

Probing Dark Matter at LIGO and Beyond

Wednesday, 27 February 2019 11:30 (30 minutes)

What can we learn about Dark Matter frontier with Gravitational-Wave (GW) observations at LIGO and future detectors?

We first introduce a new GW observable — GW Fringe — that allows LIGO alone to already probe compact dark matter. We further show that the dark-matter physics potential of GW observation is significantly widened and increased by augmenting LIGO with mid-frequency detectors. New opportunities include searches of fuzzy axion-like dark matter and cosmic strings as well as an ideal localization as a bonus.

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