

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 25.0 Hours

Proposal Title: A search for H₂CO in the Cloverleaf quasar at z=2.56

ABSTRACT:

The Cloverleaf quasar (H1413+117, z=2.56), the most intense high-redshifted object to be detected in CO, revealed that galaxies at early epochs could have large amounts of molecular gas, possibly excited by an important starburst. Other similar objects also demonstrated the importance of studying the physical conditions of the formation of galaxies and of the first generations of stars. The search of molecular lines in high-z objects is still a challenge for present day instrumentation, but the upgraded Arecibo telescope has the potential to detect the H₂CO[1(10)-1(11)] (6cm, 4.83 GHz) line in the sensitive L-band. If the formaldehyde emission is indeed caused by low-gain amplified emission due to inverted molecular gas in front of the strong nuclear radio continuum source then the formaldehyde amplifiers would be a powerful diagnostic of the molecular gas inside the active nuclei of these distant objects.

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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

L-narrow

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1333 - 1383

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.