

Technical Page

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Extragalactic
 Total Time Requested: 96 Hours
 Minimum Useful Time: 2 hours

Proposal Title: Expansion of the NANOGrav Pulsar Timing Array

ABSTRACT:

Direct detection of gravitational waves (GW) is a major goal in experimental physics and will revolutionize astrophysics, opening an entirely new spectrum for exploration. 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. Increasing the number of pulsars in the array improves sensitivity – the detection significance improves approximately linearly with the number of pulsars. Observing more pulsars also helps mitigate intrinsic systematic timing effects. The past year has seen a unexpected and unprecedented number of new millisecond pulsars (MSPs) discovered, due to several ongoing radio sky surveys (GBT 350-MHz surveys; PALFA) and targeted radio searches of Fermi-identified gamma-ray point sources. Here we propose an expansion of our ongoing PTA project to take advantage of these new sources.

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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 327

Atmospheric Observation Instruments:

Special Equipment or setup: ASP pulsar backend WAPP pulsar backends PUPPI pulsar backend (if available)

RFI Considerations

Frequency Ranges Planned

310-350

420-440

1120-1620

2300-3000

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

This proposal requires coordination with GPS L3 at 1381 MHz.