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Performance of the High-Angle Time Projection Chambers in the Upgraded T2K Off-Axis Near Detector

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The off-axis magnetic near detector of the T2K experiment has recently completed a significant upgrade, including the construction and installation of two new Time Projection Chambers (TPC) equipped with innovative resistive Micromegas technology and a field cage composed of thin composite walls. In this presentation, we will give an overview of the design and key features of the new TPCs, including their gas system, gas monitoring chambers, and data acquisition setup. We will also present performance results from extensive commissioning with neutrino beams and cosmic rays, along with comparisons to Monte Carlo simulations. The upgraded detectors demonstrate improved spatial resolution and enhanced particle identification performance, which are crucial for the precision goals of the T2K experiment.

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