

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Galactic
 Total Time Requested: 2 Hours
 Minimum Useful Time: 30 min

Proposal Title: Testing for stimulated absorption in a molecular cloud by maser emission from an OH/IR star

ABSTRACT:

Weisberg et al (2005) searched 20 pulsars for OH absorption by foreground molecular clouds. Their only success was with B1641-45, where the 1612, 1665 and 1667 MHz lines were seen to exhibit a signal from the pulsed continuum. This provides a textbook demonstration of stimulated absorption by a continuum flux, while the cloud's pulsed 1720 MHz line is likewise generated as stimulated emission: 1720 MHz emission is thus a diagnostic for this functionality. The OH/IR star IRAS 19224+1454 may be another case, as it exhibits an $\tilde{5}$ mJy 1612 MHz absorption feature that coincides with much stronger absorption-like features in its 1665 and 1667 MHz spectra. This proposal seeks to confirm this scenario by detecting the 1720 MHz emission feature in IRAS 19224+1454.

Name	Institution	E-mail	Phone	Student
Murray Lewis	NA	blewis@naic.edu	787 890 5010	no

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