

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Galactic
 Total Time Requested: 92 Hours
 Minimum Useful Time: 2.5 hr

Proposal Title: Linear polarization of the 21 cm line toward HI fibers

ABSTRACT:

A recent reexamination of a sample of off source measurements from the Heiles Troland Millennium Survey (2003) revealed that there is a significant component of linear polarization in the HI line emission for most sources, a completely unexpected phenomenon. We have determined that this HI line polarization is not instrumental, but astronomical. We propose to make new measurements of the HI line polarization toward fields that show fibrous plane of sky structure in HI, Halpha, or both. HI fibers in the diffuse ISM are aligned with the magnetic field as probed by polarized starlight and dust emission. We propose to measure on and off HI fiber positions in our fields. This will allow us to determine whether and how the HI line polarization is associated with the HI fiber orientations, and to show how the HI line polarization depends on the local ionization properties probed by the HI/Halpha dependence.

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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: we need to use the interim correlator.

RFI Considerations

Frequency Ranges Planned

1420-1421

1665-1777

1612-1613

1720-1721