

## Technical Page

This proposal has not been submitted before.

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 71 Hours  
 Minimum Useful Time: 60 min

**Proposal Title:** Neutral Hydrogen in Super Spiral Galaxies

*ABSTRACT:*

We recently discovered a previously unknown class of superluminous, giant, and massive spiral galaxies at  $0.1 < z < 0.3$ , which place strong constraints on our understanding of galaxy formation and evolution. These galaxies are actively star forming and lie above the star formation main sequence. While rare in the local universe, we suggest they must have been more abundant in the past to create the population of similarly massive but gas-poor lenticular galaxies. However, the gas content of these galaxies is currently unknown, so it is difficult to gauge their star forming potential. We propose to observe 12 super spirals at  $0.17 < z < 0.27$  with Arecibo for 71 hours to characterize their HI emission. These galaxies are representative of the colors, star formation rate, stellar mass, and diameters of the 91 super spirals discovered so far and will provide critical insights into the nature of the most massive and giant spiral galaxies.

Name	Institution	E-mail	Phone	Student
Lauranne Lanz	California Institute of Technology	llanz@ipac.caltech.edu	617 459 9352	no

### 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:** N/A

**RFI Considerations**

**Frequency Ranges Planned**

1120-1240

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