12195 - Understanding the Largest Quasar Lens SDSS J1029+2623

Cycle: 18, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) SDSSJ1029+2623	ACS/WFC	2	29-Jun-2010 23:15:59.0	yes
02	(1) SDSSJ1029+2623	ACS/WFC	3	29-Jun-2010 23:16:04.0	yes
03	(1) SDSSJ1029+2623	WFC3/IR	2	29-Jun-2010 23:16:10.0	yes

7 Total Orbits Used

ABSTRACT

We propose multi-band WFC3/ACS imaging of the unique quasar lens SDSS J1029+2623. It consists of three quasar images at z=2.2 produced by a massive cluster of galaxies at z=0.60. The lens system represents a very rare example of the ``naked cusp'' image configuration, and moreover, the maximum image separation of 22.5" makes it the largest known quasar lens. We will use the deep WFC3/ACS images to identify many additional multiply-imaged background galaxies, which greatly helps the mass modeling of the central region of the cluster. An accurate mass model is essential to addressing several outstanding questions for this lens, including the anomalous flux ratios between the quasar images and the dynamical state of the lensing cluster. The model will be particularly good because we can combine the strong lensing constraints from HST with our weak lensing measurements on large scales, and also with our deep 60 ksec Chandra X-ray observations.

OBSERVING DESCRIPTION

For reasonable photometric redshifts we need good wavelength coverage.
Thus we allocate 2 orbits to F475W filter (ACS/WFC), 3 orbits to the
F814W filter (ACS/WFC), and 2 orbits to the F160W filter (WFC3/IR),
covering from g- to H-band. Note that we have modified the filter set
for the observation from phase I, following the recommendation by the
TAC/Panel.

Visit

Proposal 12195, Visit 01 Wed Jun 30 03:16:16 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=LINE	Coordinate Frame=POS-TARG	Pattern Type=LINE	Coordinate Frame=POS-TARG	(1)
	Purpose=DITHER	Pattern Orientation=91.16385	Purpose=DITHER	Pattern Orientation=85.38987	
	Number Of Points=2	Angle Between Sides=	Number Of Points=2	Angle Between Sides=	
	Point Spacing=6.10486	Center Pattern=true	Point Spacing=3.08553	Center Pattern=false	
	Line Spacing=		Line Spacing=		

