



Contribution ID: 491

Type: **Poster contribution**

Self-veto approaches to reject atmospheric neutrinos in KM3NeT/ARCA

Saturday, August 1, 2015 3:30 PM (1 hour)

A main objective of the future neutrino telescope KM3NeT/ARCA is the detection and measurement of extraterrestrial neutrinos. Atmospheric neutrinos, which are produced in particle showers in the Earth's upper atmosphere, represent the main background to this signal. Muon bundles which accompany downgoing atmospheric neutrinos can be used to differentiate the latter from their extraterrestrial counterparts and thus to identify cosmic neutrino signals from the upper hemisphere.

The program package CORSIKA has been used for simulating extensive air showers. These particle showers contain many particle types, but beside neutrinos the only particles surviving up to the ~3000m depth of the detector are muons. A veto strategy has been developed which uses the detector signals induced by these muons. In particular these muons modify the observed topology on neutrino-induced events, with a significant effect on different reconstruction parameters. Making use of these effects, most of the downward-going atmospheric neutrinos can be rejected. The analysis methods and results will be reported in this poster.

Collaboration

KM3NeT

Registration number following "ICRC2015-I"

446

Primary author: HEID, Thomas (Universitaet Erlangen)**Co-authors:** JAMES, Clancy (University of Erlangen-Nuernberg); PIKOUNIS, Konstantinos (NCSR Demokritos)**Presenter:** HEID, Thomas (Universitaet Erlangen)**Session Classification:** Poster 2 DM and NU**Track Classification:** NU-EX