

IceCube Sterile Neutrino Searches

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The IceCube Neutrino Observatory is a gigaton-scale Cherenkov telescope frozen beneath the ice at the Amundsen-Scott South Pole Station. Spanning approximately a cubic kilometer, it has detected hundreds of thousands of neutrino events at energies ranging from a few GeV to hundreds of TeV. Its high event statistics and sensitivity to a wide range of energies have given it an unprecedented sensitivity to sterile-neutrino oscillation parameters. IceCube may also be poised to make a direct sterile-induced tau-appearance measurement via $\bar{\nu}_\mu \rightarrow \bar{\nu}_s \rightarrow \bar{\nu}_\tau$ matter-enhanced oscillations and provide further constraint to the θ_{24} and θ_{34} mixing angles. Here, ongoing IceCube work and results for both high and low-energy sterile neutrino oscillations analyses are presented, for both cascade and track event topologies.

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