Abstract Submitted
for the APR15 Meeting of
The American Physical Society

NANOGrav limits on gravitational-wave bursts with memory from the nine-year data release RUTGER VAN HAASTEREN, Jet Propulsion Laboratory / Caltech, NANOGRAV COLLABORATION — Highly energetic astrophysical phenomena, like mergers of supermassive black hole binary (SMBHB) systems, are predicted to emit potentially detectable amounts of gravitational radiation. Of specific interest is the non-linear effect known as "memory": a permanent and non-oscillatory component of the gravitational waveform created primarily during the most violent moments of the SMBHB inspiral. Pulsar timing arrays offer a unique opportunity to detect such burst with memory (BWM) signals, due to their low-frequency sensitivity. In this talk we will present preliminary upper limits on the event rate of such BWM signals using the new 9-year North American NanoHertz Observatory for Gravitational Waves (NANOGrav) data release. We will also discuss the astrophysical implications of these limits, and projected sensitivity for future releases.

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Date submitted: 09 Jan 2015 Electronic form version 1.4