

Technical Page

This proposal has been submitted before.

The previous proposal number is P2947.

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Galactic
 Total Time Requested: 16.25 Hours
 Minimum Useful Time: 1 hour

Proposal Title: PSR J2045+3633: A pulsar - massive WD system with an unusually eccentric orbit

ABSTRACT:

PSR J2045+3633 is a new 31.7 ms pulsar with a companion which is likely a massive WD and an orbital period of 32 days. Its expected timing precision with Arecibo is 0.3 us every 30 minutes, making it a likely NANOGrav target. The orbital eccentricity, 0.017, is the largest observed among these systems, and will eventually allow a very precise measurement of the rate of advance of periastron. This will, within a year, yield a very precise measurement of the total mass of the binary. In order to be able to determine the masses of the two individual components, we will need to measure some other post-Keplerian effect in the orbit. In this proposal, we request time for 12 observations in a single orbit (i.e., a timing campaign) to measure precisely the Shapiro delay. This will yield very precise masses for both components in the system almost irrespective of the orbital inclination of the system.

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 327 S-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

295-359

422-442

1130-1730

3000-4000

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.