

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 170 Hours  
 Minimum Useful Time: 6 hours

**Proposal Title:** Characterizing the Properties of Gas-Rich Galaxies at Redshift  $z \sim 0.2$  and Higher  
**ABSTRACT:**

Pilot observations carried out by our group have demonstrated the efficacy of exploiting Arecibo's large collecting area to measure the HI mass and rotational velocity of galaxies above redshift  $z = 0.2$ . Thanks to the vastly increased spectroscopic coverage of the Arecibo sky of the most recent Sloan Digital Sky Survey (SDSS) Data Release, we are now in a position of designing a representative sample for galaxy evolution studies and moving beyond the "pilot program" phase. The primary goal of this proposal is to characterize the HI content and its relation with stellar and other galaxy properties for a well-defined sample of massive disks at redshift  $z \sim 0.2$ , for which optical (SDSS) and medium-deep UV (GALEX) observations are also available. We also wish to explore the frequency interval below 1130 MHz (i.e.,  $z > 0.26$ ), trying to reach the redshift limit technically achievable at Arecibo with the current instrumentation.

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### Remote Observing Request

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

### Instrument Setup

L-wide

### Atmospheric Observation Instruments:

**Special Equipment or setup:** As per discussion with G. Rajagopalan, a tunable filter is necessary to carry out these observations with L-band wide below 1120 MHz

## **RFI Considerations**

### **Frequency Ranges Planned**

1060 - 1200 MHz

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