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The Upgraded ND280 in T2K and Hyper-Kamiokande

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The ND280 near detector of the T2K experiment at J-PARC plays a crucial role in minimizing the systematic uncertainties related to the neutrino flux and neutrino-nucleus cross-sections, as it measures the neutrino beam before it oscillates. The ND280 detector has recently been upgraded with a new suite of sub-detectors: a high-granularity SuperFGD with 2 million optically-isolated scintillating cubes read out by wavelength-shifting fibres and 55000 Multi-Pixel Photon Counters; two horizontal Time-Projection Chambers instrumented with resistive Micromegas, and additionally six panels of scintillating bars for precise time-of-flight measurements. The installation of the new subdetectors was completed in May 2024, and since then, the T2K collaboration has been successfully taking neutrino beam data with the upgraded ND280. The talk will cover the performance of the upgraded ND280 and will also address the importance of ND280 for Hyper-Kamiokande.

Abstract

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