Contribution ID: **1040** Type: **Poster**

Search for nuclearites with the KM3NeT detector

Monday 12 July 2021 18:20 (12 minutes)

Strange quark matter (SQM) is a hypothetical type of matter composed of almost equal quantities of up, down and strange quarks. Massive SQM particles are called nuclearites. Nuclearites with masses greater than 10^{13} GeV and velocities of about 250 km/s (typical galactic velocities) could reach the Earth and interact with atoms and molecules of sea water within the sensitive volume of the deep-sea neutrino telescopes. The SQM particles can be detected with the KM3NeT telescope (whose first lines are already installed in the Mediterranean Sea and taking data) through the visible blackbody radiation generated along their path inside or near the instrumented area. In this work the results of a study using Monte Carlo simulations of down-going nuclearites are discussed. Preliminary sensitivities of the KM3NeT experiment for a flux of nuclearites are also presented.

Keywords

strange quark matter; nuclearites; neutrino telescopes; KM3NeT; Monte Carlo simulations

Collaboration

KM3NeT

other Collaboration

Subcategory

Experimental Results

Primary authors: Ms PAUN, Alice (Institute of Space Science (ISS), Atomistilor 409, Magurele, RO-077125 Romania); FOR THE KM3NET COLLABORATION

Co-authors: Dr PAVALAS, Gabriela (Institute of Space Science (ISS), Atomistilor 409, Magurele, RO-077125 Romania); Dr POPA, Vlad (Institute of Space Science (ISS), Atomistilor 409, Magurele, RO-077125 Romania)

Presenter: Ms PAUN, Alice (Institute of Space Science (ISS), Atomistilor 409, Magurele, RO-077125 Romania)

Session Classification: Discussion

Track Classification: Scientific Field: NU | Neutrinos & Muons