



Observing Application

Date : Feb, 28 2009
Proposal ID : VLA/09A-191
Legacy ID : AS987
PI : Lorant Sjouwerman
Type : Rapid Response -
Exploratory Time
Category : Galactic
Total Time : 7.0

36 GHz Methanol Masers in the Circumnuclear Disk

Abstract:

The 36 GHz methanol masers originate in the same shock excited regions where 1720 MHz OH masers are found. Previous observations of the Galactic center region, however, do not cover the circumnuclear disk (CND) in position or in velocity coverage. We have recently argued that the 1720 MHz OH masers at $V_{\text{LSR}} \pm 100\text{-}140$ km/s in the CND are sustained by shocks in the CND. We therefore suspect 36 GHz methanol masers may exist in the CND. If found, the 36 GHz methanol masers will be much less scatter broadened than the 1720 MHz OH masers, and thus, e.g., may be used for proper motion studies in the CND in the future.

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Related proposals:

ap 490

Joint:

Not a Joint Proposal

Observing type(s):

Spectroscopy

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Meth 36.2	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 36169.265 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64

Name	Conf.	Frontend & Backend	Setup
MC1 26.8	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 26847.233 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC1 27.5	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 27472.531 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC1 28.2	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 28169.462 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC1 28.9	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 28905.812 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC2 29.0	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 28969.942 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC1 29.6	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 29636.936 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC1 30.3	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 30308.034 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC2 37.7	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 37703.700 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64

Name	Conf.	Frontend & Backend	Setup
MC2 38.3	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 38293.268 MHz Bandwidth: 6.25 MHz Spectral resolution: 97.656 kHz IF Mode: 2 No. of Channels: 64
MC2 38.5	B	Ka Band 0.9 cm 26500 - 40000 MHz VLA Correlator - Spectral Line	Rest frequencies: 38452.677 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
CND-140	17:45:36.9 00:00:00.0	-29:01:22 00:00:00	J2000	Velocity : -140.00	CND
CND-100	17:45:37.8 00:00:00.0	-29:01:07 00:00:00	J2000	Velocity : -100.00	CND
CND-60	17:45:38.7 00:00:00.0	-29:00:52 00:00:00	J2000	Velocity : -60.00	CND
CND-20	17:45:39.6 00:00:00.0	-29:00:37 00:00:00	J2000	Velocity : -20.00	CND
CND+20	17:45:40.4 00:00:00.0	-29:00:22 00:00:00	J2000	Velocity : +20.00	CND
CND+60	17:45:41.3 00:00:00.0	-29:00:07 00:00:00	J2000	Velocity : 60.00	CND
CND+100	17:45:42.2 00:00:00.0	-28:59:52 00:00:00	J2000	Velocity : 100.00	CND
CND+140	17:45:43.1 00:00:00.0	-28:59:37 00:00:00	J2000	Velocity : 140.00	CND

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
CND 36.2	3.50	1	0 day	15:30:00	20:00:00	20
cnd 26.8	0.35	1	0 day	15:30:00	20:00:00	20
cnd 27.5	0.35	1	0 day	15:30:00	20:00:00	20
cnd 28.2	0.35	1	0 day	15:30:00	20:00:00	20
cnd 28.9	0.35	1	0 day	15:30:00	20:00:00	20
cnd 29.0	0.35	1	0 day	15:30:00	20:00:00	20
cnd 30.3	0.35	1	0 day	15:30:00	20:00:00	20
cnd 37.7	0.35	1	0 day	15:30:00	20:00:00	20
cnd 38.3	0.35	1	0 day	15:30:00	20:00:00	20
cnd 38.5	0.35	1	0 day	15:30:00	20:00:00	20
cnd 29.6	0.35	1	0 day	15:30:00	20:00:00	20

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
CND 36.2	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	Meth 36.2	3.5 hour	25 mJy/bm	
cnd 26.8	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 26.8	0.35 hour	100 mJy/bm	
cnd 27.5	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 27.5	0.35 hour	100 mJy/bm	
cnd 28.2	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 28.2	0.35 hour	100 mJy/bm	
cnd 28.9	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 28.9	0.35 hour	100 mJy/bm	
cnd 29.0	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC2 29.0	0.35 hour	100 mJy/bm	

Session Name	Source	Resource	Time	Figure of Merit	Subarray
cnd 30.3	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 30.3	0.35 hour	100 mJy/bm	
cnd 37.7	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC2 37.7	0.35 hour	100 mJy/bm	
cnd 38.3	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC2 38.3	0.35 hour	100 mJy/bm	
cnd 38.5	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC2 38.5	0.35 hour	100 mJy/bm	
cnd 29.6	CND-140 CND-100 CND-60 CND-20 CND+20 CND+60 CND+100 CND+140	MC1 29.6	0.35 hour	100 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no

