

Neutral background identification at SND@LHC

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The Scattering and Neutrino Detector at the Large Hadron Collider (SND@LHC) is a new experiment, approved by the CERN Research Board on March 2021, which proposes to perform measurements with high energy neutrinos produced at the LHC in the still unexplored pseudo-rapidity region of $7.2 < \eta < 8.6$ during the LHC RUN3. The combination of a nuclear emulsion target and electronic detectors provides SND@LHC the capability to detect neutrino interactions and their flavour. Due to its relatively low cross-section, a high background rejection is mandatory. Neutral background is mainly provided by isolated neutrons and neutral kaons generated by deep inelastic scattering of muons (originated from the IP) in the rock upstream the SND@LHC detector and in the concrete of the TI18 tunnel, where the experiment is located. If these neutrons interact in the detector, they can mimic neutrino neutral current interactions. My work deals with the identification of such a background source through dedicated analysis of simulated data. As a first-year doctoral student, this presentation provides initial studies on background at SND@LHC.

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