This proposal has not been submitted before.

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Solar System
Total Time Requested: 31 Hours
Minimum Useful Time: full transits are needed

Proposal Title: CAN WE MEASURE MAGNETIZED ELECTRON DENSITY FLUCTUATIONS IN MIRA-VARIABLE-STAR CORONAE?

ABSTRACT:

We have recently realized a technique for measuring electron density fluctuations in the Sun’s corona and found many interesting results, including: periodic fluctuations in electron column density; Coronal Mass Ejection (CME) magnetized electron clouds; turbulent spectra; power transfer from circular to linear polarization. The technique uses the propagation effects on a spacecraft downlink carrier. The goal of this proposal is to explore propagation effects in the coronae of Mira variable stars, using the OH maser lines on the far side of the star (i.e., the positive-velocity masers) as the signal. With their activity, Mira variables probably have much stronger atmospheric effects than the Sun. The masers have similar crucial qualities as the spacecraft carrier: high signal/noise, narrow lines, and polarization. This is completely unexplored territory in stars. If we are successful, we may open up a new observational field—the exploration and characterization of physical con

<table>
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<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
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<tbody>
<tr>
<td>Carl Heiles</td>
<td>university of california at berkeley</td>
<td><a href="mailto:heiles@astro.berkeley.edu">heiles@astro.berkeley.edu</a></td>
<td>510 280 8099</td>
<td>no</td>
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</tbody>
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Remote Observing Request

- [X] Observer will travel to AO
- [ ] Remote Observing
- [ ] In Absentia (instructions to operator)

Instrument Setup

L-wide

Atmospheric Observation Instruments:
Special Equipment or setup: Mock spectrometers

RFI Considerations

Frequency Ranges Planned

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.