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”HENeutrinos beyond Standard Model: steriles and secret interactions

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Ultra High Energy neutrinos may represent a unique opportunity to unveil possible new physics interactions in the neutrino sector. At this regard, we have investigated the effects on high and ultrahigh energy active neutrino fluxes due to active-sterile secret interactions mediated by a new pseudoscalar particle. These interactions become relevant at very different energy scales depending on the masses of the scalar mediator and of sterile neutrino. As a consequence, we have found interesting phenomenological implications on two benchmark fluxes we consider, namely an astrophysical power law flux, in the range below 100 PeV, and a cosmogenic flux, in the Ultrahigh energy range. These features could be measurable in present and future neutrino experiments.

Collaboration name

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