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Measurements of Neutrino Interaction Cross Sections at T2K

Thursday, 7 July 2022 10:00 (15 minutes)

T2K is a long baseline neutrino experiment producing a beam of muon neutrinos and antineutrinos at the Japan Particle Accelerator Research Centre (JPARC) and measuring their oscillation by comparing the measured neutrino rate and spectrum at a near detector complex, located at JPARC, and at the water-Cherenkov detector Super Kamiokande, located 295 Km away.

Such intense neutrino beam and the set of near and far detectors offer a unique opportunity to measure neutrino cross-sections for interactions on different nuclei (C and O primarily), for different neutrino energies and flavours. In particular, the combination of near detectors at different off-axis angles, enable an improved control on the energy-dependence of the neutrino cross-section. T2K is also pioneering new analysis techniques which target the exclusive measurement of the neutrino-interaction final state, including the kinematics of its hadronic part. An overview of the most recent T2K cross-section analyses will be presented, including a new measurement of coherent pion production in neutrino and antineutrino scattering on Carbon nuclei.

In-person participation

Yes

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