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Non-Standard Interactions Searches in IceCube

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Non-standard interactions (NSI) is a general term for neutrino-matter interactions not described by the Standard Model, prompting investigation through their potential to relieve experimental tensions. These interactions may also add parameter degeneracies, which are important to constrain when interpreting experiment data. Using Earth's large range of matter baselines, IceCube has been able to constrain neutral-current NSI by searching for model-specific deviations in neutrino fluxes. Here, we comment on previous and ongoing IceCube NSI analyses, and present world-leading results from the latest analysis constraining the mu-tau flavor-changing parameter, which uses an 8-year sample of high-energy (500 GeV - 10 TeV) upgoing muon tracks.

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Neutrinos

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