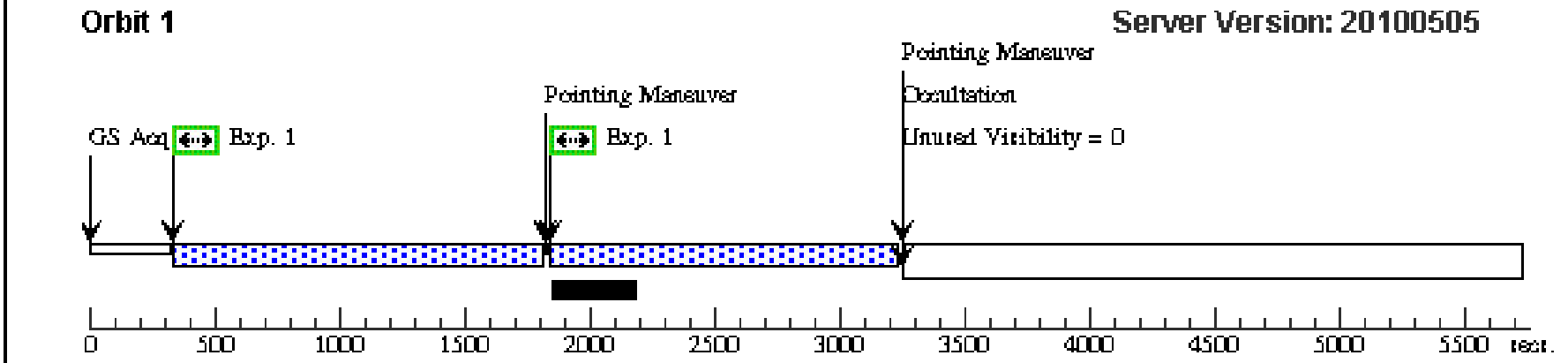
Fixed Targets

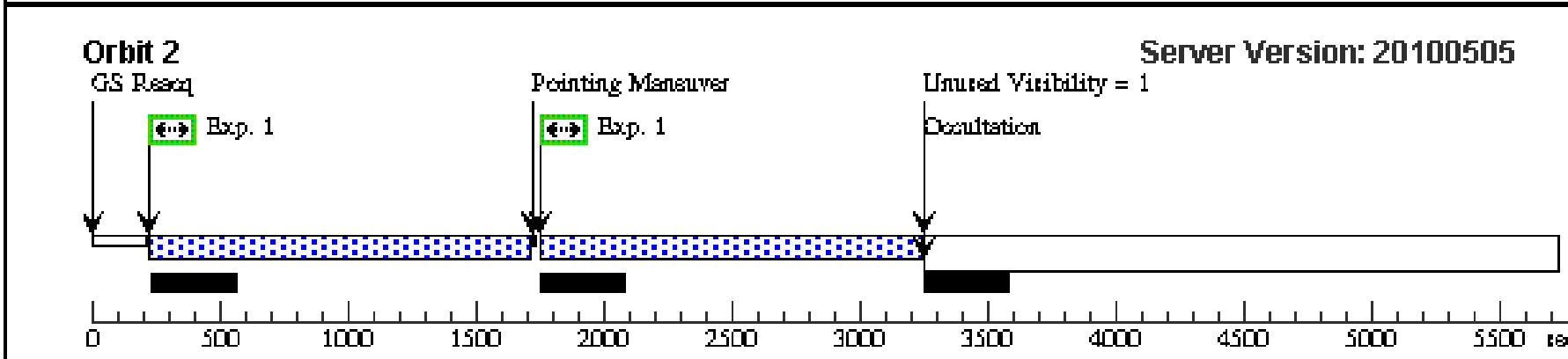
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SDSSJ1029+2623	RA: 10 29 13.3500 (157.3056250d) Dec: +26 23 32.80 (26.39244d) Equinox: J2000		V=18.7+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) SDSSJ1029+2623	ACS/WFC, ACCUM, WFC-FIX	F475W			Pattern 1, Exps 1-1 (1)	1200 Secs	
								[==>1271.0 Secs (Pattern 1,1)] *[==>1271.0 Secs (Pattern 1,2)]*	***[1]***
								[==>1367.0 Secs (Pattern 2,1)] *[==>1367.0 Secs (Pattern 2,2)]*	***[2]***

Orbit Structure





Visit

Proposal 12195, Visit 02 Wed Jun 30 03:16:17 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6.10486 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=91.16385 Angle Between Sides= Center Pattern=true	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.08553 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.38987 Angle Between Sides= Center Pattern=false	(1)
(2)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.08553 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=91.16385 Angle Between Sides= Center Pattern=true			(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SDSSJ1029+2623	RA: 10 29 13.3500 (157.3056250d) Dec: +26 23 32.80 (26.39244d) Equinox: J2000		V=18.7+/-0.5	Reference Frame: ICRS

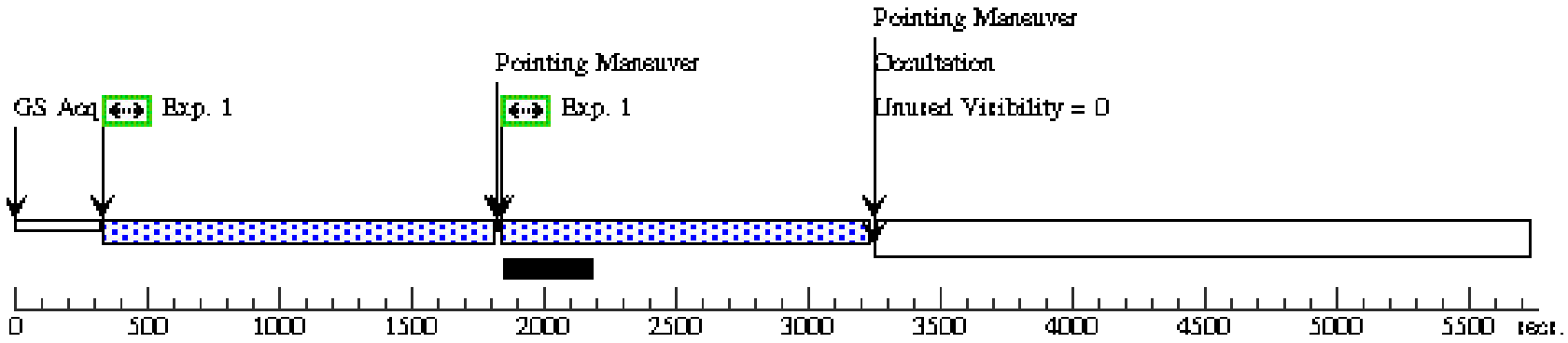
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) SDSSJ1029+2623	ACS/WFC, ACCUM, WFC-FIX	F814W			Pattern 1, Exps 1-1 (1)	1200 Secs	
								[==>1271.0 Secs (Pattern 1,1)] *[==>1271.0 Secs (Pattern 1,2)]*	***[1]***
								[==>1367.0 Secs (Pattern 2,1)] *[==>1367.0 Secs (Pattern 2,2)]*	***[2]***
2		(1) SDSSJ1029+2623	ACS/WFC, ACCUM, WFC-FIX	F814W			Pattern 2, Exps 2-2 (2)	1200 Secs	
								[==>1367.0 Secs (Pattern 1)] *[==>1367.0 Secs (Pattern 2)]*	***[3]***

