

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 114 Hours

**Proposal Title:** HI 21 cm and OH 18 cm spectral line observations of the 2 Jy IRAS-NVSS Sample  
**ABSTRACT:**

We propose to use the Arecibo radio telescope to study a subsample of luminous infrared galaxies from the 2 Jy IRAS-NVSS sample. The observations will be carried out simultaneously at five frequencies, namely the HI 21 cm frequency and the four OH 18 cm frequencies (two main lines and two satellite lines) in both emission and absorption. By using the new L-wide receiver of Arecibo, the observations will result in a much better sensitivity and frequency coverage compared to previous surveys, and will provide a complete and homogenous set of high-sensitivity 21 and 18 cm data for all the luminous infrared sources in the 2 Jy IRAS-NVSS sample that can be observed with the Arecibo Telescope. Some of the scientific goals of this study are: 1) Investigate the differences in the physical characteristics (velocity widths, HI mass) for sources with AGN's and those with pure starburst. 2) Study the OH gas properties, especially the occurrence of masers and activity in the satellite lines. 3) Search for signs of galactic evolution out to  $z \sim 0.2$ .

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### Service Observing Request

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

### Remote Observing Request

- No
- Maybe
- Yes

### Instrument Setup

L-wide

**Atmospheric Observation Instruments:**

**Special Equipment or setup:** none

## **RFI Considerations**

### **Frequency Ranges Planned**

1213.7-1717.1 MHz

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.