

Technical Page

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

Proposal Title: PRECISION TIMING WITH ASP-ARECIBO SIGNAL PROCESSOR
ABSTRACT:

In this proposal we seek to explore short-term limits to precision with the Arecibo Signal Processor (ASP), a new system for complex voltage sampling and software coherent dedispersion, based on a large PC cluster. The goal is to improve timing precision by an order of magnitude, by increasing available bandwidth (e.g., 64 MHz), increasing digitization resolution (4b), improving calibration procedures, use of techniques such as 'Lorentz invariant profile', and generally chasing down and eliminating systematics. We will also be linking up the new time series with those collected with older equipment and try different observing configurations (e.g., choices of frequency) to optimize timing precision. Our long term goal is detection of stochastic background of gravitational radiation and relativity and evolution studies of binary systems.

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Service Observing Request

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

Remote Observing Request

- No
- Maybe
- Yes

Instrument Setup

L-wide S-low

Atmospheric Observation Instruments:

Description of Observer Equipment: Arecibo Signal Processor ABPP MkIV ABPP

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned