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## Ultra-High-Energy Cosmic Rays and Neutrinos from Tidal Disruptions by Massive Black Holes

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In addition to the emergence of time domain astronomy, the advent of multi-messenger astronomy opens up a new window on transient high-energy sources. Through the multi-messenger study of the most energetic objects in our universe, two fundamental questions can be addressed: what are the sources of ultra-high energy cosmic rays (UHECRs) and the sources of very-high energy neutrinos?

Jetted Tidal Disruption Events (TDEs) appear as interesting candidate sources of UHECRs, with their impressive energy reservoir and estimated occurrence rates. By modeling and simulating the propagation and interaction of UHECRs in various types of radiative backgrounds, we can evaluate the signatures of TDEs powering jets in UHECRs and neutrinos. We find that we can reproduce the latest UHECR spectrum and composition results of the Auger experiment for a range of reasonable parameters. The diffuse neutrino flux associated with this scenario is found to be subdominant, but nearby events could be detected by IceCube or next-generation detectors such as IceCube-Gen2.

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