NuCo 2021: Neutrinos en Colombia



Contribution ID: 36

Type: not specified

Beyond the Standard Model Physics Opportunities with the Deep Underground Neutrino Experiment

Wednesday 28 July 2021 08:25 (25 minutes)

The Deep Underground Neutrino Experiment (DUNE) international project, currently under construction, will enable an exciting program for precision neutrino physics and beyond. Two multidetector facilities will be exposed to the world's most intense neutrino beam: the Near Detector complex will measure the beam flux and composition 575 m downstream of the production target, at Fermilab; and the Far Detector complex, including four 17 kton LArTPC modules, will remeasure the beam 1300 km away, when installed about 1.5 km deep in the Sanford Underground Research Facility in South Dakota.

The combination of the high-intensity Long-Baseline Neutrino Facility (LBNF) beam with DUNE's highlycapable Near Detector and massive high-resolution LArTPC Far Detector opens up prospects for a rich program of Beyond the Standard Model (BSM) physics searches. These searches include discovery of new particles (sterile neutrinos, dark matter, heavy neutral leptons, etc.), precision tests of the neutrino mixing matrix including non-standard neutrino interactions, and the detailed study of rare processes (e.g. neutrino trident production). In this talk, I will go over promising opportunities for BSM Physics probes with DUNE, and discuss their potential impact and outcomes.

Primary author: Prof. SOUSA, Alexandre (University of Cincinnati (US))Presenter: Prof. SOUSA, Alexandre (University of Cincinnati (US))Session Classification: NuCo