Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
General Category: Pulsars
Observation Category: 
Total Time Requested: 35.5 Hours
Minimum Useful Time: 1

Proposal Title: Timing Six New Fermi MSPs Discovered with the Arecibo Telescope

ABSTRACT:
The Arecibo Telescope has been a significant boon to the already-successful endeavor of discovering new millisecond pulsars (MSPs) in Fermi unassociated gamma-ray sources. We propose to use 53.5 hours of telescope time over one year to carefully study six of the newest and most exciting Fermi-Arecibo MSPs. Obtaining an accurate phase-connected timing solution for each source will enable the folding of Fermi gamma-ray photons based on radio-acquired ephemerides, revealing the nature of MSPs at both high and low energies. Furthermore, the careful observation of these new MSPs might result in additions to several pulsar timing arrays to detect low-frequency gravitational waves, such as NANOGrav. This work could also potentially result in the measurement of a high-mass MSP, thereby constraining our models of the neutron star equation of state, or help to reveal the nature of MSP binary companions.

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<tr>
<th>Name</th>
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Remote Observing Request

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

Instrument Setup

L-wide ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: Only ALFA is necessary for the first two sessions (gridding), and only L-wide is needed for the rest of the sessions.
RFI Considerations

Frequency Ranges Planned

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz.
This proposal requires coordination with GPS L3 at 1381 MHz.