



Observing Application

Date : Jul, 05 2012
 Proposal ID : VLA/12A-485
 Legacy ID : AH1087
 PI : Ian Hoffman
 Type : Director's Discretionary
 Time - Exploratory Time
 Category : Interstellar Medium
 Total Time : 1.5

Imaging the Newly Discovered Nonmetastable Para-ammonia Masers in NGC 7538

Abstract:

In March 2012 using the GBT, we observed maser emission from the (J,K)=(9,8) and (10,8) states of ammonia (14NH₃) in NGC7538 for the first time. It is necessary to determine the precise relative angular position of the two emission sites in order to apply and interpret the pump mechanism for the masers; EVLA observations in B- or A-array configuration are necessary to achieve the required angular precision. Indeed, in June 2012 and February 2012 using the EVLA, we imaged the relative positions of the (10,6) and (9,6) ammonia masers in NGC7538 showing position coincidences of some but not all of the velocity components; DnC-array observations were previously insufficient for determining the coincidences. We propose for Exploratory Discretionary Time for two reasons: (1) all of the motivating discoveries mentioned above were made since the February deadline for A-array observations, and (2) proximity in time to the March observations carries a premium because of the known variability of the ammonia masers.

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Related proposals:

AH1065, AH1050, GH86

Joint:

Not a Joint Proposal

Observing type(s):

Spectroscopy

VLA Resources

Name	Conf.	Frontend & Backend	Setup
NH3lines-K-A	Any	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO, Single Polarization	Rest frequencies: 20852.527, 23657.471 MHz Subband Bandwidth: 2.0 MHz No. of Channels: 256 Poln. products: 1.0 Channel Width: 7.813 kHz Total Bandwidth: 32.00 MHz

Sources:

Name	Position		Velocity		Group
NGC7538NH3	Coordinate System	Equatorial	Convention	Radio	Unspecified Group
	Equinox	J2000			
	Right Ascension	23:13:45.4	Ref. Frame	LSRK	
		00:00:00.0			
Declination	+61:28:10.0	Velocity	-53.8		
	00:00:00.0				

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Epoch-1	1.50	1	0 day	13:00:00	9:00:00	0

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Epoch-1	NGC7538NH3	NH3lines-K-A	1.5 hour	0.1 mJy/bm	

Present for observation: no

Staff support: Consultation

Plan of Dissertation: no