

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

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Abstract:

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. Among various new physics scenarios that can be probed, including non-standard neutrino interactions and violation of equivalence principle, in this talk I discuss the active-sterile neutrino mixing motivated by LSND, MiniBooNE and reactor anomalies. We present the current constraints on sterile neutrino parameters obtained from IC-40 data set and also the sensitivity prospect of the IceCube/DeepCore detector.