

Contribution ID: 47

Type: Poster

Search for muonic trident production in the SND@LHC detector

The SND@LHC experiment is designed to study neutrinos produced in proton-proton collisions at the LHC, covering an energy range from 100 GeV to 1 TeV. It explores an unexplored pseudo-rapidity region of 7.2 < η < 8.4. The compact detector is positioned 480 meters downstream from the ATLAS Interaction Point (IP1) in the TI18 tunnel. Its setup includes a veto system, a tungsten target interleaved with nuclear emulsion layers, scintillating fiber (SciFi) trackers, and a muon detection system. The high muon flux through the SND@LHC detector, originating from the particles produced at IP1, enables the search for rare processes, such as the direct production of a muon pair by a muon interacting with the field of a nucleus. Here, we present the measurement of muonic trident production in the SND@LHC detector. The Monte Carlo simulation prediction of muonic trident events is consistent with the measured values.

Secondary track

T09 - Beyond the Standard Model

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Session Classification: Poster T03

Track Classification: T03 - Neutrino Physics