

Detecting gravitational wave anisotropies from supermassive black hole binaries

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Anisotropies play a central role in distinguishing between cosmological and astrophysical sources of the GWB, as detectable anisotropies are expected for a GWB from a population of supermassive black hole binaries (SMBHBs) but not for cosmological sources. We perform searches for anisotropies on simulated PTA datasets, showing that null detections for anisotropies in both current and near-future data releases are consistent with a GWB sourced by SMBHBs. Additionally, we identify regions of the SMBHB parameter space that are more likely to result in detectable levels of anisotropies

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