



Observing Application

Date : Mar, 26 2010
 Proposal ID : VLBA/10A-146
 Legacy ID : BV69
 PI : Wouter Vlemmings
 Type : Rapid Response - Target of Opportunity
 Category : Stellar
 Total Time : 12.0

The SiO masers of the recent nova symbiotic star V407 Cyg

Abstract:

The symbiotic Mira V407 Cyg is one of only two sources where the SiO masers, originating close to the Mira star, are not destroyed by the presence of the accreting white dwarf companion. Two weeks ago, at March 10th, V407 Cyg was observed to have gone nova. Showing many similarities to the eruption of RS Oph 4 years ago, the outburst of the white dwarf likely ejects material at over 1000 km/s. The interaction with the circumstellar environment will lead to transient phenomena at various wavelengths. The SiO masers are an additional, unique, probe of the environment and, located at only a few AU from the erupting white dwarf, will experience the effects from the outburst any day now but are shown to still (26th March) exist. We here ask for ToO time to map the SiO maser emission during a nova outburst which has not previously been possible.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Spectroscopy

VLBA Resources

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters
SiO	7 mm	Socorro-DiFX	VLBA <input checked="" type="checkbox"/> Br <input checked="" type="checkbox"/> Fd <input checked="" type="checkbox"/> Hn <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Mk <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> <hr/> HSA Ar Ef GBT VLA-Y27 <hr/> VLA-Y1 <hr/> Geodetic	Bandwidth: 8 MHz Baseband 8 Channels Sample Rate 32 (Msample/s) Bits/Sample 2 Polarization RCP & Agg. Bit Rate 512 (Mbits/sec)	Full Polarization Pulsar Gate Correlator Passes 1 Integration Period (sec) 2.0 Spectral Points /BBC 256 No of Fields 1

Sources:

Name	Position		Velocity		Group
V407Cyg	Coordinate System	Equatorial	Convention	Radio	SiO
	Equinox	J2000			
	Right Ascension	21:02:09.81	Ref. Frame	LSRK	
		00:00:00.0			
Declination	+45:46:32	Velocity	-31.00		
	00:00:00				

Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
V407	4.00	3	7 day	00:00:00	24:00:00	0

Session Constraints:

Name	Constraints	Comments
V407	3 session, spacing approximately 1 week, depending on first epoch. Preferably 1 epoch between Mar 30-April 2	

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
V407	V407Cyg	SiO	4.0 hour	15 mJy/bm

Staff support: None

Plan of Dissertation: no