Section I - General Information

Submitted for Sep 1 2012.

This proposal has been submitted before.

The previous proposal number is A2059 and A2124.

Proposal Type: Commensal
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Galactic
Time Requested this semester: 1326 (w/ GALFACTS and AGES)
Hours Next Semester: 411 (w/ AGES)
Hours already used for this project: approx 3000 w/ GALFACTS and AGES
Additional Hours required to complete project:
Minimum Useful Time:
Expected Data Storage: less than 100 GB

Proposal Title: The Galactic Arecibo L-Band Feed Array HI (GALFA-HI) Survey

ABSTRACT:

Hydrogen is the basic baryonic building block of galaxies. Gas flows into the dark matter potential well of a galaxy, condenses in the disk in atomic form, and subsequently forms molecular material and then stars. Several crucial questions remain open as to how this process occurs and how stars subsequently shape the interstellar medium (ISM). We began the GALFA-HI Survey (originally called the Turn on GALFA Survey (TOGS)) in 2005 to map the kinematic and spatial distribution of our Galaxy’s neutral hydrogen and address these questions. GALFA-HI optimizes on Arecibo’s new commensal capabilities and observes with ALFALFA, AGES, and GALFACTS. It is commensally surveying HI over 13,000 sq. deg of the sky with a high angular and spectral resolution (4’ and 0.18 km/s) and wide bandwidth (+/- 700 km/s). This proposal is to complete the GALFA-HI Survey through commensal observations with AGES and GALFACTS and study the relationship of Galactic HI to stars and other Galactic components.

Outreach Abstract:

Galaxies like the Milky Way forms stars from hydrogen gas. The GALFA-HI survey studies how this gas gets into the Milky Way to form new stars. It also looks at how stars influence the surrounding gas when they end their lives.

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<th>Institution</th>
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<th>Phone</th>
<th>Student</th>
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<tbody>
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This work is part of a PhD thesis.

Remote Observing Request

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

Section II - Time Request

The following times are in LST.

For these observations night-time is .

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Time Constraints (Must Be Justified in the Proposal Text)

These observations are all commensal with GALFACTS and AGES. Approximately 3% is added to their time to complete our calibrations.

Next Semester Time Request
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**Time Constraints (Must Be Justified in the Proposal Text)**

**Section III - Instruments Needed**

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: none

**Section IV - RFI Considerations**

Frequency Ranges Planned

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

This proposal requires coordination with GPS L3 at 1381 MHz.

**Section V - Observing List**

Target List