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Observing ultralow-frequency gravitational waves with pulsar parameter drift

Thursday, 15 June 2023 18:10 (20 minutes)

Gravitational waves with frequencies below 1 nHz are notoriously difficult to detect, and experimental methodologies for their detection are lacking. In this talk, I will present a new means of probing this regime by using secular drifts in observed pulsar timing parameters. I will begin by presenting two complementary observables for which the systematic shift induced by ultralow-frequency gravitational waves can be extracted. I will then show the results of searches for both continuous and stochastic signals in this regime using existing data for these observables, and demonstrate that the astrophysically-motivated background from supermassive black hole mergers should be imminently observable with this new technique.

Secondary category for the parallel session (optional)

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