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First detection of tau neutrinos with KM3NeT/ORCA6

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The tau neutrino is one of the least well studied particles in the Standard Model, with an overall measured statistics of about 2000 events. KM3NeT/ORCA is a water Cherenkov detector currently under construction in the Mediterranean Sea that aims to determine the neutrino mass ordering. It is optimised for the detection of atmospheric neutrinos in the 1-100 GeV range. While the atmospheric neutrino flux at these energies is initially only composed of electron and muon neutrinos, there is a considerable flux of tau neutrinos at the Earth due to oscillations. KM3NeT/ORCA is sensitive to this flux and can detect tau neutrinos. The presentation highlights the first detection of tau neutrinos with KM3NeT/ORCA6, a preliminary detector configuration, which corresponds to about 5% of the final detector.

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