

# Latest results on neutrino non-standard interactions with ANTARES and KM3NeT/ORCA Phase 1

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Neutrino Non Standard Interactions (NSI) are one of the sub-dominant effects which can affect neutrinos propagating through matter via observable changes in their oscillation patterns predicted by the standard oscillation parameters. These interactions should modify neutrino flavour ratio observed in neutrino telescopes measuring atmospheric neutrino flux.

The ANTARES neutrino telescope has already proven its sensitivity for NSI with 10 years of data taking. KM3NeT, the ANTARES successor, is a next-generation neutrino telescope currently under construction in the Mediterranean Sea. ORCA is a dense array that constitutes the low-energy branch of KM3NeT with the main aim of resolving the neutrino mass hierarchy. By now, the KM3NeT/ORCA Phase 1 has already been deployed, which makes 6 out of the planned 115 detection lines operational. Even with this limited capability, neutrino oscillations can already be measured and studied.

In this contribution, a summary of the most recent results on NSI from the ANTARES detector, which has produced best worldwide limits in some interesting regions of the parameter space, will be shown. These results will also be compared to projections from different configuration stages of the KM3NeT/ORCA detector. For the first time, the combined NSI measurements from 4 months of data taking with 4 detection units and 1 year with 6 DUs of KM3NeT/ORCA will be presented.

## Keywords

neutrino telescope; non standard interactions; neutrino oscillations

## Collaboration

KM3NeT

## other Collaboration

Antares

## Subcategory

Experimental Results

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