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## Neutron kinematics reconstruction in the Upgraded Near Detector of the T2K experiment

*Thursday 16 May 2024 16:00 (15 minutes)*

The newly Upgraded Near Detector of the T2K experiment includes a novel 3D-projection tracker called Super Fine-Grained Detector (SFGD) sandwiched between two Time Projection Chambers equipped with resistive MicroMegs. The primary goal of the upgraded near detector is to reduce systematic uncertainties associated with neutrino flux and cross-section models for future studies of neutrino oscillations. To address this, the SFGD has excellent timing resolution, full angle coverage, high light yield and fine granularity. Among others, these features give us the capability of reconstructing the kinematics of neutrons in neutrino and antineutrino beam interactions on an event-by-event basis. This capability will help uncover previously hidden details of what is happening at the heart of the interaction and reconstruct precise (anti)neutrino kinematics. In this talk, I will present the current effort to develop the reconstruction of the neutron kinematics in this novel detector that is currently taking neutrino data.

### Mini Symposia (Invited Talks Only)

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