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Searching for Lumbering Giants¹

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Pulsar timing arrays will detect gravitational waves from the super-massive black hole binaries at the centers of merged galaxies in the next few years. The strongest signal is expected to be the unresolvable background from these binaries out to $z \approx 2$ (8400Mpc). Soon afterwards PTAs will be able to resolve single sources. The North American Nanohertz Observatory for Gravitational Waves (NANOGrav) is an NSF funded Physics Frontiers Center monitoring over 70 millisecond pulsars for the signature of these gravitational waves. The most recent results from the NANOGrav 11-year and 12.5-year datasets, including limits on the stochastic background and single sources, will be presented.

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