

## Technical Page

Proposal Type: Regular  
 General Category: Pulsars  
 Observation Category: Galactic  
 Total Time Requested: 30 Hours

**Proposal Title:** Interstellar Scintillation Studies: Probing Pulsars and the Interstellar Medium  
**ABSTRACT:**

The upgraded Arecibo telescope and its powerful spectrometers (AOFTM and WAPP) offer considerable potential for high quality pulsar scintillation studies. Observations of pulsar scintillation allow us to (1) study the geometry of the pulsar magnetosphere from dynamic spectra during the episodes of multiple imaging, (2) probe the AU-sized discrete plasma structures in the ISM, (3) improve upon pulsar distance and velocity estimates, and (4) refine our knowledge of the Galactic electron density distribution. Pilot observations with the AOFTM in early 1999 and January 2000 demonstrate that dynamic spectral studies are now possible with unprecedented dynamic range, spectral and temporal resolutions. A project on ISS studies at 430 MHz using AOFTM is currently underway at Arecibo. We propose a complementary project at 1400 MHz using the WAPP: in the start-up phase, we request 30 hours distributed in ~5 hour blocks to observe a sample of 10 pulsars. Given the unique capabilities of Arecibo and the WAPP, we believe that the proposed observations will produce ISS data of unprecedented quality at 1400 MHz for science related to both pulsars and the ISM.

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### Instrument Setup

L-wide

### Atmospheric Optical Instruments:

**Special Equipment or setup:** none

### RFI Considerations

### Frequency Ranges Planned