

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Observation Category: Ionosphere
 Total Time Requested: 12 Hours
 Minimum Useful Time: 2

Proposal Title: Investigation of Narrowband Emission Lines Generated by Magnetized Stimulated Brillouin Scatter (MSBS) using Arecibo Heating Facility

ABSTRACT:

More recently narrowband sideband emissions (within 1 kHz of pump frequency) of unprecedented strength have been reported during recent campaigns at HAARP. One of these new NSEE features results from Magnetized Stimulated Brillouin Scatter (MSBS). Exact electron temperature (T_e) measurement is the main goal of this part of experiment. T_e estimated from narrowband SEE feature (IA MSBS) will be compared with ISR measurement of electron temperature in order to assess the accuracy of T_e estimation using NSEE. Another objective of the proposed experiment is to use simultaneous Lidar and NSEE measurements during Sporadic-E layer at Arecibo in order to determine and estimate exact density of minor species in the ionosphere. The part will be a continuation of the previous work at HAARP. The results will be compared with the theoretical models in order to develop a remote sensing technique using NSEE measurements in places that Lidar facilities are not available.

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Remote Observing Request

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

Instrument Setup

47 radar 430 Xmit Heating Facility

Atmospheric Observation Instruments:

Ionosonde Lidar

Description of Observer Equipment: A GBOX5 recording system

Special Equipment or setup: we plan to use the Lidar only for half of the observation time

RFI Considerations

Frequency Ranges Planned