Observing Application

Date :	Sep, 08 2011
Proposal ID :	VLBA/11B-223
Legacy ID :	BK173
PI :	Ashley King
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Active Galactic Nuclei
Total Time :	16.0

An Extraordinary Flare in the Nearest LINER

Abstract:

M81* has recently undergone an extensive radio flare at 15 GHz (ATEL #3621). This is the largest flare observed in M81*. The proximity of M81*, which is the nearest LINER, affords us the ability to resolve structures near to the black hole. We propose to observe M81* at both 8.4 GHz and 22 GHz at four epochs spaced by a one week intervals. This will allow us to measure motion along the jet, determine the spectral index as well as resolve fine structure near the black hole. This is a joint proposal with the EVLA, with the latter being used to determine the integrated, broadband spectral index as well as the total flux density. Near simultaneous observations with the already procured Suzaku and Swift will also allow for the study of the disk-jet connection in this flare of M81*.

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Related proposals:

Joint:

Joint with VLA

Observing type(s):

Continuum, Polarimetry, Single Pointing(s), Monitoring, Astrometry

VLBA Resources

Name	Details	Stations	Observing Parameters	Correlation Parameters

Name	Details	Stations	Observing Parameters	Correlation Parameters
X band	**Wavelength:** 3.6 cm **Processor:** Socorro-DiFX **Observing** Standard	VLBA ☑ Br ☑Fd ☑Hn ☑Kp ☑ La ☑Mk ☑Kp ☑Ov ☑ Pt ☑Sc ☑ HSA Ar Ef GBT VLA-Y27 VLA-Y1 Geodetic	Bandwidth: 8 MHz Baseband Channels 8 Sample Rate (Msample/s) 16 Bits/Sample 2 Polarization Dual Agg. Bit Rate (Mbits/sec)	Full Polarization ☑ Pulsar Gate Correlator Passes 1 Integration Period (sec) 2.0 Spectral Points /BBC 8 No of Fields 1
K band	**Wavelength:** 1.3 cm **Processor:** Socorro-DiFX **Observing** Standard	VLBA ☑ Br ☑Fd ☑Hn ☑Kp ☑ La ☑Mk ☑Kp ☑Ov ☑ Pt ☑Sc ☑ HSA Ar Ef GBT VLA-Y27 VLA-Y1 Geodetic	Bandwidth: 8 MHz Baseband Channels 8 Sample Rate (Msample/s) 16 Bits/Sample 2 Polarization Dual Agg. Bit Rate (Mbits/sec)	Full Polarization ☑ Pulsar Gate Correlator Passes 1 Integration Period (sec) 2.0 Spectral Points /BBC 8 No of Fields 1

Sources:

Name	Position		Velocity		Group
M81*	**Coordinate System**	Equatorial	**Convention**	Radio	M81 src grp
	Equinox	J2000			
	Right Ascension	09:55:33.173050	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+69:03:55.061440	**Velocity**	0.00	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
M81 XK	4.00	4	7 day	21:00:00	20:59:00	0

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
M81 XK	M81*	X band	1.5 hour	0.5 mJy/bm
M81 XK	M81*	K band	2.5 hour	0.5 mJy/bm

Staff support: None Plan of Dissertation: yes