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High-energy Neutrinos from Blazars

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Cosmic rays prove that our Universe hosts elusive astrophysical ”monsters”capable of continuously and efficiently accelerate particles at extreme energies. High-energy photons and neutrinos may provide the ultimate key to decipher the mystery of cosmic rays. Amongst the most promising neutrino candidate sources of high-energy neutrinos there are blazars, active galactic nuclei hosting a relativistic jet pointed towards us. However, to date there is neither a consistent picture for the physical mechanism nor a theoretical framework capable of convincingly explain the full set of multi-messenger observations. This contribution presents initial encouraging steps in one of the foremost challenges in the astrophysics and multi-messenger fields, i.e. identifying the sources of extragalactic neutrinos, and discusses the latest status of the field.

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