

Amy Nicholson
University of North Carolina

Abstract: While the Standard Model (SM) of particle physics has been enormously successful in describing the world around us, there still remain many important and unanswered questions requiring Beyond the SM (BSM) physics. One way to experimentally test the fundamental symmetries of the SM in searches for potential violations is to utilize properties of atomic nuclei which enhance these rare events. Connecting experimental signals from nuclear environments to a particular BSM model requires the numerical solution of Quantum Chromodynamics (QCD), a cornerstone of the SM which governs nuclear interactions. In this talk I will discuss the use of Lattice QCD as a tool for numerically calculating matrix elements relevant for experimental BSM searches. I will use neutrinoless double beta decay, which, if observed, could offer an explanation for the matter-antimatter asymmetry of the universe, as a key example.

Presentation: **OCNPS 200 @ 3:00 pm**
Refreshments: **OCNPS Atrium @ 2:30 pm**

All interested persons are cordially invited to attend.