

Measuring Neutrino Oscillations with KM3NeT/ORCA

Thursday 5 July 2018 10:15 (15 minutes)

ORCA is the low-energy detector of KM3NeT, the next generation underwater Cherenkov neutrino observatory in the Mediterranean Sea. With ORCA, the primary goal is to resolve the long-standing unsolved question of 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 energies < 100 GeV. The detector will be deployed at the French KM3NeT site, at 2500 m depth ~ 40 km offshore Toulon. The excellent optical properties of deep seawater will be exploited by the ORCA's multi-PMT optical modules to accurately reconstruct both cascade events (mostly induced by electron neutrinos) and track events (mostly from muon neutrinos). The construction of the detector has started. In this contribution we will report on the progress of the construction plan and will discuss the potentialities of the ORCA detector both in neutrino mass hierarchy studies and in obtaining new constraints on other key oscillation parameters.

Author: CIRCELLA, Marco (INFN Bari)

Presenter: CIRCELLA, Marco (INFN Bari)

Session Classification: Neutrino Physics

Track Classification: Neutrino Physics