

## Technical Page

Proposal Type: Urgent  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 64 Hours  
 Minimum Useful Time: 1

**Proposal Title:** Probing Radio Source Environments via HI and OH Absorption

**ABSTRACT:**

HI and OH measurements represent powerful probes of gas within radio galaxies. This could lie in the circumnuclear disk, putative torus or host-galaxy halo. Understanding gas distribution and kinematics is vital for studying anisotropy of the radiation field, testing the unified scheme for active galaxies, understanding the fueling of radio activity, and probing jet-cloud interactions. Absorption-line detections over a wide redshift range also provide information on the evolution of gas properties with source size (age) and cosmic epoch. Here, we propose HI-absorption observations of 13 CSS/GPS sources at  $0.73 < z < 0.97$ , and OH-absorption measurements of 16 at  $1.03 < z < 1.31$ . Our earlier low- $z$  Arecibo project discovered one new HI absorber, and studied previously-known absorption systems with improved resolution and sensitivity. The new Arecibo 770-MHz receiver permits extension of our study to higher redshifts via sources previously unmeasured in HI or OH.

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### Remote Observing Request

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

### Instrument Setup

705-825

### Atmospheric Observation Instruments:

**Special Equipment or setup:** none

## **RFI Considerations**

### **Frequency Ranges Planned**

720 – 820