Technical Page

This proposal has been submitted before.

The previous proposal number is P2947, P3075.

Proposal Type: Regular
General Category: Pulsars
Observation Category: Galactic
Total Time Requested: 15 Hours
Minimum Useful Time: 1.25

Proposal Title: PSR J2045+3633: The lightest known neutron star?

ABSTRACT:

PSR J2045+3633 is a binary pulsar discovered recently with the Effelsberg telescope. It has a spin period of 31.7 ms and an orbital period of 32.3 days around a massive white dwarf companion. As a result of previous observations (including some Arecibo observations) we have measured the Shapiro delay and the rate of advance of periastron for this system; assuming general relativity these yield masses of 1.09 +/- 0.08 and 0.80 +/-0.05/-0.04 solar masses for the pulsar and companion star respectively. With the proposed observations, we might improve the precision of the measurement by a factor of 4, and confirm whether this really is the least massive neutron star known. A very low mass of 1.09 solar masses would represent a challenge to our current understanding of supernovae.

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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

Atmospheric Observation Instruments:

Special Equipment or setup: none
RFI Considerations

Frequency Ranges Planned

1150-1730

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.