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T2K Experiment: future plans and capabilities

The Tokai-to-Kamioka (T2K) experiment uses an intense (anti)neutrino source produced at J-PARC, which is sampled by detectors close to production (280m) and far from it (295km). T2K's physics program includes precision measurements of oscillation physics, neutrino interactions, and searches for exotic phenomena. T2K has made important contributions to the evolving landscape of oscillation physics, including the discovery of charged current ν_e appearance and significant constraints on CP violation (CPV) in the lepton sector, assuming three-flavour PMNS neutrino oscillations. T2K will take data with its recently-installed near detector upgrades until the start of Hyper-Kamiokande, aiming to collect data corresponding to a total of 10×10^{21} protons-on-target (POT), for a continued, vibrant physics program which will pursue 3σ observation of CPV and will lay the ground work to performing analyses with the next generation of neutrino experiments. Approximately 60% of the T2K collaboration comes from European institutions, making Europe a strong contributor in T2K. Europe has provided infrastructure, detector R&D and operational expertise which have been essential to T2K's successful science program. European groups have significant leadership and initiatives within T2K. Europe has also been essential to important input measurements to T2K. CERN has been a successful hub for T2K's neutrino oscillation program. We provide examples for consideration to ensure a successful European strategy in the domain of neutrino oscillation experiments based on the T2K model.

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