



Contribution ID: 124

Type: **Poster**

Investigating Neutrino Emission from Gamma-Ray (Galactic) Sources with KM3NeT

The study of high-energy neutrino emission from astrophysical sources is a key component of multi-messenger astronomy, aiming to uncover the mechanisms of cosmic particle acceleration. Astrophysical sources capable of accelerating cosmic rays to very high energies are expected to produce both neutrino and gamma-ray emissions. Consequently, potential neutrino emissions from known gamma-ray sources can be predicted using theoretical models that relate the expected neutrino spectra to the observed gamma-ray spectra.

In this work, neutrino spectra are estimated for gamma-ray sources listed in the catalogues of experiments such as LHAASO and HAWC. The feasibility of detecting these neutrino emissions is then explored using the KM3NeT/ARCA neutrino telescope, currently under construction in the Mediterranean Sea. KM3NeT/ARCA has already started collecting data with the first installed detection units, and in its final configuration, it will cover approximately one cubic kilometer.

The analysis focuses on: evaluating the performance of the complete KM3NeT/ARCA detector through simulations, and searching for neutrino signals in existing data, corresponding to approximately 640 days of observations. To enhance the sensitivity of this search, techniques such as optimized event selection, tailored to the energy spectra studied by HAWC and LHAASO, and stacking analysis are employed.

Collaboration(s)

KM3NeT collaboration

Authors: CAIFFI, BARBARA; SALESA GREUS, Francisco (IFIC - Valencia); SANGUINETI, Matteo (INFN Genova - Università di Genova); PARISI, Vittorio (University of Genova)

Presenter: PARISI, Vittorio (University of Genova)

Session Classification: PO-2

Track Classification: Neutrino Astronomy & Physics