

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.

Name	Institution	E-mail	Phone	Student
Amy Lovell	Agnes Scott College	alovell@agnesscott.edu		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: 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