Technical Page

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Galactic
Total Time Requested: 200 Hours

Proposal Title: Tracing high-mass star formation in the Galaxy

ABSTRACT:
Theoretical and observational studies have revealed that the 6.668 GHz methanol masers are precursors of ultracompact HII regions, and are excellent tracers of high-mass star formation. These are the second brightest masers yet detected, and as such can be used to trace the earliest phases of high-mass star formation throughout the Galaxy. Since high-mass star formation occurs preferentially in the spiral arms of our galaxy, methanol masers are candidates for tracing these regions. We propose carrying out a blind survey for methanol masers in a portion of the galactic plane visible from Arecibo. The unequaled sensitivity of the 305-meter telescope with the 6-8 GHz receiver enable a survey that will yield a large sample of methanol masers from which spiral arm structure can be determined and other valuable information including the methanol maser luminosity function can be deduced. In addition to giving an excellent candidate list of new ultracompact HII regions in the surveyed region, this work should be a prelude to extensive VLBI studies probing the dynamics of high-mass star forming regions.

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<tr>
<th>Name</th>
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Service Observing Request

- [X] None
- [ ] All of the observing run.
- [ ] Part of the observing run.
- [ ] Queue Observing

Remote Observing Request

- [ ] No
- [X] Maybe
- [ ] Yes

Instrument Setup

Atmospheric Observation Instruments:

Special Equipment or setup: none
RFI Considerations

Frequency Ranges Planned