



PHYSICS

COLORADO STATE UNIVERSITY

CSU PHYSICS COLLOQUIUM

Science and Detectors of the Deep Underground Neutrino Experiment

Elizabeth Worcester

Associate Physicist at Brookhaven National Laboratory (BNL)

Monday, February 26th at 4:00p.m.
120 Engineering (Hammond Auditorium)

Abstract

The Deep Underground Neutrino Experiment (DUNE) is designed to measure the neutrino mass ordering, possible CP violation, and precise values of mixing parameters in long-baseline neutrino oscillation as well as be sensitive to nucleon decay and supernova burst neutrinos. An international collaboration has come together to build this next-generation neutrino oscillation experiment, which will consist of a beam and near detector complex at Fermilab in Batavia, Illinois and a massive far detector at Sanford Underground Research Facility in Lead, South Dakota. I will introduce long-baseline neutrino oscillation concepts and describe the scientific motivation and strategy of the experiment. I will also describe the detector technology that will facilitate high precision measurements needed to achieve DUNE's scientific goals, with a particular focus on single-phase liquid argon time projection chambers.