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# Searching for High Energy Neutrinos from Magnetars with IceCube

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Magnetars are neutron stars with very strong magnetic fields on the order of $10^{13}$ to $10^{15}$ G. Young magnetars with oppositely-oriented magnetic fields and spin moments may emit high-energy (HE) neutrinos from their polar caps as they may be able to accelerate cosmic rays to above the photomeson threshold (Zhang, et. al 2003). Giant flares of soft gamma-ray repeaters (a subclass of magnetars) may also produce HE neutrinos and therefore a HE neutrino flux from this class is potentially detectable (Ioka, et.al 2005). Here we present plans to search for neutrino emission from magnetars listed in the McGill Online Magnetar Catalog using 10 years of well-reconstructed IceCube muon-neutrino events looking for significant clustering around magnetars' direction. IceCube is a cubic kilometer neutrino observatory at the South Pole and has been fully operational for the past ten years.

## Keywords

magnetars, neutrinos, point source, icecube

## Collaboration

IceCube

## other Collaboration

## Subcategory

Experimental Results

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