

Sensitivity estimates for diffuse, point-like and extended neutrino sources with KM3NeT/ARCA

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The identification of cosmic objects emitting high energy neutrinos could provide new insights about the Universe and its active sources. The existence of these cosmic neutrinos has been proven by the IceCube collaboration, but the big question of which sources these neutrinos originate from, remains unanswered. The KM3NeT detector for Astroparticle Research with Cosmics in the Abyss (ARCA), with a cubic kilometer instrumented volume, is currently being built in the Mediterranean Sea. It will excel at identifying cosmic neutrino sources due to its unprecedented angular resolution for muon neutrinos (< 0.2 degree for $E > 10$ TeV events). KM3NeT has a view of the sky complementary to IceCube, and is sensitive to neutrinos across a wide range of energies. In order to identify the signature of cosmic neutrino sources in the background of atmospheric neutrinos and muons, statistical methods are being developed and tested with Monte-Carlo pseudo-experiments. This contribution presents the most recent sensitivity estimates for diffuse, point-like and extended neutrino sources with KM3NeT/ARCA.

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Subcategory

Experimental Methods & Instrumentation

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