

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 130 Hours

Proposal Title: Variability in OH Megamasers

ABSTRACT:

We propose to conduct a study of variability in OH megamasers (OHMs) on time scales from minutes to months. Variability can constrain maser pump mechanisms, the sizes of masing regions, and differentiate between varieties of OHM emission in a single source. We will gain new insight into the physical properties of OHMs from this study, whether the sources are variable or quiescent. Variability which is intrinsic to an OHM can represent amplification of a modulated continuum source, or variability in the emission region itself. Extrinsic variability would be caused by interstellar scintillation, which requires very small angular sizes for extragalactic sources. A null result would place lower bounds on the sizes of emission regions, and on the variability of the maser mechanism. We have recently identified the first case of OHM variability, indicating that this study should produce interesting new results. We request 130 hours of staggered observing time to characterize the variability of 10 OHMs with the L-wide receiver.

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Instrument Setup

L-wide

Atmospheric Optical Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1300-1667

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..