



# Observing Application

Date : Sep, 15 2008  
 Proposal ID : VLA/08C-237  
 Legacy ID : AW751  
 PI : Jeff Wagg  
 Type : Rapid Response -  
 Exploratory Time  
 Category : Extragalactic  
 Total Time : 10.0

## Continued observations of water megamaser emission in submm galaxies at z~2.5

### Abstract:

We have recently used the new EVLA C-band antennas to conduct the first search for water megamaser emission in FIR luminous submm galaxies at z~2.5. We find tentative evidence for a water megamaser in SMMJ16359, a strongly lensed submm galaxy whose lensing geometry allows us to obtain very deep constraints on the intrinsic luminosity of any maser emission present. While in the process of confirming this line, we propose here to conduct a search for H<sub>2</sub>O megamaser emission in the second most likely submm galaxy to be detectable, J14011 at z=2.565. Confirming that such water maser lines exist in these high-redshift submm galaxies would open up a powerful new route to estimate redshifts for these objects and to study their dense, interstellar molecular gas.

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### Related proposals:

AW739,AW750

### Joint:

Not a Joint Proposal

### Observing type(s):

Spectroscopy

**VLA Resources**

Name	Conf.	Frontend & Backend	Setup
cbandJ14011	D	C Band 6 cm 4200-7700 MHz VLA Correlator - Spectral Line	Rest frequencies: 6237.05 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64

**Sources:**

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
SMMJ14011	14:01:04.9 00:00:00.0	+02:52:25 00:00:00	J2000	Redshift : 2.565	firgalsz25

**Sessions:**

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
observeJ14011	5.00	2	1 day	12:00:00	17:00:00	30

**Session Constraints:**

Name	Constraints	Comments

**Session Source/Resource Pairs:**

Session Name	Source	Resource	Time	Figure of Merit	Subarray
observeJ14011	SMMJ14011	cbandJ14011	5.0 hour	0.6 mJy/bm	

Present for observation: yes

Staff support: None

Plan of Dissertation: no