

University of Wisconsin-Milwaukee

**Dept. of Physics
COLLOQUIUM**

*Searching for a Gravitational Wave
Background with Pulsar Timing Arrays*

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Pulsar timing arrays use observations of millisecond pulsars to detect nanohertz gravitational waves. The North American Nanohertz Observatory for Gravitational Waves (NANOGrav) Collaboration has recently released their 15-year data set containing observations of 68 millisecond pulsars. These data contain evidence for Hellings-Downs correlations, which are characteristic of a gravitational wave background.

In this talk, I will present these results, and discuss the spectral properties of the signal and implications for the astrophysical source. I will also discuss prospects for detecting other types of gravitational wave sources with pulsar timing arrays, including individual supermassive binary black holes.

