Proposal Identification No.: P2780 Date Received: 2012-Sep-04_15:39:41

Technical Page

Proposal Type:	Large
General Category:	Pulsars
Observation Category:	Extragalactic
Total Time Requested:	185 Hours
Minimum Useful Time:	1.5 hours

Proposal Title: The North American Nanohertz Observatory for Gravitational Waves

ABSTRACT:

Direct detection of gravitational waves (GW) is a major goal in experimental physics and will open an entirely new astronomical spectrum. Precision pulsar timing stands an excellent chance of being the first method to accomplish this feat. Combining data from many objects into a Pulsar Timing Array (PTA) makes GW detection possible. Long timing baselines (5–10 years) dramatically improve GW sensitivity. Increasing the number of pulsars in the array also improves sensitivity, and the past several years have seen a unexpected number of new millisecond pulsars discovered. New instrumentation for pulsar timing now provides an order of magnitude more bandwidth than previous instruments. In this proposal, we request time to continue and expand our ongoing PTA project over the next year, taking advantage of all these improvements. These results will provide the best GW sensitivity yet achieved, and will significantly constrain the astrophysics of GW sources.

Name	Institution	E-mail	Phone	Student
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Remote Observing Request

☐	Observer will travel to AO
☒	Remote Observing
☐	In Absentia (instructions to operator)

Instrument Setup

430 G L-wide S-low

Atmospheric Observation Instruments:

Special Equipment or setup: PUPPI (primary) ASP (backup; to be discontinued in ∼1 year)

RFI Considerations

Frequency Ranges Planned

420 - 440
1150 - 1800
1700 - 2400

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.