

Abstract Submitted
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The Effect of Supermassive Black Hole Binary Environments on Time to Detection for the Stochastic Background¹ SARAH VIGELAND, XAVIER SIEMENS, Univ of Wisconsin, Milwaukee — Pulsar timing arrays (PTAs) are sensitive to the gravitational wave (GW) stochastic background produced by supermassive black hole binaries (SMBHBs). Environmental effects such as gas and stars accelerate the evolution of SMBHBs and may deplete the stochastic background at low frequencies. How much this effects the sensitivity of PTAs to the stochastic background depends on the astrophysical mechanism and where the binary's evolution transitions from being driven by environmental effects to driven by GW emission. We will discuss how these issues impact our observing strategy and estimated time-to-detection.

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