

Measurement of the diffuse neutrino flux by a global fit to multiple IceCube results

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The IceCube Neutrino Observatory is the largest operating experiment searching for astrophysical neutrinos. Situated at the geographical South Pole, IceCube has been completed in 2010 and is entering its phase of discovery now. Several studies that have recently been performed in IceCube show an excess of events at high energies, indicating the presence of a non-atmospheric component in the diffuse neutrino flux.

The aim of this study is to characterize the diffuse neutrino flux as measured by IceCube. To this end, a global likelihood fit to the results of multiple IceCube analyses has been performed. These analyses include both main detection channels (track-like and shower-like events) and use data taken between 2008 and 2012 with four different IceCube configurations (featuring 40, 59, 79 and 86 strings, respectively).

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