Proposal Identification No.: A2770
Date Received: 2012-Aug-30 17:58:54

Technical Page

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Galactic
Total Time Requested: 53 Hours
Minimum Useful Time: 1 hour 15 min

Proposal Title: High-sensitivity HI emission measurements to complement 21-SPONGE

ABSTRACT:

21-SPONGE (21-cm SPectral line Observations of Neutral Gas with the EVLA) is an ongoing VLA large project dedicated to constraining the initial conditions for the formation of the cold neutral medium (CNM), which is a necessary stage in star formation. By achieving extremely high sensitivity, with rms noise in optical depth $5 \times 10^{-4}$, this survey is undertaking a statistical study of the properties of neutral gas over the full temperature range 10-10000 K. In particular, 21-SPONGE will for the first time characterize basic properties of the warm neutral medium (WNM) such as temperature, column density, and abundance relative to the CNM, via direct detections in absorption. After completion, we will produce absorption spectra in the direction of 59 high-latitude radio continuum sources. In order to derive spin temperatures along each line of sight, we require highly sensitive matching emission spectra at similar high resolution, which we propose here to acquire using the Arecibo telescope.

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<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<th>Student</th>
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<tbody>
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</tbody>
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Remote Observing Request

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

Instrument Setup

L-wide

Atmospheric Observation Instruments:

Special Equipment or setup: none
RFI Considerations

Frequency Ranges Planned

1420-1720 MHz

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