Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Galactic
Total Time Requested: 75.1 Hours
Minimum Useful Time: 2 hours

Proposal Title: Anomalous OH: A GNOMES Project with Arecibo

ABSTRACT:

Observations of the 18cm ground state transitions of the hydroxyl radical (OH) have gained prominence as a tracer of the so-called dark interstellar medium: low-extinction molecular gas not traced by carbon monoxide emission. As much as half of the Galaxy’s molecular gas may reside in this semi-diffuse phase. OH is one of the few probes, and it is an excellent one because its ground state is split into four hyperfine levels that are highly susceptible to non-thermal excitation, and the observed line ratios can be modeled to constrain kinetic temperature, density, excitation state, and the background radiation field in the parent cloud. This proposal will make emission/absorption line measurements of 26 sources already known to be sufficiently bright in the 4 OH lines.

<table>
<thead>
<tr>
<th>Name</th>
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<th>Phone</th>
<th>Student</th>
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<tbody>
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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

1420
1612
1665
1667
1720