Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
General Category: Pulsars
Observation Category: Galactic
Total Time Requested: 11 Hours
Minimum Useful Time: 2

Proposal Title: Timing a Radio Pulsar Counterpart of Fermi PSR J0357+3205 Discovered by FAST

ABSTRACT:

J0357+3205 is a radio pulsar toward Taurus discovered by FAST in a targeted search focused on a local HI bubble. It was first discovered as a gamma-ray pulsar by Fermi and was shown to have an X-ray tail by Chandra. The X-ray absorbing column and pulsar dispersion measure both put it at farther than 1.5 Kpc from Earth, though neither of the estimates is reliable. Combined with the proper motion seen in Chandra images, such distance suggests a bigger than 1500 km/s proper motion, i.e. the fastest moving neutron star ever known. If, however, located in Taurus at the close distance of 140 pc, J0357+3205 can be the relic of the nearest known supernova. The Arecibo timing could potentially confirm the important nature of J0357, leading to a major discovery of either a fast-moving neutron star or the first source originating in the local hot bubble.

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<tr>
<th>Name</th>
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<th>Student</th>
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Remote Observing Request

☐ Observer will travel to AO
☒ Remote Observing
☐ In Absentia (instructions to operator)

Instrument Setup

430 G L-wide

Atmospheric Observation Instruments:
Spectrophotometer

Special Equipment or setup: PUPPI backend

RFI Considerations

Frequency Ranges Planned

422-442; 1150-1730