

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Galactic
 Total Time Requested: 15 hours Hours
 Minimum Useful Time: 1.5 hours

Proposal Title: Interstellar scintillation arcs detection for weaker pulsars

ABSTRACT:

Pulsars shine through the Galaxy like beacons and they scintillate due to the relative motion between the pulsar, the scattering medium and the observer. A small sample (30) of bright pulsars are known to show interstellar scintillation arcs, and among these Arecibo devoted arc detection for 10 bright pulsars by usually 30 min observation. We propose to find scintillation arcs in 7 weaker pulsars with no previous arc detection by using Arecibo more than 90 min observation for each pulsar. If we successfully detect arcs from all of them, this campaign would increase the Arecibo detectable sample size by 70%. Besides detecting scintillation arcs, the proposed observations will allow us to study the relation between scattering screen and Galactic spiral arm, measure the boundary of the local hot bubble, and find interesting pulsar binary systems. For binary systems, scintillation observation can put constraint on the inclination angle that enable us to measure the masses precisely.

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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 MHz - 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.