

## **Blazar constraints on the dark matter - neutrino cross section**

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The flux of high energy neutrinos and photons produced in a blazar could get attenuated when they propagate through the dark matter spike around the central black hole and the halo of the host galaxy. Using the observation by IceCube of a few high-energy neutrino events from TXS 0506+056, and their coincident gamma ray events, we obtain new constraints on the dark matter-neutrino and dark matter-photon scattering cross sections. Our constraints are orders of magnitude more stringent than those derived from considering the attenuation through the intergalactic medium and the Milky Way dark matter halo. When the cross-section increases with energy, our constraints are also stronger than those derived from the CMB and large-scale structure.

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