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A long distance for the smallest particle: recent results from long baseline neutrino experiments

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One of the most promising investigations of beyond-the-Standard-Model physics has been the study of neutrino oscillation, that is, the conversion of neutrinos from one flavor to another as they propagate. While neutrino oscillation is studied in a wide variety of laboratories, the strongest constraints on the neutrino oscillation mixing parameters, θ_{23} and Δm^2_{32} come from long baseline neutrino experiments. A long baseline neutrino experiment employs a particle accelerator to produce a neutrino beam which travels 100-1000km in one of the grandest tests of quantum mechanics imaginable. This talk will describe how long baseline experiments are shaping our understanding of neutrino oscillation physics, with the latest results from experiments around the world such as T2K, NOvA, and OPERA.

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