Technical Page

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

Proposal Title: A Search for CO(1-0) Emission from a Galaxy at z = 10

ABSTRACT:

Over the past few years, quasars and galaxies have been found at ever-increasing redshifts, even beyond the longstanding threshold of z=5. Detections of molecular gas in high-z objects have followed suit, and at present the most distant known CO source is a z=6.4 quasar. Very recently, an announcement has been made of galaxy at z=10.0. This object is highly magnified by gravitational lensing, and lies behind the rich cluster Abel 1835. This galaxy is especially important, as it is the first to be discovered during the period of reionization, which is thought to occur over the range z = 6.5 to about 20. Detection of a large mass of molecular gas, via the CO tracer, would set important constraints on star formation at a very early and critical phase in the history of the universe. The CO(1-0) transition is redshifted to 10.48 GHz, within the range of the refurbished X-band receiver.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
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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

Remot e Observing Request

- □ No
- X Maybe
- □ Yes

Instrument Setup

- X-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations
Frequency Ranges Planned