

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 42 Hours
 Minimum Useful Time: 1.75 hours

Proposal Title: Monitoring a water megamaser in the early universe

ABSTRACT:

We have recently detected a water megamaser in the gravitationally lensed quasar MG0414+0534 at a redshift of $z=2.64$. This is the most distant water maser known so far. Although first indications might suggest that the maser is associated with a radio jet rather than an accretion disk, the true nature of the maser is far from being understood. While VLBI observation will establish the exact position of the maser, single-dish observations will be crucial to clarify its origin. Here, we propose to monitor the maser line and the continuum emission from MG0414+0534 with the Arecibo 300-m antenna in order to determine if a correlation exists between the line and the continuum flux, hinting at a jet-maser. Furthermore, we aim at searching for systemic and redshifted components that are expected in case of a disk-maser and at constraining any potential velocity drift.

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Remote Observing Request

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

Instrument Setup

C-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

6066-6166