

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 83 Hours
 Minimum Useful Time: 25 minutes

Proposal Title: A blind survey for redshifted H₂CO 4.8 GHz absorption towards a radio-selected sample.

ABSTRACT:

We propose to use the Arecibo S-low, S-high and C-band receivers to carry out a blind survey for redshifted H₂CO 4.83 GHz absorption towards a radio-selected, complete sample of 155 sources. The survey will be sensitive to molecular absorbers in the redshift ranges $0.03 < z < 0.85$ and $1.01 < z < 1.3$. This is the first entirely unbiased survey for molecular absorption and should result in a significant increase in the number of redshifted molecular absorbers. It will, for the first time, allow an estimate of the probability of finding a molecular absorber per unit redshift interval as well as the cosmological mass density of molecular gas in the above redshift range. Any detected systems will be followed up in 21cm and OH absorption, as well as other molecular lines, for the purpose of studying physical and chemical conditions in the absorber, measuring changes in fundamental constants, etc. We request an observing time of 83 hours for this proposal, which will enable us to cover a total redshift path of $\Delta z \sim 79$.

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Remote Observing Request

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

Instrument Setup

S-low C S-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

2.11 - 4.67