

Search for interactions of neutrinos with Dark Matter from distant point sources with the IceCube Neutrino Telescope

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The discovery of neutrino signals from distant sources, recently reported with TXS 0506+056 and NGC 1068 respectively, provide opportunities for searching for BSM interactions that neutrinos might experience on their paths. One potential scenario of interest is the interaction between neutrinos and dark matter, which is expected to be abundantly spread over the Universe. If high-energy neutrinos from extragalactic sources interact with dark matter during their propagation, their fluxes may be suppressed at specific energy ranges after the interactions. These attenuation signatures from the interaction might be measurable on Earth with large neutrino telescopes such as the IceCube Neutrino Observatory. The present analysis is focused on searching for BSM interactions of high-energy neutrinos from the IceCube-identified astrophysical neutrino sources with sub-GeV mass dark matter and several benchmark mediator cases using the upgoing track-like events. In this talk, sensitivity studies about the interaction of neutrinos and dark matter with IceCube are presented.

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