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Neutron beam test with 3D-projection scintillator tracker prototypes for long-baseline neutrino oscillation experiments at Los Alamos National Lab ANDRIASETA SITRAKA, South Dakota School of Mines Technology, SUPERFGD AND US-JAPAN PROTOTYPES LANL BEAM TEST TEAM TEAM — Long-baseline neutrino oscillation experiments such as T2K (Tokai-to-Kamioka) and DUNE (Deep Underground Neutrino Experiment) which aim at precise measurements of the CP violation phase rely on the modeling of the neutrino interaction on nuclei. A major systematic uncertainty of the neutrino interaction modeling comes from the blindness of the detector to the neutrons in the final state. T2K and DUNE plan to introduce a three-dimensional projection scintillator tracker as part of their Near detector systems. Such a detector consists of a large number of 1 cm x 1 cm x 1 cm scintillator cubes with three orthogonal wavelength shifting fibers crossing through each cube. Benefited by the good timing resolution and fine granularity, this detector will be capable of measuring neutrons including its kinetic energy in neutrino interactions on an event-by-event basis. In order to fully demonstrate the neutron detection capability and optimize the tracker design, two prototypes have been assembled and exposed to neutron beam test in Los Alamos National Laboratory in December 2020. In this talk, the detail of the beam test will be described and some preliminary results will be shared.

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