

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Observation Category: Galactic
 Total Time Requested: 21.5 Hours
 Minimum Useful Time: 30 min

Proposal Title: OH Survey of Dark Molecular Gas in the Galactic Plane

ABSTRACT:

Dark Molecular Gas (DMG) is a phase of the interstellar medium that is traced by neither 21-cm emission (HI) nor 3-mm CO emission. In DMG, hydrogen is in molecular (H₂) form but carbon (CI, CII) is not, i.e., without CO emission. This situation is possible in regions of modest extinction where H₂ self-shielding is operative but the UV flux is sufficient to destroy CO. Heiles and Troland (2003) observed OH absorption along with HI in their Arecibo Millennium survey, showing that OH could trace DMG. The Herschel key program GOTC+ has identified sites of potential DMG based on CII emission (Pineda et al. 2013). Combining the key elements of both influential surveys, we propose an OH survey of DMG candidates identified by GOTC+. Combined with HI, C+, and CO data, the proposed survey could provide a systematic view of the quantity and excitation conditions of DMG.

| Name | Institution | E-mail | Phone | Student |
|-------|--|---------------------|----------------|---------|
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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

1420.4 MHz

1665-1667 MHz

1720 MHz