

The 22nd international workshop on Next Generation Nucleon Decay and Neutrino Detectors (NNN23)



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Latest neutrino oscillation results and prospect from IceCube

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The IceCube Neutrino Observatory, together with its DeepCore sub-array, detects large amounts of atmospheric neutrinos in the GeV to TeV energy range, enabling measurements of the muon-neutrino disappearance and tau-neutrino appearance channels of neutrino oscillations over a wide range of baselines up to 12000 km. In the energy range of DeepCore between 5 GeV and 150 GeV in particular, these measurements provide independent and complementary constraints in the atmospheric oscillation parameter space probed by long-baseline accelerator experiments. This talk presents the latest neutrino oscillation results from the IceCube Collaboration that include larger datasets, improved detector calibration and more sophisticated event reconstruction methods than previous atmospheric neutrino measurements. It also gives an outlook on future high-precision measurements that will be facilitated by the IceCube Upgrade, an additional infill array whose deployment is slated to begin during the 2025-2026 Antarctic summer season.

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