Orbit Structure

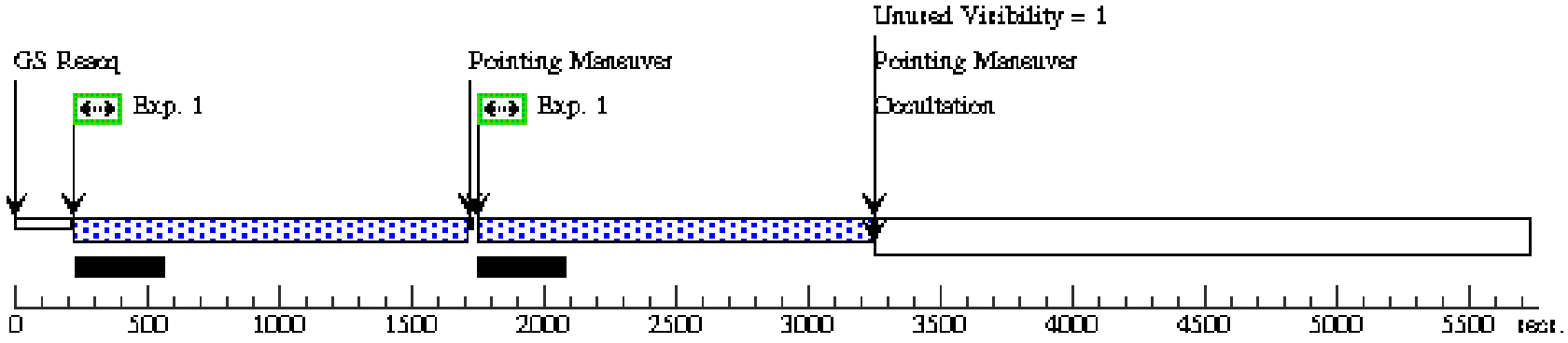
Orbit 1

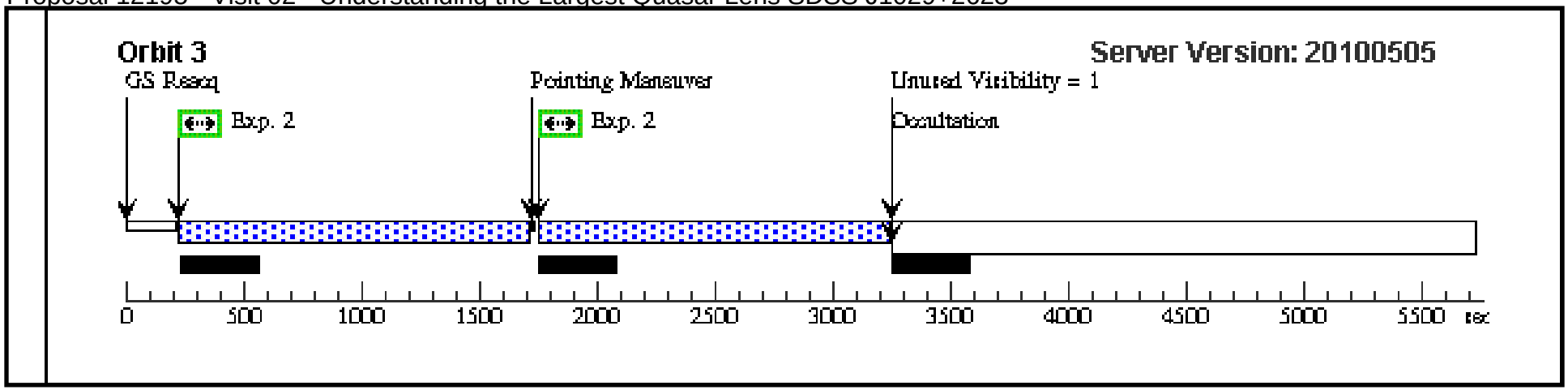
Server Version: 20100505



Orbit 2

Server Version: 20100505




Orbit 3
Server Version: 20100505
GS Reacq
Exp. 2
Pointing Maneuver
Exp. 2
Unused Visibility = 1
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12195, Visit 03 Wed Jun 30 03:16:18 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1), (2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SDSSJ1029+2623	RA: 10 29 13.3500 (157.3056250d) Dec: +26 23 32.80 (26.39244d) Equinox: J2000		V=18.7+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) SDSSJ1029+2623	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=14		Pattern 3, Exps 1-1 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(1) SDSSJ1029+2623	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=14		Pattern 3, Exps 2-2 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure