



Observing Application

Date : Jun, 05 2008
 Proposal ID : VLA/08B-244
 Legacy ID : AW749
 PI : Fabian Walter
 Type : Rapid Response -
 Exploratory Time
 Category : Extragalactic
 Total Time : 14.0

Exploratory proposal to detect CO(3-2) emission at z=6.26

Abstract:

This is an exploratory proposal to detect molecular gas through emission of the CO(3-2) transition in one of the highest redshift quasars, J1623+3112 ($z=6.26$). We have very recently detected [CII] emission in this object using the PDBI, making it the second ISM detection at $z>6$; as no prior CO or dust detection of this source exists, this is the first time that the ISM of a high-redshift system was detected through [CII] emission. The new [CII] redshift of the source enables CO(3-2) observations with the VLA. In fact, as part of project AW622 we did observe J1623 in CO(3-2) in early 2004, and, as it turns out, even at the correct ([CII]) redshift. However, these observations were not sensitive enough to detect the CO emission. Given the confirmed redshift through the [CII] detection, we here ask for VLA Exploratory observations in D array configuration to detect the CO(3-2) emission in J1623+3112. A detection would enable exciting follow-up observations at the VLA using more extended arrays (similar the $z=6.42$ QSO J1148+5251, Walter et al. 2003, 2004).

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Related proposals:

AW622

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
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Name	Conf.	Frontend & Backend	Setup
Q band	D	Q Band 0.7 cm 40000 - 50000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 47649, 47549 MHz Bandwidth: 50 MHz

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
J1623+3112	16:23:31.8 00:00:00.0	+31:12:00 00:00:00	J2000	Redshift : 6.257	J1623

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
1	7.00	2	0 day	11:00:00	21:00:00	0

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
1	J1623+3112	Q band	7.0 hour	0.06 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no