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Status and prospects of the KM3NeT/ORCA

Thursday, 27 February 2020 14:30 (20 minutes)

KM3NeT is the next-generation neutrino Cherenkov telescope currently under construction in the Mediterranean Sea. Its low energy configuration ORCA (Oscillations Research with Cosmics in the Abyss) is optimised for the detection of atmospheric neutrinos with energies above ~1 GeV. The main research target of the ORCA detector is the measurement of the neutrino mass ordering (NMO) and atmospheric neutrino oscillation parameters. This contribution will present the first results on atmospheric neutrinos detected with the already deployed ORCA detection units. The projected sensitivity of the detector to the NMO will be shown, along-side prospects for early analyses of data collected with a small sub-array of the detector during construction phase. The ORCA potential for other physics topics, including dark matter, non-standard interactions, sterile neutrinos, and supernovae neutrino detection will also be presented.

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