



# Observing Application

Date: May 27, 2006
Proposal ID: VLA/06B-100
Legacy ID: AT330
Type: Rapid Response Exploratory Time
Joint: Not a Joint Proposal
Category: Extragalactic
Total time: 4.0 hour

## A Rare Opportunity to Study 21 cm Absorption & Emission in a Nearby Galaxy

### Abstract:

Using data from the Sloan Digital Sky Survey, we have identified a new, radio-loud QSO that is at a small impact parameter (1.5 kpc) to a low-redshift foreground galaxy. This QSO-galaxy provides a rare and valuable opportunity to study the environment in which QSO absorption arises. We request permission to put the QSO into the pool of targets for dynamical VLA scheduling that is currently underway. Our goal is to search for 21 cm absorption in the QSO spectrum that arises in the ISM of the foreground galaxy. The exciting aspect of this QSO-galaxy pair is that the object is at a low enough redshift to allow mapping of 21cm emission in order to study the kinematics, distribution, and physical properties of the gas. We will request VLA time for 21cm emission mapping in a follow-up (standard) proposal.

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### Observing type(s):

Spectroscopy, Single Pointing(s)

### Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
tripp1	VLA B	L Band 20 cm 1240 - 1700 MHz VLA Correlator - Multi-Channel	IF mode: 1  Bandwidth: 6.25 MHz  Number of channels: 128  Spectral resolution: 48.828 kHz  Rest frequencies: 1420.40575 MHz

### Sources:

Source name	RA	DEC	System	RA range	DEC range	Velocity/z	Group name
SDSS J104257.59+074850.5	10:42:57.6	+07:48:50	J2000	00:00:00.0	00:00:00	z = 0.032	

### Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
Tripp_SDSSQSO	2.0 hours	2	0 day	07:00:00	13:00:00	0

### Session Constraints:

Session Name	Constraint	Comments
Tripp_SDSSQSO		

### Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
Tripp_SDSSQSO	SDSS J104257.59+074850.5	tripp1	2.0 hour	1.0044mJy/bm

### Session Resource/Source Constraints:

Session/Source/Resource	Comments
Tripp_SDSSQSO/SDSS J104257.59+074850.5/tripp1	

Present for observation: no Staff support: None