



Contribution ID: 136

Type: oral

## Prospects for measuring the Neutrino Mass Ordering with KM3NeT/ORCA

*Wednesday, 7 September 2016 11:15 (15 minutes)*

ORCA (Oscillations Research with Cosmics in the Abyss) is the low-energy branch of KM3NeT, the next generation underwater Cherenkov neutrino detector in the Mediterranean. Its primary goal is to resolve the long-standing unsolved question whether the neutrino mass ordering is normal or inverted by measuring matter oscillation effects with atmospheric neutrinos. The ORCA design foresees a dense configuration of KM3NeT detection units, optimised for studying the interactions of neutrinos in seawater at low ( $< 100$  GeV) energies. To be deployed at the French KM3NeT site, ORCA's multi-PMT optical modules will exploit the excellent optical properties of deep seawater to accurately reconstruct both cascade (mostly electron neutrinos) and track events (mostly muon neutrinos) with a few GeV of energy. This contribution reviews the methods and technology, and discusses the potentiality of the ORCA detector both in neutrino mass hierarchy studies and in obtaining new constraints on other key parameters such as  $\theta_{23}$ .

**Primary author:** KM3NET, Collaboration (-)

**Presenter:** HOFESTADT, Jannik (ECAP)

**Session Classification:** Parallel