Contribution ID: **85** Type: **Presentation**

Searching for Generic Long-lived Particles with the SBND Cosmic-Ray Tagger Modules

Tuesday 2 September 2025 16:40 (25 minutes)

The Short-Baseline Near Detector (SBND) is one of three Liquid Argon Time Projection Chamber (LArTPC) detectors used in the Short-Baseline Neutrino (SBN) programme at Fermilab. As the near detector in the SBN programme, the SBND is located just 100 metres from the target along the Booster Neutrino Beam (BNB). SBND offers sensitivity to a broad range of new physics scenarios, including the potential production and decay of generic long-lived particles. These particles could be produced through neutrino–nucleus scattering and then decay into lepton pairs as they travel through the detector region. Although full data-taking with the SBND LArTPC began last summer, the bottom layer of the Cosmic Ray Tagger (CRT) system, consisting of plastic scintillator modules, was installed between 2017 and 2019 and collected a substantial dataset using the BNB. Originally intended for performance and commissioning studies, this dataset also provides an opportunity to search for long-lived particle decays. In this talk, I will present a search for decays into electron–positron pairs using CRT data.

Author: LI/李, Jiaoyang/ 娇瑒 (Fermi National Accelerator Laboratory)

Presenter: LI/李, Jiaoyang/ 娇瑒 (Fermi National Accelerator Laboratory)

Session Classification: WG5

Track Classification: NuFACT 2025: WG5 - Neutrinos Beyond PMNS