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Hunting Dark Matter with Gravitational Wave detectors

Monday, 20 April 2026 10:00 (25 minutes)

This talk will focus on how gravitational-wave experiments can help probe dark matter candidates. The first part will demonstrate how data from the LIGO-Virgo-KAGRA Collaboration can be leveraged to distinguish between annihilating weakly interacting massive particles and a population of millisecond pulsars as the source of the long-standing GeV gamma-ray excess at the Galactic Center. I will then show how these same detectors enable the direct detection of ultralight dark matter candidates, including dark photons, axions, and dilatons.

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Session Classification: Plenary Theory 12: Novel Probes and EFT (Room 567, Chair Wen-Yuan Ai)