Proposal Identification No.: P2863 Date Received: 2013-Sep-03_15:58:54

Technical Page

This proposal has not been submitted before.

Proposal Type:	Regular
General Category:	Pulsars
Observation Category:	Galactic
Total Time Requested:	12 Hours
Minimum Useful Time:	3 hours

Proposal Title: Timing J1913+1102: A compact, possibly asymmetric double neutron star system

ABSTRACT:

J1913+1102, a 27.3-ms pulsar, was discovered by the PALFA Survey in 2012. Follow-up timing observations have determined this pulsar is in a 4.95-hour binary system with another neutron star. Our preliminary determination of the rate of advance of periastron enables a measurement of the total mass of the system of $M_{tot} \simeq 2.87 M_{\odot}$, assuming General Relativity. The system's low orbital eccentricity, $e = 0.0895$, suggests the pulsar's companion formed in an electron capture supernova, and is thus relatively light compared to J1913+1102. Alternative theories of gravity predict that such a large mass asymmetry would give rise to dipolar gravitational waves. In this proposal we request 24 hours divided into 4 epochs, each covering a complete orbit of J1913+1102. These observations are the first steps towards determining the masses of the two neutron stars and ultimately testing General Relativity.

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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.