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Physics Reach and the Status of DUNE

The neutrino flavor oscillation, discovered and confirmed through mid 2000s is a firmly established phenomenon. Since the flavor oscillation occurs due to the fact that the flavor and mass eigenstates differ, it requires the Standard Model to be modified. Precision measurements of the neutrino properties to reflect their non-zero mass into the Standard Model require high statistics samples of neutrino interactions. To provide the essential information for the modifications of the Standard Model, two next generation long baseline neutrino experiments are under construction on either side of the Pacific. The Deep Underground Neutrino Experiment (DUNE) in the U.S. and the Hyper-Kamiokande (HK) experiment in Japan utilize high power proton beams of energy 120GeV and 30GeV, respectively, together with the large mass far detectors and powerful near detectors. This talk will cover DUNE's latest expected physics reach for neutrino oscillation properties, including the potential for the discovery of the CP violation in the neutrino sector, the potential for supernova neutrino measurements and the expanded physics reach going beyond the oscillation measurements, which become possible by the facilities these next generation neutrino experiments utilize. This talk will also cover the status of the experiment and its latest timeline.

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