

## Technical Page

Proposal Type: Regular  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Ionosphere  
 Total Time Requested: 48 Hours  
 Minimum Useful Time:

**Proposal Title:** Investigating effects of photoelectrons on gyro line enhancement and coupling between plasma and gyro lines.

*ABSTRACT:*

The experiments conducted during evening period in December 2005 at Arecibo showed interesting results for the gyro line and the plasma line in the incoherent scatter spectra. The results showed the plasma line to reappear in the ISR spectra after the local astronomical twilight. We believe that this was due to the photoelectrons precipitation from the sunlit ionosphere of the conjugate point. The gyro line, which in theory, should not be affected by the photoelectrons also showed enhancement in the presence of the conjugate photoelectrons. It leads us to believe that there is a coupling between the plasma line and the gyro line energies that has not yet been covered by the theory. We would like to investigate this more by conducting more experiments during the winter months for longer hours both during morning and during evening. We would like to attempt to get higher range-resolution with the data for our observations.

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### Remote Observing Request

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

### Instrument Setup

430 G                      430 CH receiver    430 CH radar

### Atmospheric Observation Instruments:

Spectrophotometer    Ionosonde

**Special Equipment or setup:**    none

## RFI Considerations

### Frequency Ranges Planned