Observing Application

Date :	Sep, 08 2011
Proposal ID :	VLA/11B-222
Legacy ID :	AK786
PI :	Ashley King
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Active Galactic Nuclei
Total Time :	6.0

Flare in M81*

Abstract:

M81* has recently undergone an extensive radio flare at 15 GHz (ATEL #3621). This is the largest flare observed in M81*. Determination of the evolution of the total flux density as well as the spectral index of the flare is the goal of this campaign. The spectral index break will determine the regions at which the transition from optically thin to optically thick occurs. We propose to observe M81* with 1.5 integrations at 1.4 GHz, 8.5 GHz, 13 GHz, 22 GHz, and 40 GHz in four epochs spaced by a one week intervals, potentially encompassing the duration of the flare. This is a joint proposal with the VLBA, which aims to resolve the structure and motion along the jet. Observations in the sub-millimeter with the SMA will complement and extend the frequency coverage. Finally, nearly simultaneous observations with Suzaku and Swift will complement the radio to determine the disk-jet connection in this flare of M81*.

Authors:

Name	Institution	Email	Status
Ashley King	Michigan at Ann Arbor, University of	ashking@umich.edu	Graduating: N/A Thesis: true
Jon Miller	Michigan at Ann Arbor, University of	jonmm@umich.edu	
Michael Rupen	National Radio Astronomy Observatory	mrupen@nrao.edu	
Michael Bietenholz	York University	mbieten@yorku.ca	

Principal Investigator: Ashley King
Contact: Michael Rupen
Telephone: 505 835-7248
Email: mrupen@nrao.edu

Related proposals:

Joint:

Joint with VLBA

Observing type(s):

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

VLA Resources

Name	Conf.	Frontend & Backend	Setup

Name	Conf.	Frontend & Backend	Setup
X band	Any	X Band 3.6 cm 8000 - 12000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 8500.0,8600.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
C band	Any	C Band 6 cm 4000-8000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 4500,7900 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
Ka band	Any	Ka Band 0.9 cm 26500 - 40000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 32500.0,39500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
Ku band	Any	Ku Band 2 cm 12000 - 18000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 12500.0,17500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
S band	Any	S Band 10 cm 2000 - 4000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 2500.0,3500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
L band	Any	L Band 20 cm 1000 - 2000 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 1250.0,1750.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz
K	D	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 21500.0,22500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz

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			