

# Neutron detection with a 3D-projection scintillator tracker and its application to neutrino oscillation experiments

*Tuesday, August 22, 2023 4:50 PM (20 minutes)*

Neutrino oscillation experiments require accurate measurements of the neutrino energy. However, the kinematic detection of final-state neutrons in neutrino interactions is currently absent in these experiments. A revolutionary 3-Dimensional projection scintillator tracker (3DST) is capable of detecting both the kinetic energy and direction of neutrons on an event-by-event basis with precision through Time-of-Flight technique. This presentation will demonstrate the constraint of DUNE antineutrino flux uncertainty, illustrating the application of neutron kinematic detection, under the assumption that the 3DST is placed at the DUNE ND SAND.

**Primary author:** GWON, SunWoo

**Presenter:** GWON, SunWoo

**Session Classification:** parallel (room#303)

**Track Classification:** WG6: Detector Physics