

# Theoretical perspectives on Multimessenger Astronomy with astrophysical neutrinos

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Multi-messenger astrophysics experienced a tremendous boost, after the first detection of astrophysical neutrinos was reported eight years ago. Despite having uncovered a large variety of gamma-ray emitting source classes up to today, a firm identification of the dominant source population responsible for the detected high-energy neutrino all-sky flux is, however, still lacking.

In this presentation I will review our current theoretical understanding of neutrino production in various environments. I will further discuss the role high-energy cosmic neutrino signatures play in characterizing cosmic-ray accelerators, and comment on their link to gamma-ray astronomy. I will conclude on future prospects for multi-messenger astrophysics.

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