Observing Application

Date :	Sep, 22 2012
Proposal ID :	VLA/12B-384
Legacy ID :	AM1212
PI :	James Miller-Jones
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Energetic Transients and Pulsars
Total Time :	18.0

Disc-jet coupling in the black hole X-ray binary Swift J174510.8-262411

Abstract:

We propose 18 hours of VLA observations to provide radio coverage of the ongoing outburst of the new black hole candidate X-ray binary Swift J174510.8-262411. The spectral information derived from the VLA, when combined with ongoing sub-mm and infrared monitoring, will probe the evolution of the jet break frequency at the beginning of the outburst, determining how the compact jets are quenched. We will perform photometry on the radio flare and track the proper motions of the discrete jet ejecta via high-frequency, A-configuration imaging, determining their ejection date, for comparison with observed changes in the accretion flow. A deep soft-state observation will determine the jet quenching factor. Finally, we will probe the reactivation of the compact jets, and the radio/X-ray correlation in this source during the decay phase of the outburst. We apply for Director's Discretionary Time owing to VLBA scheduling constraints precluding the triggering of our accepted regular, joint VLA/VLBA triggered proposal. The continuous X-ray exposure already triggered on INTEGRAL, and the broadband spectral coverage available make this outburst a unique opportunity to further our understanding of accretion/ejection coupling in a black hole X-ray binary.

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Related proposals:

VLA/12A-226, VLBA/12A-228

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Monitoring

VLA Resources

Name	Conf.	Frontend & Backend	Setup

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VLA-L	Any	L Band 20 cm 1000 - 2000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 1250.0,1750.0 MHz Subband Bandwidth: 64.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 1000.0 kHz Total Bandwidth: 1,024.00 MHz
VLA-C	Any	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 5000.0,7450.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
VLA-K	Any	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 20800.0,25900.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
VLA-Ka	Any	Ka Band 0.9 cm 26500 - 40000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 31500.0,37500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
VLA-Q	Any	Q Band 0.7 cm 40000 - 50000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 40500.0,46500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz

Testing Resource Images

Sources:

Name	Position		Velocity		Group
Sw J1745-26	**Coordinate System**	Equatorial	**Convention**	Radio	Swift J174510.8-262411
	Equinox	J2000			
	Right Ascension	17:45:10.849	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	-26:24:12.60	**Velocity**	0.00	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Transition-L	0.20	6	2 day	15:00:00	21:30:00	10
Transition-C	0.20	6	2 day	15:00:00	21:30:00	10
Transition-K	0.20	6	2 day	15:00:00	21:30:00	10
Transition-Ka	0.20	6	2 day	15:00:00	21:30:00	10