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Exploiting atmospheric neutrino data of IceCube to probe new physics in neutrino sector

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Atmospheric neutrino data collected by huge neutrino detectors, such as IceCube, provide the opportunity to probe new physics unprecedentedly, both due to high statistics and also to the high energy range. In this talk we discuss various new physics scenarios that can be probed by these data including: active-sterile neutrino mixing, non-standard neutrino interactions and violation of equivalence principle. We present the current constraints on new physics parameters obtained from IC-40 and IC-79 data sets and also the sensitivity prospect of the IceCube/DeepCore detector.

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