

## Technical Page

This proposal has been submitted before.

The previous proposal number is 2780.

Proposal Type: Long-term  
 General Category: Pulsars  
 Observation Category: Extragalactic  
 Total Time Requested: 332.25 Hours  
 Minimum Useful Time: 1 hr

**Proposal Title:** The North American Nanohertz Observatory for Gravitational Waves

*ABSTRACT:*

The new era of gravitational wave (GW) astronomy has recently begun with the first direct detections of GW by the LIGO experiment. Pulsar timing is sensitive to much lower-frequency GW, coming from a more massive source population. Combining observations of many pulsars into a Pulsar Timing Array (PTA) makes GW detection possible. Long timing baselines (5–15 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 nHz-frequency GW detection sensitivity yet achieved, and will significantly constrain the astrophysics of GW sources.

| Name          | Institution | E-mail            | Phone        | Student |
|---------------|-------------|-------------------|--------------|---------|
| Paul Demorest | NRAO        | pdemores@nrao.edu | 575-835-7248 | no      |

### 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:** none

## **RFI Considerations**

## **Frequency Ranges Planned**

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.

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

This proposal requires coordination with GPS L3 at 1381 MHz.