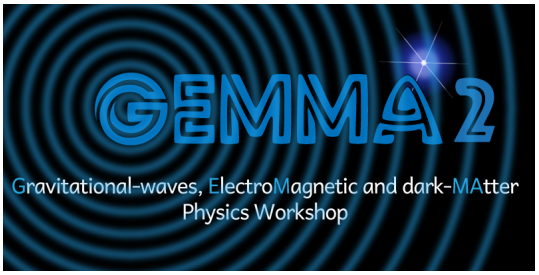

Contribution ID: **33** Type: **Invited Talk**

Direct Searches for Ultralight Dark Matter Using Gravitational-Wave Detectors

Tuesday, 17 September 2024 11:40 (25 minutes)

An ultralight boson, with a mass smaller than 1 eV, emerges as an intriguing candidate for dark matter (DM). It behaves as classical waves within the Galaxy due to its large occupation number, and its frequency is determined by the boson's mass. Notably, these waves can induce oscillations in mirrors of gravitational-wave interferometers, and hence this type of dark matter can be searched for using detectors like LIGO, Virgo, and KAGRA. In the first half of the talk, I will review recent studies in this direction including our works on searches for dark photon and axion using LIGO and KAGRA. In the latter portion, I will elucidate the statistical properties of the signal and propose an optimal detection strategy.

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