

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Galactic
 Total Time Requested: 40 Hours

Proposal Title: OH Zeeman Test of Faraday Rotation in Dark Cloud Envelopes

ABSTRACT:

Recently a new technique for estimating magnetic field strengths in nearby molecular clouds has been proposed. Wollenben and Reich reported results from the Effelsberg Medium Galactic Latitude Polarization Survey at 1408 MHz. They found that in the envelopes of some nearby molecular clouds in Taurus the polarized intensity dropped very significantly due to Faraday rotation in these clouds; they inferred a line-of-sight field strength of 20 microGauss. Because measurements of magnetic fields are so difficult, it is very important to test whether this new method yields valid results. We propose to test the method by measuring the line-of-sight field strength with observations of the Zeeman effect in OH emission lines. If successful, this will confirm the Faraday rotation technique for measuring magnetic field strengths in the envelopes of molecular clouds, enabling the method to be employed with greater confidence to expand our sparse knowledge of field strengths in molecular clouds.

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Service Observing Request

Remote Observing Request

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

- No
- Maybe
- Yes

Instrument Setup

L-wide

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1665 - 1668