

Technical Page

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Galactic
 Total Time Requested: 12 Hours

Proposal Title: A Search for Radio Pulsations from Isolated Neutron Stars

ABSTRACT:

X-ray surveys have uncovered a new class objects collectively known as “isolated neutron stars”. These appear to be middle-aged (10^5 - 10^7 yr), nearby ($d \sim 0.13$ -2 kpc) neutron stars with no strong radio emission. Their proximity to the Sun makes them difficult to identify in traditional large-scale surveys for radio pulsations because they have effectively zero dispersion, making them hard to distinguish from terrestrial interference. We propose a very deep targeted search for radio pulsations from two northern isolated neutron stars at 430 MHz. A detection would allow subsequent timing to determine their ages. A non-detection can be used to help constrain the fraction of radio-quiet neutron stars.

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I might want to do remote observing.

Instrument Setup

430 CH receiver L-narrow

Atmospheric Optical Instruments:

Special Equipment or setup: I will use the PSPM. The L-narrow feed will be used only in the case of bad RFI at 430 MHz.

RFI Considerations

Frequency Ranges Planned

425 - 435

This proposal requires coordination with AFTWF within the band 425-435 MHz.