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Triggering on Supernova Burst Neutrinos at DUNE

Liquid Argon Time Projection Chambers (LArTPCs) are sensitive to low energy electron neutrinos via a charged current interaction on argon. The Deep Underground Neutrino Experiment's (DUNE's) 40kt far detector at the Homestake mine in South Dakota will therefore offer a unique opportunity to study supernova neutrinos. The detection of galactic supernova burst neutrinos, a primary physics goal of DUNE, requires a data acquisition system capable of triggering the readout of a data stream of order 1TB/sec/10kt for 10s of seconds. Supernova bursts offer a unique signature on which to trigger. This poster describes the potential for and development of a real-time trigger based on simple primitives, designed to be issued in the presence of such supernova bursts.

Authorship annotation

on behalf of the DUNE collaboration

Session and Location

Wednesday Session, Poster Wall #3 (Robert-Schumann-Room)

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yes

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