

Technical Page

Proposal Type: Short
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 3 Hours
 Minimum Useful Time: 1

Proposal Title: Confirmation of water megamaser emission in a submm galaxy at $z=2.56$
ABSTRACT:

We have recently used the new EVLA C-band antennas to conduct the first search for water megamaser emission in FIR luminous submm galaxies at $z\sim 2.5$. We find tentative evidence for a water megamaser in SMMJ14011, a strongly lensed submm galaxy whose lensing allows us to obtain very deep constraints on the intrinsic luminosity of any maser emission present. Confirming that such water maser lines exist in these high-redshift submm galaxies would open up a powerful new route to estimate redshifts for these objects and to study their dense, interstellar molecular gas. Here we propose to confirm this line with the world's most sensitive radio telescope at 6.24 GHz using its cooled C-band high receiver. We request 3 hours of observing time on the Arecibo Telescope. If this detection is confirmed, it will be the first detection of water megamaser emission from a submm galaxy.

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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: These observations require the cooled C-band high receiver.

RFI Considerations

Frequency Ranges Planned

6233-6240