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Abstract for an Invited Paper for the 4CF15 Meeting of the American Physical Society

Review of Recent Long baseline Neutrino Oscillation Results WALTER TOKI, APS

Neutrino oscillations are the remarkable ability of neutrinos to "shapeshift" or metamorphose from one type or flavor into another as they travel through space. These oscillations are observed as neutrinos travel over hundreds of kilometers in two long baseline neutrino oscillation experiments; the T2K experiment at the Japan Proton Accelerator Research Center in Japan and the Nova experiment at Fermi National Laboratory near Chicago. This talk will review the nu_mu \rightarrow nu_mu disappearance and the nu_mu \rightarrow nu_e appearance oscillation results from T2K and Nova and the anti_numu \rightarrow anti_nue results from T2K. These measurements are used to determine fundamental parameters of neutrino mixing. In addition, with more data, these experiments aim to search for charge-parity violations between neutrino and antineutrino oscillations where the oscillation rates would be different. The basic concepts of neutrino oscillations will be described and the most recent experimental results will be reviewed.