11517 - A >10000 solar mass black hole

Cycle: 16, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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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) XMMUJ134736.6+173403	WFPC2	1	17-Apr-2008 21:03:31.0	yes

1 Total Orbits Used

ABSTRACT

The X-ray source XMMUJ134736.6+173403 has recently been discovered serendipitously. Its X-ray position coincides with two interacting galaxies, one of which is a Seyfert II. The X-ray variability and spectrum rule out an association with the Seyfert II. Carpano et al. (2008) suggest that the source is a foreground quiescent low-mass X-ray binary (unrelated to the galaxy-pair). Our recent optical photometry rules out such a scenario since the

counterpart to the low-mass X-ray binary should have been detected. Furthermore, we find an extended source in the XMM error circle. Optical spectroscopy shows emission lines, such as those found in ULX nebulae, redshifted to the same redshift as that of the pair of interacting galaxies. Swift/UVOT observations show that the spectrum of the emission nebula is very blue. If this emission nebula is indeed associated with the X-ray source it implies that the X-ray source is a ULX. We propose here to obtain a WFPC2 UV (F106BW) and an F606W image to

accurately determine the magnitude and the extend of the nebula and to investigate if the ULX/nebula emission can be responsible for the observed X-ray emission by extending the SED to ~1300 angstrom.

OBSERVING DESCRIPTION

We request a short HST WFPC2 observation using the F106BW and F606W filter in order to: -Extend the SED down to 1300 A. A further brightening of the nebula in comparison with the Seyfert II in the F106BW band would strengthen the association of the X-ray source with a ULX and the nebula. -Determine the size of the nebula accurately. -Separate the nebula better from the galaxy in order to better determine the F606W band magnitude.

We determined the exposure time using the R and g' band magnitude estimates we obtained from Magellan together with the UVOT magnitude estimate we obtained using the UVW2 filter. We extrapolated the SED to 1300 A, from this we find that a 1500 s exposure would give us a SN of 25. A 900 s exposure in the F606W filter would give us a SN of more than 60.

Visit

Proposal 11517, Visit 01, implementation Fri Apr 18 01:03:35 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 19-MAY-2008:00:00:00

Patterns

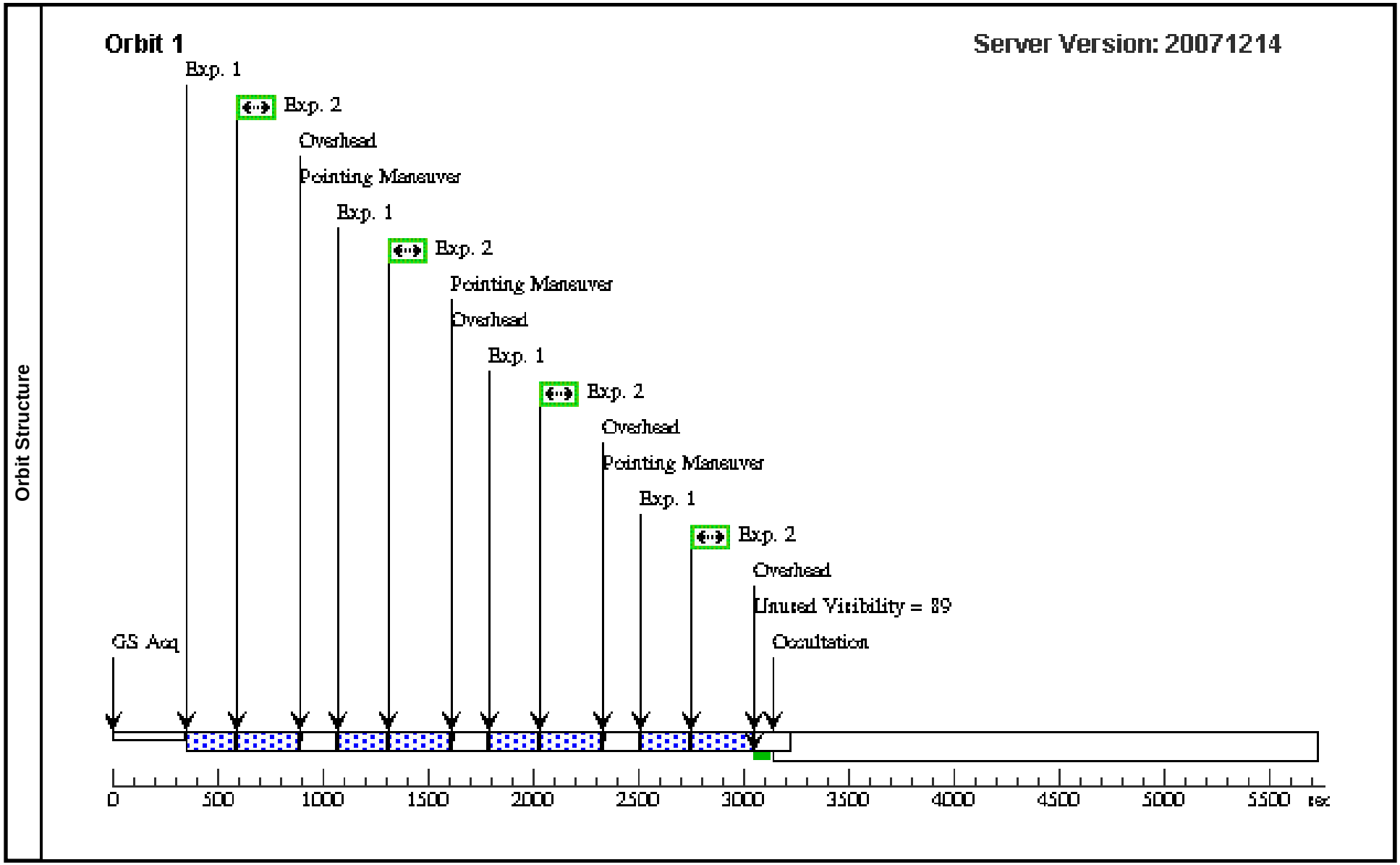
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFPC2-BOX	Coordinate Frame=POS-TARG		(1-2)
	Purpose=DITHER	Pattern Orientation=26.56505		
	Number Of Points=4	Angle Between Sides=143.130102		
	Point Spacing=0.559017	Center Pattern=false		
	Line Spacing=0.559017			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	XMMUJ134736.6+173403	RA: 13 47 36.8050 (206.9033542d) Dec: +17 34 2.80 (17.56744d) Equinox: J2000		V=22+/-1 F(1900)=8.6E-17	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) XMMUJ134736.6+173403	WFPC2, IMAGE, PC1	F606W			Pattern 1-2 (1)	40 Secs	
								[==>(Pattern 1)] *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(1) XMMUJ134736.6+173403	WFPC2, IMAGE, PC1	F160BW			Pattern 1-2 (1)	200 Secs	
								[==>200.0 Secs (Pattern 1)] *[==>200.0 Secs (Pattern 2)]* *[==>200.0 Secs (Pattern 3)]* *[==>200.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20071214
Exp. 1
Exp. 2
Overhead
Pointing Maneuver
Exp. 1
Exp. 2
Pointing Maneuver
Overhead
Exp. 1
Exp. 2
Overhead
Pointing Maneuver
Exp. 1
Exp. 2
Overhead
Unused Visibility = 89
GS Acq
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec