

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Galactic  
 Total Time Requested: 200 Hours Hours  
 Minimum Useful Time: 2 Hours

**Proposal Title:** Are molecular clouds magnetically subcritical or supercritical overall? A survey of Zeeman observations of OH in absorption II.

*ABSTRACT:*

Although much Zeeman work has been done to study the effect of magnetic fields on molecular cloud cores, very little is known about fields in the general envelopes of molecular clouds. Are molecular clouds as a whole magnetically subcritical or supercritical? Using Arecibo, Thompson and Troland have begun the first systematic observational survey to address this question using the Zeeman effect in OH absorption toward extra-galactic continuum sources that lie behind molecular clouds. In this first survey we have studied 7 lines-of-sight. However, the Zeeman effect can only reveal the line-of-sight magnetic field, which makes this study inherently statistical in nature. To obtain statistically meaningful results for this project, we require magnetic field information for more than 7 lines-of-sight. We have identified 26 additional extra-galactic sources. We will chose about 10 of these sources based upon a short survey of OH optical depths and conduct Zeeman observations, spending about 20 hours on each source.

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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 - 1720