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Neutrino astronomy latest results and prospects

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Since the observation of the astrophysical neutrino flux reported by IceCube in 2013, neutrino astronomy has grown into a promising field of physics. High-energy neutrinos (E > 1 TeV) offer unique insight into the particle acceleration processes occurring within extreme astrophysical environments, forming an important component of multi-messenger astrophysics. Since 2013, IceCube has found evidence for neutrino production from the blazar TXS 0506+056 and the Seyfert galaxy NGC 1068, and observed an excess of neutrinos from the Galactic plane. Additionally, IceCube has refined its measurement of the diffuse astrophysical neutrino spectrum using multiple channels of neutrino events and carried out searches for beyond-the-Standard-Model physics. As more neutrino telescopes are deployed, the opportunities for exciting neutrino discoveries increase. Most recently, KM3NeT detected the highest-energy neutrino recorded to date with its partially complete array. In this talk, I will highlight recent results from across the field and discuss how these results connect into the multi-messenger astrophysics landscape. Additionally, I will cover the future of the field as a global network of neutrino telescopes is constructed.

Secondary track

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