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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
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<th>Student</th>
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</thead>
<tbody>
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<td>31-50-3634073</td>
<td>no</td>
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</tbody>
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Service Observing Request

- X 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

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