

### Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 15 Hours

**Proposal Title:** Search for Water Maser Emission at High Redshift

**ABSTRACT:**

We propose a search for water maser emission from two gravitationally-lensed quasars, MG 0751+2716 at  $z= 3.20$  and PSS 2322+1944 at  $z= 4.12$ . Arcsecond-resolution CO observations of both sources indicate the close proximity of molecular gas to the quasar. Multi-transition studies of PSS 2322+1944 indicate that the molecular gas is warm and dense, perhaps conducive to the formation of 22 GHz water masers similar to those found in some nearby AGN, most notably those in the Keplerian disk in NGC 4258.

| Name                  | Institution                                 | E-mail                     | Phone            | Student |
|-----------------------|---|----------------------------|------------------|---------|
| Elizabeth M Humphreys | Harvard-Smithsonian Center for Astrophysics | ehumphreys@cfa.harvard.edu | 001 617 796 7547 | no      |

**Service Observing Request**

**Remote Observing Request**

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

- No
- Maybe
- Yes

**Instrument Setup**

C

**Atmospheric Observation Instruments:**

**Special Equipment or setup:** WAPP

**RFI Considerations**

## Frequency Ranges Planned

4000 - 6000