

### Technical Page

Proposal Type: Urgent  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Solar System  
 Total Time Requested: 1 Hours

**Proposal Title:** Dynamic Spectra of Interplanetary Scintillation

*ABSTRACT:*

Dynamic spectra of pulsar interstellar scintillation appear to be "random" but actually have an underlying order which is apparent only when a 2-D spectral analysis is performed on the dynamic spectra. This "secondary" spectrum often shows clear parabolic arcs (Stinebring and colleagues). The curvature of these parabolic arcs depends only on the distance of the scattering material and its velocity. Although the pulsar observations are in strong scattering the underlying phenomenon is more evident weak scattering (based on theory and full electromagnetic simulations). We are interested in the potential of "parabolic arc" observations for the study of the solar wind, particularly for transients such as coronal mass ejections. The curvature of an arc can be determined from 10 s of observation, raising the possibility of observing dozens of sources in a very short time. This would provide unprecedented resolution of the space-time structure of CME's in the interplanetary medium. We have just discovered this possibility and would like to test the idea soon. It will not be possible at Arecibo after the end of September, until the Sun comes above zero dec again in April.

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**Service Observing Request**

**Remote Observing Request**

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

- No
- Maybe
- Yes

**Instrument Setup**

L-wide

**Atmospheric Observation Instruments:**

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**