

Poster: Building the DUNE High-Level Data Filter (HLDF)

The Deep Underground Neutrino Experiment (DUNE) is a next-generation long-baseline neutrino experiment under construction in the US. The experiment is formed by a broadband neutrino beam from Fermilab to the Sanford Underground Research Facility (SURF) in Lead, South Dakota, a high-precision near detector, and a large liquid argon time-project chamber (LArTPC) far detector. It has a broad physics program that includes determining the neutrino mass hierarchy, measuring δ_{CP} with sufficient precision to discover leptonic CP violation, making precise measurements of the oscillation parameters governing electron neutrino appearance and muon neutrino disappearance, detecting neutrinos from a core-collapse supernova, searching for baryon number violating processes such as nucleon decay and neutron-antineutron oscillation, and searching for other physics beyond the Standard Model.

Due to the high volume of data that is expected the DUNE high-level data filter (HLDF) was implemented. The HLDF is at the basic level prior to permanent storage. In the HLDF event selection algorithms are applicable to online data files for pre-scaling, checking the data quality, reducing the data file size, and background reduction based on the trigger type.

Primary author: VARGAS OLIVA, Danaisis (University of Toronto (CA))

Presenter: VARGAS OLIVA, Danaisis (University of Toronto (CA))

Session Classification: Poster under break time