

Technical Page

Proposal Type: Large
 General Category: Pulsars
 Observation Category:
 Total Time Requested: 420 Hours

Proposal Title: An ALFA Pulsar Survey of the Galactic Plane

ABSTRACT:

We propose the first year of a large-scale survey of the Galactic plane using ALFA. Primary emphasis will be on the inner Galaxy but we also propose a search of the Galactic anticenter region. Arecibo’s high gain and wide-band spectrometers allow surveys of much greater volumes (per unit solid angle) than the eminently successful Parkes Multibeam Survey, particularly for short-period pulsars. The survey will thus find not only a large sample of pulsars, but also rare objects that are especially useful for probing fundamental aspects of neutron stars, testing theories of gravity, and detecting gravitational backgrounds, among other enterprises. We estimate that with our eventual software processing, we will discover a pulsar about every 1.5 hr of on-sky observing time. In addition, our analysis also will detect transient signals from pulsars that are intermittent or from other kinds of objects. Preliminary observations in 2004 Aug-Sep have yielded discovery of eight new pulsars in a quick-look analysis, including one from detection of its single pulses. Many more are expected in the data we already have. Given the pace of observations so far, our ability to glean from them new pulsar discoveries, and our expectation that full resolution code will complete the processing of precursor-survey data by the end of 2005 January, a comprehensive pulsar survey using existing WAPP spectrometers can be initiated on or after 2005 Feb 1.

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Service Observing Request

Remote Observing Request

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

Instrument Setup

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1370-1470

1225-1525

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

This proposal requires coordination with GPS L3 at 1381 MHz.