

## Analysis of vertex-contained high energy neutrino events for the KM3NeT/ARCA detector.

KM3NeT is a research infrastructure housing the next generation neutrino telescopes in the depths of the Mediterranean Sea. The ARCA detector, which is currently under construction, is optimized for searches for neutrinos from astrophysical sources as well as measurements of the diffuse astrophysical flux. The unambiguous detection of neutrinos of extraterrestrial origin by IceCube has led to the first measurement of a high energy astrophysical neutrino flux. The properties of sea water allow for a measurement of the neutrino direction with an excellent angular resolution for both track and cascade events. In this contribution a method to differentiate track and shower events and a method to reject the atmospheric muon background from starting track-like events are combined. The analysis for the discovery potential of KM3NeT/ARCA, for a diffuse astrophysical neutrino flux using events with the reconstructed vertex inside the detector volume will be presented.

### Authorship annotation

For the KM3NeT collaboration

### Session and Location

Wednesday Session, Poster Wall #182 (Ballroom)

### Poster included in proceedings:

yes

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**Track Classification:** Poster (participating in poster prize competition)