Technical Page

Proposal Type:	Regular
General Category:	Planetary Radar
Observation Category:	Solar System
Total Time Requested:	20 Hours
Minimum Useful Time:	4 hours

Proposal Title: S-band radar mapping of Saturn's rings

ABSTRACT:

We propose to continue radar imaging of Saturn's rings using the S-band solar system radar as the opening angle of the rings, B, decreases to 3° in March 2009, lower than any elevation which has been previously observed. These data are needed to test the theoretical prediction that the strong azimuthal asymmetry we have observed in the A ring reached a maximum amplitude for $B \simeq 12°$ and is much reduced as the rings turn edge-on. We will also continue to characterize the unexpectedly steep increase in normalized radar cross-section with decreasing elevation angle observed in 1999 – 2007. In 2009 Saturn's two-way light time exceeds the maximum tracking time at Arecibo, and we propose to carry out a bistatic radar experiment, transmitting from Arecibo and receiving at Greenbank. We are thus requesting simultaneous observations at the GBT.

Name	Institution	E-mail	Phone	Student
Philip D Nicholson	Cornell	nicholso@astro.cornell.edu	607-255-8543	no

Remote Observing Request

- [X] Observer will travel to AO
- [ ] Remote Observing
- [ ] In Absentia (instructions to operator)

Instrument Setup

S-Band radar S-band receiver

Atmospheric Observation Instruments:

Special Equipment or setup: Bistatic experiment. All recording will be done at the GBT.

RFI Considerations

Frequency Ranges Planned

2360-2400