

Status and prospects of the astrophysical GeV neutrino emission searches with IceCube and KM3NeT

In the last decade, neutrino telescopes have probed astrophysical sources to probe cosmic ray acceleration mechanisms and shine light on properties previously unseen. The main neutrino telescopes nowadays are IceCube in the Antarctic ice and KM3NeT under construction in the Mediterranean Sea. These Cherenkov based neutrino telescopes are specially built for neutrino astronomy at TeV and higher neutrino energies, but that does not mean GeV neutrinos are undetectable. We present that despite high background rates at these lower energies, the large instrumented volume allows for detection of transient astrophysical phenomena for neutrinos at GeV energies. For example the search for neutrinos from the Gamma Ray Burst GRB221009A as well as the follow up of Gravitational waves from Ligo-Virgo-Kagra. There are also ongoing efforts to further improve the sensitivity of GeV neutrinos through machine learning techniques for noise reduction and direction reconstruction, possibly lowering the detector threshold to 100 MeV.

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