Observing Application

Date :	Dec, 20 2010
Proposal ID :	VLA/10C-233
Legacy ID :	AC1025
PI :	Tracy Clarke
Type :	Rapid Response - Exploratory Time
Category :	Extragalactic
Total Time :	1.5

Probing the Source Morphology of the CSS source 1017-325

Abstract:

Shock heating from active galactic nuclei-powered radio sources is considered one of the most likely candidates for resolving the cooling flow problem. Direct detection of strong shocks has so far been elusive in all but the nearest radio galaxy.

Promising candidates for the study of shock heating are compact steep spectrum (CSS) sources which are confined to the cool host galaxy atmosphere. These young sources are expected to shock heat their host galaxy gas and produce clear X-ray signatures of heating. We propose an EVLA exploratory observation of one such CSS source for which we have been awarded 15 ksec of XMM-Newton time. Archival ATCA data suggest an unusual source morphology while the X-ray data requires two spectral components.

The proposed short EVLA K band exploratory observation is the only means available to determine the source structure on a rapid enough time scale to prepare for upcoming Chandra proposals if the unusual morphology is confirmed. These data will also allow us to evaluate the need for a future longer EVLA campaign. The high observing frequency allows us to search for evidence of an inverted-spectrum radio core.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
CnB K	CnB	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO1: 2 Subbands/Full polz	Rest frequencies: 22396.0, 22524.0 MHz Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz

Sources:

Name	Position		Velocity		Group
PKS1017-325	**Coordinate System**	Equatorial	**Convention**	Optical	CSS 1017
	Equinox	J2000			
	Right Ascension	10:20:11.57	**Ref. Frame**	Barycentric	
		00:00:00.0			
	Declination	-32:45:33.2	**Redshift**	0.17000	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
1017 CnB	1.50	1	0 day	09:00:00	11:30:00	20

Session Constraints:

Name	Constraints	Comments
1017 CnB		Will need to undertake fast switching which is included in time request.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
1017 CnB	PKS1017-325	CnB K	1.5 hour	0.080 mJy/bm	

Present for observation: no Staff support: None Plan of Dissertation: no