

Exploring tau neutrino appearance measurements in KM3NeT/ORCA

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Next-generation experiments aim at ensuring high-precision measurements of the oscillation parameters to reveal the main unknowns in neutrino physics. Among them, validating the three-flavors paradigm remains one of the most stimulating because it allows for exploring new physics.

KM3NeT/ORCA is a water Cherenkov neutrino telescope, under construction in the Mediterranean Sea, whose primary physics goal is an early measurement of the neutrino mass ordering from the oscillation of atmospheric neutrinos traversing the Earth. Thanks to its huge fiducial mass, KM3NeT/ORCA will have unprecedented statistics to exploit the tau neutrino appearance channels as an indirect test of the PMNS matrix unitarity and, thus, of the three-neutrino flavors paradigm. With a focus on the event reconstruction and selection methods, the results from the first blind measurement of the tau neutrino normalization performed by exploiting data collected with a partially instrumented volume will be presented.

Alternate track

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