



Observing Application

Date : Mar, 28 2009
Proposal ID : VLA/09A-194
Legacy ID : AL739
PI : Ari Laor
Type : Rapid Response -
Exploratory Time
Category : Extragalactic
Total Time : 7.0

Radio Constraints on the Quasar SDSS J153636.22, a Candidate Binary Black Hole

Abstract:

The radio-quiet quasar SDSS J153636.22+044127.0 shows two broad-line emission systems interpreted as a candidate binary black-hole system with a separation of 0.1 pc = 0.02 mas (Boroson & Lauer 2009). From VLA imaging at 8.5 GHz with 0.73 arcsec resolution, Wrobel & Laor (2009) discovered two faint sources, VLA-A and VLA-B, separated by 0.97 arcsec (5.1 kpc) within the quasar's optical localization region. Each radio source is unresolved, with a diameter of less than 0.37 arcsec (1.9 kpc). VLA-A and VLA-B could be two related sources, both energized by the candidate 0.1-pc binary system. Alternatively, VLA-A and VLA-B could be two independent sources, originating from a binary quasar system with a projected separation of 5.1 kpc. We request follow-up imaging in the current B configuration at 22 GHz and 0.3 arcsec resolution. The improved resolution and additional frequency will provide structural and spectral information to help distinguish between the 0.1-pc and 5-kpc binary interpretations offered by Wrobel & Laor (2009).

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Related proposals:

AL738

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Single Pointing(s)

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Bconfig1cm	B	K Band 1.3 cm 18000 - 26500 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 22485.1, 22435.1 MHz Bandwidth: 50 MHz

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
SDSS J153636.22	15:36:36.2 00:00:00.0	+04:41:27 00:00:00	J2000	Redshift : 0.388	Candidate binary

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Mine	7.00	1	0 day	00:00:00	24:00:00	0

Session Constraints:

Name	Constraints	Comments
Mine		Dynamic scheduling is preferred.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Mine	SDSS J153636.22	Bconfig1cm	7.0 hour	0.023 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no