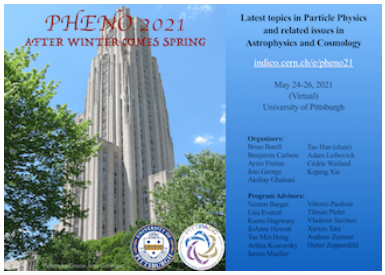

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Transient Sources and the light curves of BSM-induced neutrino echoes in the optically thin limit

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High-energy cosmic neutrinos present a unique opportunity to search for physics beyond Standard Model thanks to their reach to the highest energies and longest baseline. Beyond Standard Model induced interactions of high-energy neutrinos during their propagation yield distinct signatures in their observables in neutrino telescopes. Energy, flavor, arrival direction, and the arrival time of neutrinos can be modified when new physics is present. In the meantime, the success of time-domain multimessenger astrophysics in identifying the first evidence for the sources of high-energy cosmic neutrinos has demonstrated the feasibility of exploring new physics with transient sources of cosmic neutrinos. New physics scenarios will induce a time delay in the observation of high-energy neutrinos from astrophysical transients. The presence or absence of a delay in the arrival time of high-energy neutrinos compared to other cosmic messengers will provide a powerful probe of new physics in the neutrino sector. In this talk, we present the light curves for neutrino emission from transients for different new physics scenarios assuming an optically thin limit and discuss the expected temporal distribution for the arrival time high-energy neutrinos in each scenario. We further discuss the implications for current and future neutrino detectors.

Summary

Author: KHEIRANDISH, Ali (Pennsylvania State University)

Presenter: KHEIRANDISH, Ali (Pennsylvania State University)

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