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Neutrino Multimessenger Astrophysics

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Neutrino astrophysics became a reality in 2013 when IceCube discovered an all-sky celestial radiation of neutrinos in the TeV-PeV energy range. While this flux has been observed with higher significances with more years of data, what emits these neutrinos remains unknown. In 2017, a multi-messenger observation of the gamma-ray blazar TXS 0506+056 became the first compelling evidence of TeV neutrino emission from a celestial object. More such observations and further discoveries of neutrino point sources are needed to explain the all-sky diffuse flux. Multi-messenger astronomy will be key in these efforts, as will future neutrino detectors, with construction already under way.