Proposal Identification No.: P2782 Date Received: 2013-Sep-04_17:09:02

Technical Page

This proposal has been submitted before.

The previous proposal number is p2649.

Proposal Type:	Regular
General Category:	Pulsars
Observation Category:	Galactic
Total Time Requested:	18 Hours
Minimum Useful Time:	1 hour

Proposal Title: Measuring Two Neutron-Star Masses Using Shapiro Delay

ABSTRACT:

Very recently, Demorest et al. (2010, Nature, 467, 1081) measured a pulsar mass of 1.97 +/- 0.04 solar masses, thereby greatly extending the known range of precisely measured neutron-star masses, and significantly constraining the equation of state for supra-nuclear-density matter. This major result further emphasizes the questions of (i) how high a neutron-star mass can be?and (ii) what is the true distribution of neutron-star masses?Only through additional, new neutron-star mass measurements can these fundamental questions be answered, but opportunities for this are rare. Here we request 36 hours of Arecibo time in order to improve the Shapiro delay and mass measurements of the components in one PALFA-discovered binary system and try to detect the Shapiro delay in another.

Name	Institution	E-mail	Phone	Student
Julia Deneva	Arecibo Observatory	deneva@naic.edu	787-878-2612, ext. 315	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

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.