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TALK: Dark Matter in the Time of Gravitational Waves

Monday, July 1, 2024 9:00 AM (45 minutes)

The observation of gravitational waves opens a new window for exploring astrophysics and cosmology. These messengers enable the concurrent measurement of their amplitudes and phases, facilitating a precise analysis of gravitational wave production and propagation. In this talk, I will demonstrate how gravitational waves can be utilized to study the properties of dark matter. Specifically, I will use wave dark matter as an example to show that gravitational waveforms, along with further multi-messenger observations involving photon signals, reveal distinctive features. These features can be probed with the ongoing LIGO and upcoming LISA missions.

Presenter: XU, Tao (The University of Oklahoma)