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Pulsar Timing Arrays: The Next Window to Open on the Gravitational-Wave Universe

Thursday, October 22, 2020 7:00 PM (1 hour)

Galaxy mergers are a standard aspect of galaxy formation and evolution, and most (likely all) large galaxies contain supermassive black holes. As part of the merging process, the supermassive black holes should inspiral together and eventually merge, generating a background of gravitational radiation in the nanohertz to microhertz regime. An array of precisely timed pulsars spread across the sky can form a galactic-scale gravitational wave detector in the nanohertz band. I describe the current efforts to develop and extend the pulsar timing array concept, together with recent limits which have emerged from international efforts to constrain astrophysical phenomena at the heart of supermassive black hole mergers.

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