

Constraints on Sterile Neutrino Mixing from IceCube

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Several short-baseline neutrino oscillation experiments have yielded unexpected results, which could hint at the existence of sterile neutrinos. IceCube has performed a unique search for sterile neutrinos by exploiting matter-enhanced resonant oscillations, which can be probed using atmospheric and astrophysical neutrinos in the TeV energy regime. The analysis uses the world's largest sample of Earth-crossing muon neutrino events from eight years of IceCube data with a purity above 99.9%. We present results of this analysis that place stringent limits on an eV-scale fourth neutrino and future prospects for improvements in the event selection and reconstruction.

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