

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 24 Hours

Proposal Title: A mini-survey for CO Emission at redshifts greater than 10

ABSTRACT:

An exploratory program will place limits on faint spectral signals from the radio sky at 3 cm wavelength, which is a frequency band corresponding to the CO (1-0) transition at redshift approximately 11 (and higher redshifts in the higher CO rotational level transitions). The signal could result from (1) the spatial correlation of the first collapsing mini-halos on size scales that eventually become large scale structure at $z=0$, or (2) groupings of collapsed structures in the non-linear regime, as protogalaxies first ignite. Some popular scenarios have a wide-spread, base-level of metal enrichment already in place as a result of Pop III stars at redshifts 20-30 to provide the necessary ingredients for CO molecules. The observations will scan a survey strip on several days using a series of Peak-Park-n-Drift cycles, in order to remove the need for detailed pointing models and provide high spectral baseline stability.

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Service Observing Request

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

Remote Observing Request

- No
 Maybe
 Yes

Instrument Setup

X-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

9500 - 9700