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DMFlux: a tool for neutrino flux generation from dark matter annihilation and decay

Among messengers used in indirect searches for dark matter (DM), neutrinos are special as they are neutral, light, and seldom interact. These unique properties give them advantages in astrophysical studies: they are advantageous over cosmic rays as they are able to point back to their sources and unlike gamma rays can exit environments of large matter and radiation densities. I will present a new flexible Monte Carlo simulation tool to generate neutrino fluxes at detectors searching for signatures of DM annihilation and decay. The expected flux from galactic and extragalactic sources will be discussed, as well as the Earth and the Sun. In the latter case, we will also consider the possibility of a secluded dark matter sector which introduces a long-lived mediator.

Mini-abstract

A neutrino flux Monte Carlo generator for dark matter annihilation and decay.

Primary author: LIU, Qinrui (University of Wisconsin)

Co-authors: KHEIRANDISH, Ali (Pennsylvania State University); Dr ARGUELLES, Carlos (MIT); Prof. HALZEN, Francis (University of Wisconsin); LAZAR, Jeffrey (University of Wisconsin)

Presenter: LIU, Qinrui (University of Wisconsin)

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