



13507 - Testing relativistic feedback at crucial jet power

Cycle: 21, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) PKSB2152-699NHS	ACS/WFC	1	29-Jan-2014 21:06:23.0	yes
02	(1) PKSB2152-699NHS	ACS/WFC	1	29-Jan-2014 21:06:30.0	yes

2 Total Orbits Used

ABSTRACT

PKS B2152-699 is one of the brightest FRI/II radio sources in the sky. Our previous work has shown its ability to create strong shock-bounded cavities in the intergalactic medium, and has measured the energy content of the lobes, demonstrating the physical consistency of our understanding of the processes of radio-source feedback. Here we wish to make an X-ray spectral index measurement of the northern hotspot to test another important component of the theory - that strong jets remain relativistic over their full lengths. This test should also resolve the outstanding issue of the origin of the offsets between the radio, optical and X-ray centroids of hot spots. At the same time we will gather more data on the thermal properties of the enigmatic High Ionization Cloud that appears to be deflecting the jet, and trace the shock structure to larger distances.

OBSERVING DESCRIPTION

Two single-filter, single-orbit, observations of the optical feature associated with the northern hotspot of PKS B2152-699. The aim is to investigate the optical structure, which is offset from both the X-ray and the radio features. Good image stability and fair photometry are required to obtain the necessary structural data. There is no particular orientation requirement. The main galaxy light lies on the same chip in many rolls, but should not cause any problems. The target feature is around 21 mag. The observations are performed using four sub-exposures each (standard box pattern) to reduce issues with cosmic rays. The gap between the detectors crosses the outer jet in many rolls, but study of the outer jet is not possible without a far deeper exposure, so this is not a concern.

Proposal 13507 - NHS visit 1, F606W (01) - Testing relativistic feedback at crucial jet power

Visit	Proposal 13507, NHS visit 1, F606W (01), implementation										Thu Jan 30 02:06:39 GMT 2014				
	Diagnostic Status: No Diagnostics														
	Scientific Instruments: ACS/WFC														
	Special Requirements: (none)														
Patterns	#	Primary Pattern					Secondary Pattern					Exposures			
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=20.67 Purpose=DITHER Angle Between Sides=69.05 Number Of Points=4 Center Pattern=false Point Spacing=0.265 Line Spacing=0.187										(1)			
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Fluxes		Miscellaneous				
	(1)	PKSB2152-699NHS	RA: 21 57 9.9000 (329.2912500d) Dec: -69 40 40.20 (-69.67783d) Equinox: J2000			Redshift: 0.02827			V=13.3		Reference Frame: ICRS				
Comments: This is the magnitude of the host galaxy, 40 arcsec away. The hotspot is around 21 mag.															
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit				
	1		(1) PKSB2152-699N HS	ACS/WFC, ACCUM, WFC	F606W			Pattern 1, Exps 1-1 in NHS visit 1, F606W (01) (1)	638 Secs (2552 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]		[1]				
Orbit Structure	Orbit 1													Server Version: 20131031	
	The diagram illustrates the orbit structure for Orbit 1, showing a timeline from 0 to 5500 seconds. Key events include GS Acq (0-500s), four exposures (Exp. 1) at approximately 500, 1500, 2300, and 3100 seconds, and three pointing maneuvers at approximately 1200, 2000, and 2800 seconds. The timeline ends with an occultation period from 3600 to 5500 seconds. The diagram also indicates 'Unused Visibility = 3'.														

Proposal 13507 - NHS visit 2, F814W (02) - Testing relativistic feedback at crucial jet power

Visit	Proposal 13507, NHS visit 2, F814W (02), implementation										Thu Jan 30 02:06:41 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/WFC										
	Special Requirements: SAME ORIENT AS 01										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=20.67 Purpose=DITHER Angle Between Sides=69.05 Number Of Points=4 Center Pattern=false Point Spacing=0.265 Line Spacing=0.187								(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	PKSB2152-699NHS	RA: 21 57 9.9000 (329.2912500d) Dec: -69 40 40.20 (-69.67783d) Equinox: J2000		Redshift: 0.02827		V=13.3		Reference Frame: ICRS		
Comments: This is the magnitude of the host galaxy, 40 arcsec away. The hotspot is around 21 mag.											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) PKSB2152-699N HS	ACS/WFC, ACCUM, WFC	F814W			Pattern 1, Exps 1-1 in NHS visit 2, F814W (02) (1)	638 Secs (2552 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]		[1]
Orbit Structure	Orbit 1 Server Version: 20131031 GS Acq Exp. 1 Pointing Maneuver Exp. 1 Pointing Maneuver Exp. 1 Pointing Maneuver Exp. 1 Unused Visibility = 3 Occultation 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec										