



## 12991 - Red galaxies in CL J1449+0856 at $z=2.07$ : the red sequence in the most distant galaxy cluster

Cycle: 20, 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) CLJ1449+0856	WFC3/IR WFC3/UVIS	3	11-Jul-2012 00:27:55.0	yes

3 Total Orbits Used

## **ABSTRACT**

We propose to obtain WFC3 NIR imaging in the F105W band in the field of the cluster CL J1449+0856 at  $z=2.07$ . This is the most distant X-ray detected cluster known thus far, the most evolved system discovered at a redshift very close to the expected main formation epoch of massive cluster galaxies. The core of this cluster is populated by red galaxies, several of which already exhibit an early-type morphology. At the same time, other red galaxies have disk-like structures, some are involved in mergers or interactions, some are suspected to be dusty star-forming sources.

Given the importance of the red-sequence population in galaxy clusters over more than half of cosmic time, it is clear how critical is the investigation of these sources in this unique system so close to their expected formation. In spite of an extensive multi-wavelength data set, the faintness and red colors of our targets make it impossible to study the red sequence in detail with ground-based imaging blueward of the targets 4000Å break. The proposed observations, coupled with the already available WFC3 imaging in the F140W band, and deep Subaru imaging in the Ks band, will allow a detailed analysis of the actual nature of red galaxies in this structure, and push for the first time beyond redshift 2 the study of the evolution of the red sequence in galaxy clusters.

## **OBSERVING DESCRIPTION**

WFC3 observations of the  $z\sim 2$  cluster CL J1449+0856 in the F105W (exposure time = 6562s) and F606W (995s) filters.

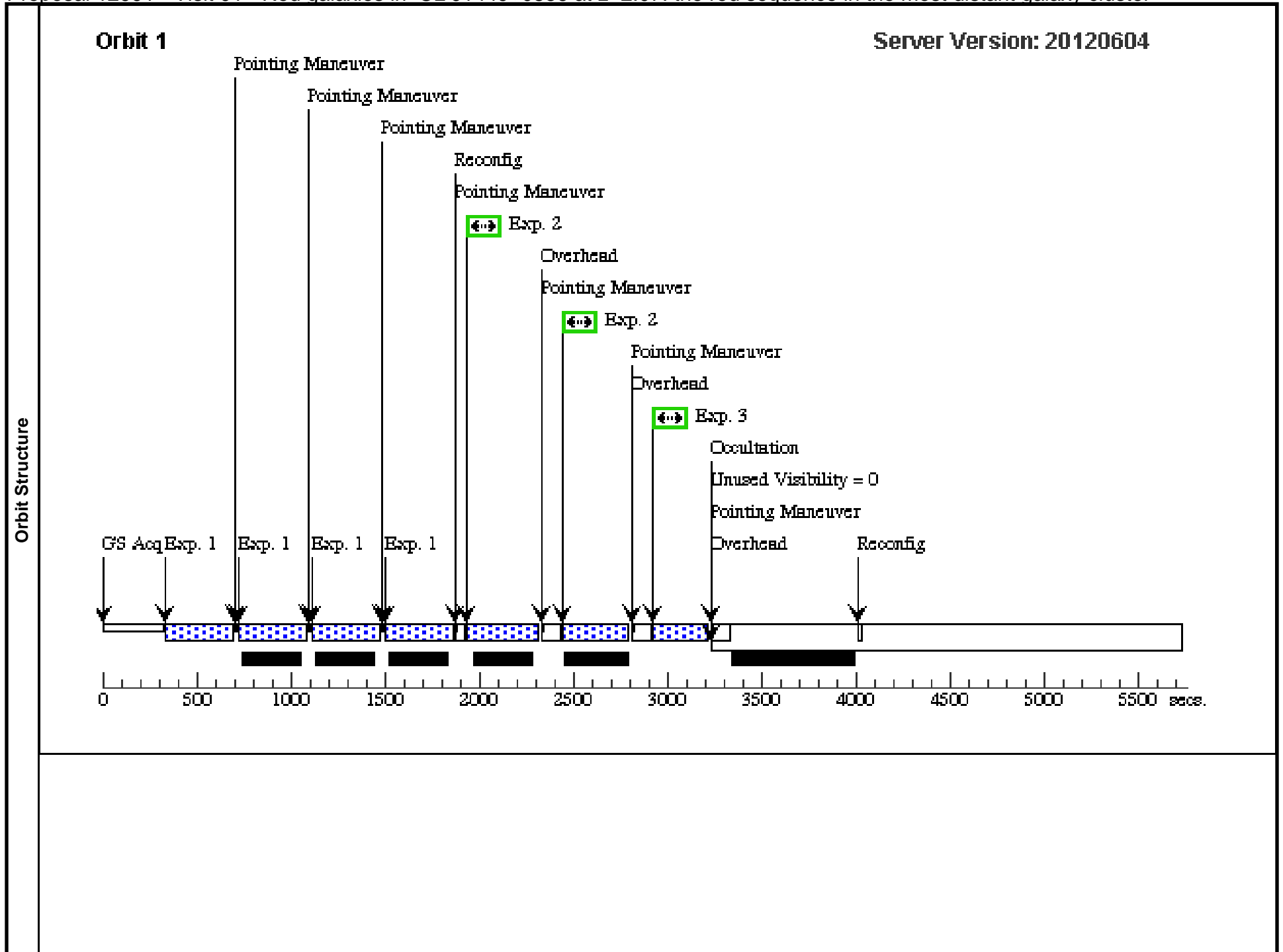
Proposal 12991 - Visit 01 - Red galaxies in CL J1449+0856 at z=2.07: the red sequence in the most distant galaxy cluster

Wed Jul 11 04:28:08 GMT 2012

Visit	<b>Proposal 12991, Visit 01</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: (none)					
Patterns	#	Primary Pattern	Secondary Pattern	Exposures		
	(1)	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=true		(1)		
	(7)	Pattern Type=WFC3-IR-DITHER-BLOB Purpose=DITHER Number Of Points=2 Point Spacing=6.09 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.859 Angle Between Sides= Center Pattern=true	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=true	(4)		
	(9)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=6.82 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=true		(2)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	CLJ1449+0856	RA: 14 49 15.1000 (222.3129167d) Dec: +08 56 8.40 (8.93567d) Equinox: J2000		V=(?) Targets down to Y~26.7 AB mag. Brightest star in the field (RA =10:49:10, Dec=08:56:51) has J=11.4, J-K=0.5 (from 2MASS, Vega), and V=12.6 (B-V=0.6)	Reference Frame: ICRS

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#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	(1) CLJ1449+0856	WFC3/IR, MULTIACCUM, IR-FIX	F105W	SAMP-SEQ=SPARS 25; NSAMP=14		Pattern 1, Exps 1-1 in Visit 01 (1)	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2	(1) CLJ1449+0856	WFC3/UVIS, ACCUM, UVIS-IR-FIX	F606W			Pattern 9, Exps 2-2 in Visit 01 (9)	350 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]
	3	(1) CLJ1449+0856	WFC3/UVIS, ACCUM, UVIS-IR-FIX	F606W				295 Secs [==>]	[1]
	4	(1) CLJ1449+0856	WFC3/IR, MULTIACCUM, IR-FIX	F105W	SAMP-SEQ=SPARS 25; NSAMP=14		Pattern 7, Exps 4-4 in Visit 01 (7)	[==>(Pattern 1,1, Copy 1)] [==>(Pattern 1,1, Copy 2)] [==>(Pattern 1,2, Copy 1)] [==>(Pattern 1,2, Copy 2)] [==>(Pattern 1,3, Copy 1)] [==>(Pattern 1,3, Copy 2)] [==>(Pattern 1,4, Copy 1)] [==>(Pattern 1,4, Copy 2)]	[2]
								[==>(Pattern 2,1, Copy 1)] [==>(Pattern 2,1, Copy 2)] [==>(Pattern 2,2, Copy 1)] [==>(Pattern 2,2, Copy 2)] [==>(Pattern 2,3, Copy 1)] [==>(Pattern 2,3, Copy 2)] [==>(Pattern 2,4, Copy 1)] [==>(Pattern 2,4, Copy 2)]	[3]



**Orbit 2**

Server Version: 20120604

