



Contribution ID: 296

Type: Oral Presentation

Searching for Muon Neutrino Disappearance at LSND Neutrino Energies with CCM

Tuesday 30 July 2019 14:20 (15 minutes)

Although MiniBooNE and LSND experiments have shown compelling evidence for sterile neutrinos in short baseline neutrino oscillation experiments, long baseline neutrino experiments and IceCube set strong constraints on muon neutrinos oscillating at the $\sim 1 \text{ eV}^2$ mass scale. These muon neutrino experiments are at much higher energies compared to LSND and MiniBooNE. Coherent CAPTAIN-Mills (CCM) is a new experiment operating at the Lujan Center at LANSCE that uses a 10-ton liquid argon scintillation detector to search for muon neutrino disappearance at LSND neutrino energies. An intense 100-kW, 800-MeV proton beam hitting a tungsten target at 20 Hz with a pulse width of 290 ns generates the stopped pion source. The fast pulse allows for isolating the monoenergetic muon neutrino and rejecting beam related neutrons, and increases sensitivity to accelerator-produced sub-GeV dark matter. In this talk, I will describe the CCM detector and the Lujan Center, and show first results from our successful Fall 2018 commissioning run.

Primary author: THORNTON, Remington (LANL)

Presenter: THORNTON, Remington (LANL)

Session Classification: Neutrino Physics

Track Classification: Neutrino Physics