This proposal has not been submitted before.

Proposal Type: Regular
General Category: Pulsars
Observation Category: Pulsar
Total Time Requested: 14.5 Hours
Minimum Useful Time: 1 hour

Proposal Title: Timing PSR J0709+0458: A new neutron star mass measurement via the potential detection of Shapiro delay

ABSTRACT:
This is a request for Arecibo Observatory observing time for a timing campaign of a binary millisecond pulsar, PSR J0709+0458, discovered in the Arecibo Observatory 327 MHz Drift Pulsar Survey (AO327). We have identified this pulsar as a promising candidate for achieving a new, precise neutron mass measurement via detection the Shapiro delay in the system. The companion mass of PSR J0709+0458 inferred from the mass function implies a high orbital inclination, leading us to predict that the Shapiro delay signal will be easily detected with this proposed timing campaign.

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<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
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<tbody>
<tr>
<td>Jose G Martinez</td>
<td>Max Planck Institute for Radio Astronomy</td>
<td><a href="mailto:joey.martinez10@gmail.com">joey.martinez10@gmail.com</a></td>
<td>1956-459-6484</td>
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Remote Observing Request

- Observer will travel to AO
- X 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 MHz.

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.