Technical Page

This proposal has been submitted before.

The previous proposal number is 3351.

Proposal Type: Regular
General Category: Pulsars
Observation Category: Galactic
Total Time Requested: 17 Hours
Minimum Useful Time: 2

Proposal Title: Measuring the Mass and Proper Motion of PSR J1952+2630

ABSTRACT:

We propose to observe the binary pulsar J1952+2630 with L, S and C-band receivers with PUPPI backend of Arecibo. PSR J1952+2630 is a binary pulsar with a massive white dwarf companion. It has the shortest orbital period and the lowest characteristic age in its class. We propose to observe the system at several frequencies first in order to determine the best band for timing. We then carry out a dense orbital and a sparse yearly campaign. Combining these new data with earlier data from Lazarus (2014) will yield a measurement of the rate of advance of periastron of the system and constrain its total mass with high significance. An improvement on its Shapiro delay will furthermore provide measurements of the individual masses. The increased timing baseline will yield a much improved proper motion of the system which will reveal its potential as a gravitational laboratory.

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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 C S-low

Atmospheric Observation Instruments:
Special Equipment or setup: Administrative Comments: This proposal was originally submitted on Friday, August 30, 2019 - 14:02 with Confirmation ID 20190830020250 using the new submission form available for Sept 5, 2019 Call. It was resubmitted through the old coversheet form [http://www.naic.edu/astro/proposals/aocover-sep19.php] as an identical copy of original submission for administrative processing purposes.

RFI Considerations

Frequency Ranges Planned

1150-1730 MHz
1800-2100 MHz
4000-6000 MHz

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.