

Technical Page

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Galactic
 Total Time Requested: 36 Hours

Proposal Title: Relativistic Decay of a Pulsar White-Dwarf Binary

ABSTRACT:

Millisecond pulsar PSR J0751+1807 is in a short period binary orbit with a white dwarf. We will observe this pulsar in order to measure the relativistic decay of its orbit. General relativity predicts the orbital period to change at a rate $\dot{P}_b \sim -4 \times 10^{-14}$, depending on the precise masses of the pulsar and the white dwarf. Our observations, combined with previously collected data, will achieve a measurement precision of $\pm 4 \times 10^{-14}$ (95% confidence), possibly allowing marginal significant measurement of \dot{P}_b , and laying the groundwork for a future firm detection of the orbital decay.

Name	Institution	E-mail	Phone	Student
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Service Observing Request

Remote Observing Request

- | | |
|---|---|
| <input checked="" type="checkbox"/> None | <input type="checkbox"/> No |
| <input type="checkbox"/> All of the observing run. | <input checked="" type="checkbox"/> Maybe |
| <input type="checkbox"/> Part of the observing run. | <input type="checkbox"/> Yes |
| <input type="checkbox"/> Queue Observing | |

Instrument Setup

430 G L-wide 430 CH receiver

Atmospheric Observation Instruments:

Description of Observer Equipment: Princeton Mark IV baseband recorder. We may use the ASP, a baseband recorder system presently in preliminary development.

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

425-435

some subband(s) of 1150-1600, depending on the RFI situation

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