



Observing Application

Date: Aug 14, 2007
 Proposal ID: VLA/07C-244
Legacy ID: AA316
 PI: Esteban Araya
 Type: Rapid Response
 Target of Opportunity
 Category: Galactic
 Total time: 4.5 hour

Simultaneous Flaring of CH₃OH and H₂CO Masers around a Massive Protostar

Abstract:

Using the EVLA, we observed on August 10 the CH₃OH 6.7 GHz masers in IRAS18566+0408. Our EVLA observations, combined with our previous Arecibo data of the CH₃OH and H₂CO masers, strongly suggests that the H₂CO maser in IRAS18566+0408 is in a flare episode right now. Here we propose to conduct Target of Opportunity VLA observations to verify whether the H₂CO maser is really in a flare state; if possible the observations should be conducted within the next few days. If confirmed, our observations will indicate that the pumping mechanism of CH₃OH Class II and H₂CO masers is likely the same, and would suggest that the H₂CO flares in IRAS18566+0408 are periodic with a periodicity of ~8 months. If this were the case, then the young massive stellar object in IRAS18566+0408 is likely composed of (at least) a binary system, where periodic accretion events may be triggered by orbital motion.

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Related proposals:

AA314

Joint:

Not a Joint Proposal

Observing type(s):

Monitoring, Spectroscopy, *

Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
H2CO	VLA A	C Band 6 cm 4200 - 7700 MHz VLA Correlator - Spectral Line	IF mode: 2 Bandwidth: 1.5625 MHz Number of channels: 256 Spectral resolution: 6.104 kHz Rest frequencies: 4829.6569 MHz

Sources:

Source name	RA / RA Range	DEC / DEC Range	System	Velocity/z	Group name
IR- AS18566+0408	18:59:10.0 00:00:00.0	+04:12:16.00 00:00:00	J2000	80.0 km/s	IRAS18566

Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
IR18566	1.5 hours	3	5 days	00:00:00	24:00:00	0

Session Constraints:

Session Name	Constraint	Comments
IR18566		

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
IR18566	IR- AS18566+0408/IRA S18566	H2CO	1.5 hour	4mJy/bm

Total Time per Configuration:

Configuration	Total Time
A	4.5