Technical Page

This proposal has not been submitted before.

Proposal Type:	Regular
General Category:	Pulsars
Observation Category:	Galactic
Total Time Requested:	6 Hours
Minimum Useful Time:	1 hour

Proposal Title: A New, Highly Relativistic Binary Pulsar System

ABSTRACT:

The PALFA survey has recently discovered a relativistic binary system consisting of two neutron stars. The system has the shortest orbital period (1.88 hours) and smallest average separation (2.3 lt-s) of any such system. This system is expected to merge in about 46 Myrs, a far shorter timescale than previously detected double neutron star (DNS) systems. We request 12 hours of Arecibo time over the next year to precisely measure multiple relativistic parameters which will enable mass measurements of both neutron stars and stringent tests of general relativity. These observations will also allow for us to study the polarization properties and profile evolution of the system which are important for determining the pulsar's beam shape and therefore allow for us to estimate the number of such systems and therefore the event rate of neutron star inspirals in gravitational wave detectors.

Name	Institution	E-mail	Phone	Student
Kevin Stovall	NRAO	stovall.kevin@gmail.com	3252262495	no

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

1000 - 1800

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.