Observing Application

Date : Jul, 16 2010
Proposal ID : VLA/10B-233
Legacy ID : AC1007
PI : Laura Chomiuk
Type : Rapid Response - Target of Opportunity
Category : Stellar
Total Time : 15.0

Continued Radio Monitoring of the Gamma-Ray Symbiotic Nova V407 Cyg

Abstract:

We request 2.5 hours of EVLA time every two weeks for the next three months to observe the symbiotic nova V407 Cyg, the first nova detected in gamma-rays. This program will extend our monitoring of the past three months and cover the frequency range 1.4--45 GHz. We show preliminary evidence that the radio emission in V407 Cyg comes largely from an episode of flash ionization, wherein the nova outburst irradiated its companion Mira giant's envelope. This is a unique physical scenario, and continued observations will allow us to further test it, while:
(1) measuring the energy and mass of the outflow;
(2) probing the structure of the wind from the donor star and hence the mass transfer in a wide binary;
(3) elucidating the physics behind the gamma-energy emission, and;
(4) demonstrating the capabilities of the EVLA, even in its early days, as the premier radio telescope in the world.

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Related proposals:

AS1039

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Monitoring

VLA Resources

Name	Conf.	Frontend & Backend	Setup
L wide	D	L Band 20 cm 1000 - 2000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 1350.0, 1810.0 MHz Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz
C wide	D	C Band 6 cm 4000-8000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 4900.0, 7900.0 MHz Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
Q wide	D	Q Band 0.7 cm 40000 - 50000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 41000.0, 45000.0 MHz Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
K wide	D	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 19000.0, 25000.0 MHz Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz

Sources:

Name	Position		Velocity		Group
V407 Cyg	**Coordinate System**	Equatorial	**Convention**	Radio	Cool nova
	Equinox	J2000			
	Right Ascension	21:02:09.83	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+45:46:33	**Velocity**	0.00	
		00:00:00			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
V407 Cyg-L	0.50	6	14 day	00:00:00	24:00:00	0
V407 Cyg-C	0.50	6	14 day	00:00:00	24:00:00	0
V407 Cyg-K	0.75	6	14 day	00:00:00	24:00:00	0
V407 Cyg-Q	0.75	6	14 day	00:00:00	24:00:00	0