



Observing Application

Date : Feb, 12 2010
Proposal ID : VLBA/10A-142
Legacy ID : BB290
PI : Catherine Brocksopp
Type : Rapid Response - Target of Opportunity
Category : Stellar, Galactic, Astrometry/Geodesy
Total Time : 18.0

A Major Jet Ejection Event from the X-ray Transient XTE J1752-223?

Abstract:

We request VLBA ToO observations of the new X-ray transient, XTE J1752-223, which recently entered its first known outburst and was clearly detected by the two-hour e-EVN (Tr, Mc, On, Ys, Wb) observations at 5 GHz on 11 Feb. 2010 with a peak brightness ~ 2 mJy/beam (~ 8 sigma). Besides the main component, there may exist a secondary component. The results show a hint of the ejection of jet material and is consistent with the variability detected by the monitoring observations of the ATCA in radio, Swift/BAT and ISS/MAXI in X-ray. To measure their proper motions, we propose a rapid experiment at 5 GHz in the upcoming days, and two follow-up experiments with a separation of a few days (if it remains bright). The first VLBA experiment will answer a key question whether the main component is a moving jet component rather than the core and how fast the ejected plasma is. With the addition of two more experiments, it would potentially enable us to distinguish between jet internal shock model and jet-ISM interaction model for the bright knots in the image and/or peaks in the lightcurve.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Monitoring, Phase Referencing

VLBA Resources

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters
VLBA	6 cm	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 Channels 16 Sample Rate (Msamples/s) 16 Bits/Sample 2 Polarization RCP & Agg. Bit Rate (Mbits/sec) 512	Full Polarization Pulsar Gate Correlator Passes 1 Integration Period (sec) 2.0 Spectral Points /BBC 16 No of Fields 1

Sources:

Name	Position		Velocity		Group
XTE J1752-223	Coordinate System	Equatorial	Convention	Optical	XTEJ1752
	Equinox	J2000			
	Right Ascension	17:52:15.64 00:00:00.0	Ref. Frame	Barycentric	
	Declination	-22:20:31 00:00:00	Velocity	0	
J1755-2232	Coordinate System	Equatorial	Convention	Optical	XTEJ1752
	Equinox	J2000			
	Right Ascension	17:55:26.285 00:00:00	Ref. Frame	Barycentric	
	Declination	-22:32:10 00:00:00	Velocity	0	
NRAO0530	Coordinate System	Equatorial	Convention	Optical	XTEJ1752
	Equinox	J2000			
	Right Ascension	17:33:02.705787 00:00:00	Ref. Frame	Barycentric	
	Declination	-13:04:49 00:00:00	Velocity	0	

Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
ToO	6.00	3	2 day	22:00:00	04:00:00	0

Session Constraints:

Name	Constraints	Comments
ToO	<p>We will appreciate it if the first epoch observations can be scheduled asap. Whether the two follow-up observations will be carried out also depending on the ATCA monitoring observations. If the transient is fainter than 0.5 mJy, the two observations will be cancelled. The separation of these observations can a few days (1-5 days). The GST time range is not hard requirement.</p>	<p>We will provide the schedule asap if the proposal is approved.</p>