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Non-Standard Neutrino Interactions in IceCube

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The IceCube detector is the world's largest neutrino observatory, a cubic kilometer of deep ice at the South Pole outfitted with an array of pressure vessels containing photomultipliers and associated electronics. The IceCube Collaboration has recently reported a measurement of muon neutrino disappearance using the more densely instrumented subdetector DeepCore that is competitive with other leading measurements of neutrino oscillations. The SuperKamiokande experiment has shown the potential large atmospheric neutrino datasets offer to measure new physics in the oscillations region by looking for neutrino non-standard interactions (NSI), where neutrinos interact in the earth mediated by TeV scale bosons predicted in physics beyond the standard model. An analysis of the sensitivity for neutrino NSI in the IceCube detector using the dataset from the recently published oscillations result will be discussed.

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