

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 24 Hours
 Minimum Useful Time: 39 minutes (including 15 minutes for setup)

Proposal Title: The interplay between H₂, HI, dust and metals: calibrating a recipe to study the environmental impact on gas properties of galaxies

ABSTRACT:

We propose to measure the 21-cm HI masses of 31 nearby galaxies ($z = 0.025-0.085$) in Stripe82 to determine the origin of an apparent offset in gas mass estimates derived from the two currently leading methods: CO and dust-based methods. Cross-calibration of these two methods is vital for understanding the physics underlying widely used dust-to-gas ratios and CO conversion factors. Our team has, in hand, a uniquely comprehensive multiwavelength ancillary dataset whose usefulness will be transformed with the addition of direct HI measurements. Once complete with Arecibo data, this invaluable nearby training set will enable us to robustly extend our studies of gas in galaxies to large samples, diverse environments and a wide redshift range in the pre-SKA era. Ultimately, we will address the impact of environmental processes on gas reservoirs and the relationship with star formation activity across the galaxy population.

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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: none

RFI Considerations

Frequency Ranges Planned

1356.5 - 1384.7 (24 objects)

1340.2 - 1340.3 (1 object)

1311.1 - 1316.7 (6 objects)

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

This proposal requires coordination with GPS L3 at 1381 MHz.