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IceCube Matter-Enhanced Sterile Neutrino Searches

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The IceCube Neutrino Observatory has sensitivity to sterile neutrino oscillations through matter-enhanced oscillation occurring in the few TeV energy range for eV^2 -scale mass-squared splittings. I will present previous measurements of these effects in ν_μ disappearance, which has strong sensitivity to the mixing angle θ_{24} via $\bar{\nu}_\mu \rightarrow \bar{\nu}_s$ transitions. I will also discuss ongoing work towards measuring the sterile neutrino mixing angles θ_{14} , θ_{24} , and θ_{34} through the previously unexplored $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ and $\bar{\nu}_\mu \rightarrow \bar{\nu}_\tau$ cascade appearance channels.

Collaboration name

IceCube

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