Technical Page

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Solar System
Total Time Requested: 84 Hours
Minimum Useful Time: 1 hour

Proposal Title: OH Observations of Comets

ABSTRACT:
The gas coma of a comet arises from the direct sublimation of ices (primarily H2O) from the nucleus. The initial gases then break down into daughter products through photo-dissociation driven by solar UV radiation. Radio OH observations make a unique contribution to understanding cometary physics for several reasons. First, OH, a direct photodissociation product of H2O, may be used to trace water production, which is difficult to measure from the ground in most comets. Second, radio OH observations are done at L-band, where the atmosphere is transparent and relatively unaffected by weather and daylight. Third, exploration of the excitation of the OH Lambda-doublet enables constraints on the collisional environment in the coma. Finally, the very high resolution in velocity we get using radio spectroscopy enables a detailed view of the coma expansion and gas dynamics. We have observed 16 comets in the last seven years, primarily long-period. Here, we intend to focus on periodic comets to explore the differences and similarities. We propose observations of seven comets, one long-period and six periodic, over the next 16 months.

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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>Amy Lovell</td>
<td>Agnes Scott College</td>
<td><a href="mailto:alovell@agnesscott.edu">alovell@agnesscott.edu</a></td>
<td></td>
<td>no</td>
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Remote Observing Request

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

Instrument Setup

L-wide

Atmospheric Observation Instruments:
Special Equipment or setup: We need ephemeris tracking, which is available for the interim correlator, but not yet fully implemented through CIMA.

RFI Considerations

Frequency Ranges Planned

1665-1667 MHz