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# Observing gravitational waves with Pulsar Timing Array

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Several Pulsar Timing Array (PTA) collaborations are currently searching for gravitational waves (GWs) in the nano-Hz frequency band by monitoring a network of millisecond pulsars. This review will first introduce the fundamental principles behind detecting GWs through long-term timing of pulsars. We then briefly discuss different GW sources accessible to PTAs and the detection of the emerging stochastic GW signal. Finally, we focus on GWs produced by a population of supermassive black hole binaries and explore their expected properties using insights from the large-scale hydrodynamic simulation Horizon-AGN.

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