KM3NeT/ORCA: Status, first data and perspectives for neutrino oscillation and mass ordering measurements

KM3NeT is a next-generation neutrino telescope being deployed 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 and atmospheric neutrino oscillation parameters; but the detector is also sensitive to a wide variety of other physics topics, such as dark matter and Earth tomography.

In 2019, 4 out of the total of 115 vertical lines carrying the light sensors of the ORCA detector were deployed, while 6 are operational from early 2020. This contribution will present an overview of the current detector performance, as well as updated sensitivity projections to its main science objectives. Future perspectives for ORCA to serve as far detector for a long-baseline neutrino experiment with a neutrino beam from the U70 accelerator complex at Protvino in Russia will also be discussed.

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