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Neutrino and electromagnetic signals from tidal disruption events: bridging the theory with observations

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This presentation covers recent results from the joint analysis of neutrino and electromagnetic cascade emissions from neutrino-coincident tidal disruption events (TDEs), using both an isotropic wind model and relativistic jets. We discuss constraints from *Fermi* gamma-ray upper limits on the size of the radiation zone and on the maximum energies of accelerated cosmic rays, and the resulting neutrino emissions. Additionally, we explore multi-wavelength modeling of jetted TDEs with luminous X-ray afterglows, incorporating jet and wind dynamics with time-dependent energy injection. We also examine the connection between neutrinos and their multi-wavelength counterparts, highlighting implications for future multi-messenger discoveries with IceCube, IceCube-Gen2, KM3NeT, and *Fermi*.

Collaboration(s)

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