

Multi-Messenger emission of Tidal Disruption Events

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Tidal Disruption Events (TDEs) of massive stars are potential candidates for neutrinos and cosmic rays at the highest energies. Three Tidal Disruption Event candidates (AT2019dsg, AT2019fdr, AT2019aal) have been recently associated with astrophysical neutrinos; they have strong dust echoes (in the infrared range) in common, with time delays which seem to be correlated with the neutrino arrival times. We address the question where/how the neutrinos may be produced and what we can learn about the cosmic ray primaries. For example, if the IR photons from the dust echoes indeed serve as cosmic ray targets in photohadronic interactions, cosmic ray energies in the UHECR range are required, and the neutrino detections will be the smoking gun signature for the origin of the UHECRs.

Primary author: WINTER, Walter (DESY)

Presenter: WINTER, Walter (DESY)