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Low Energy Astrophysical Transients with IceCube-DeepCore

IceCube has presented evidence for a time-dependent flux of TeV neutrinos from the blazar TXS 0506+056. Additional events may be observable by IceCube at lower energies, although the existing analysis rapidly loses sensitivity below about 1 TeV. The densely instrumented DeepCore sub-array improves the threshold for observation from 1 TeV down to approximately 10 GeV, giving a unique window to probing low energy transient astrophysical fluxes that are largely unexplored. We present a result from a recent all sky, self triggered ~100 second flares in the 10-200 GeV energy range. This analysis, using a data selection originally optimized for neutrino oscillations, improves sensitivity on a prior study by a factor of 5. A new event selection has been developed - including planned analyses with Choked GRBs and Novae - with the ultimate goal of providing community alerts for low energy neutrino astrophysical transients.

Mini-abstract

GeV neutrinos for astrophysical transients with IceCube

Experiment/Collaboration

IceCube Collaboration

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