

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Galactic
 Total Time Requested: 12 Hours

Proposal Title: Formaldehyde Absorption of the CBR: What Happens at Low Temperature and High Density

ABSTRACT:

The lowest transition of ortho-formaldehyde (H_2CO) is seen in absorption against the cosmic background radiation in molecular clouds. The reason for this peculiar behavior is that the excitation temperature of these levels is lowered by collisional pumping. As the density rises, however, the level populations are forced toward equilibrium at the kinetic temperature, and the line goes into emission. Since these levels lie very low in energy, they provide a probe of high density material at low temperature. We now have some excellent candidates for cold, dense regions in the form of so-called Pre-Protostellar Cores. We wish to try to detect the H_2CO line in several of these as a test. If this method works, we may propose a more extensive program.

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I might want to do remote observing.

Instrument Setup

C

Atmospheric Optical Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

4829.6