

Technical Page

Proposal Type: Regular
 General Category: Pulsars
 Sub-Category: Continuum
 Observation Category: Galactic
 Total Time Requested: 15 Hours

Proposal Title: TIMING AND POLARIMETRY OF THE NEWLY DISCOVERED YOUNG PULSAR J2021+3651

ABSTRACT:

PSR J2021+3651 is a 104-ms pulsar discovered in observations made by our group in the recent Arecibo proposal P1556. This pulsar will be highlighted in a discovery paper we have submitted to the Astrophysical Journal Letters (Roberts et al. 2002). We now request 15 hours of telescope time during the next year to determine a timing solution for this pulsar and to perform polarimetry. PSR J2021+3651 is a young ($\tau_c \sim 17$ kyr) and energetic (3.4×10^{36} ergs/s) pulsar whose position, currently known only to within the Arecibo beam width, is consistent with the position of the hard X-ray source AX J2021.1+3651 and the error box of the *EGRET* γ -ray source GeV 2020+3658. The dispersion measure $DM = 371$ pc cm^{-3} is by far the highest of any observed pulsar in the Galactic longitude range $55^\circ < l < 80^\circ$. This DM suggests a distance $d > 10$ kpc, and a high γ -ray efficiency of $\sim 15\%$. Timing of PSR J2021+3651 will improve our values of period and period derivative, provide a precise position, and will allow us to search for glitches. Polarimetry will show if, like other young pulsars, this pulsar has a high degree of linear polarization, and may help constrain the distance.

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Service Observing Request

Remote Observing Request

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

- No
- Maybe
- Yes

Instrument Setup

430 G L-wide S-low

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1350 - 1475

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.