



# Observing Application

Date : Jun, 11 2010  
 Proposal ID : VLBA/10B-143  
 Legacy ID : BM346  
 PI : James Miller-Jones  
 Type : Rapid Response - Target of Opportunity  
 Category : Stellar, Galactic, Astrometry/Geodesy  
 Total Time : 6.0

## Constraining the space motion of the strange black hole transient XTE J1752-223

### Abstract:

The black hole candidate transient source XTE~J1752-223 has been decaying to quiescence since its outburst in 2010 January. However, it recently began to rebrighten whilst remaining in the low-hard state, providing an unexpected new opportunity to make astrometric observations of the source with the VLBA before it fades to quiescence. We therefore propose to make use of this prolonged radio-bright phase to tackle two important issues in studies of X-ray transients: i) what is the black hole formation mechanism and related can we eventually determine the source distance through a geometric parallax measurement? and ii) is the radio emission of these sources caused by jet emission as is strongly suggested by the high brightness temperatures?

### Authors:

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### Related proposals:

### Joint:

Not a Joint Proposal

### Observing type(s):

Continuum, Phase Referencing

### VLBA Resources

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters
VLBA-X	3.6 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: 16 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 16 No of Fields 1

### Sources:

Name	Position		Velocity		Group
XTE J1752	Coordinate System	Equatorial	Convention	Radio	XTE J1752-223
	Equinox	J2000			
	Right Ascension	17:52:15.0	Ref. Frame	LSRK	
		00:00:00.0			
Declination	-22:20:32	Velocity	0.00		
		00:00:00			

### Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
J1752 VLBA	6.00	1	0 day	21:00:00	05:00:00	0

### Session Constraints:

Name	Constraints	Comments

### Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
J1752 VLBA	XTE J1752	VLBA-X	6.0 hour	0.04 mJy/bm

Staff support: None

Plan of Dissertation: no