

The upgrade project of the T2K near detector ND280

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After a decade of fruitful data-taking, the T2K near detector ND280 is scheduled for upgrade. The new setup includes three detector systems utilizing novel technologies: an active fine-grained plastic scintillator target (SuperFGD) with two TPCs above and below it to cover the region of large scattering angles and six planes of the time-of-flight (TOF) detector that enclose the entire setup. SuperFGD is composed of about two million optically independent 1x1x1 cm³ cubes which are read out along three orthogonal directions by wavelength shifting fibers. Two new TPCs will have the readout system based on the Resistive Micromegas technology which will provide better performances in respect of spark resistance and either point resolution or reduction of electronics channels. Six TOF planes serve to reject those particles originated in the areas outside the SuperFGD. Each plane is assembled of 20 plastic scintillator bars which are read out by arrays of large-area SiPMs.

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