



18195 - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host galaxies

Cycle: 33, Proposal Category: GO

(UV Initiative)

(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	(2) SDSSJ101639.87+194048.4	WFC3/UVIS	1	22-Jan-2026 15:00:16.0	yes
02	(1) SDSSJ100207.03+163048.6	WFC3/UVIS	1	22-Jan-2026 15:00:17.0	yes
03	(3) SDSSJ111749.18+044315.5	WFC3/UVIS	1	22-Jan-2026 15:00:17.0	yes
04	(4) SDSSJ094314.26+102348.7	WFC3/UVIS	1	22-Jan-2026 15:00:18.0	yes
05	(5) SDSSJ093401.24+245342.5	WFC3/UVIS	1	22-Jan-2026 15:00:19.0	yes
06	(6) SDSSJ085431.45+121757.2	WFC3/UVIS	1	22-Jan-2026 15:00:20.0	yes

<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>
07	(4) SDSSJ094314.26+102348.7	WFC3/UVIS	1	22-Jan-2026 15:00:20.0	yes

7 Total Orbits Used

ABSTRACT

A population of intermediate black holes (IMBH) will allow us to solve one of the long-standing problems in modern astrophysics, the origin of supermassive black holes. We applied data mining to SDSS spectroscopic sample and identified 1928 type-I AGN candidates powered by 'light' BHs ($M_{BH} < 1e6$). Then we used eROSITA-ERASS1 data release and identified 206 X-ray counterparts to these sources. 6 of them turned out to be rapidly growing black holes accreting at the rates 50-250% of the Eddington. We propose to observe them with Chandra to measure X-ray spectral slopes to relate them to normal SMBHs, and use HST WFC3 to get high-resolution images of their host galaxies to double the number of X-ray confirmed Eddington-limited IMBHs and get the first insight on structural properties their hosts.

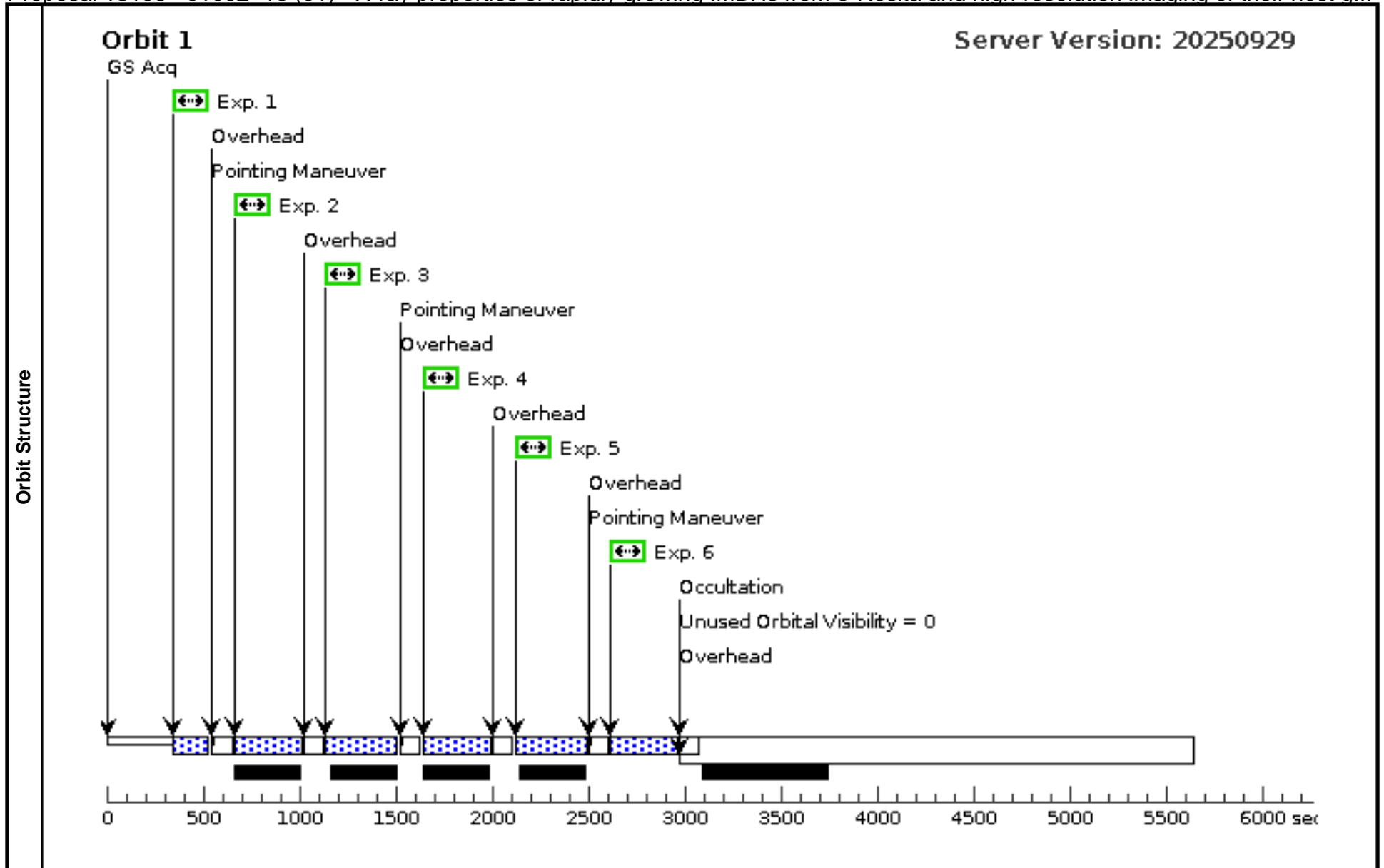
OBSERVING DESCRIPTION

We propose to use the F300X, F350LP and F600LP filters. (i) the near-UV F300X is the deepest UV option in WFC3/UVIS; it will to isolate a compact active nucleus from star formation in the bulge (ii) the difference of F350LP and F600LP is much deeper than any blue optical WFC3 filter; it will allow reveal dust morphology in the inner part and will be crucial for the stellar population analysis of host galaxies combined with pure F600LP; (ii) F600LP will be the primary filter for the 2D light profile decomposition; (iii) F350LP and F600LP will provide the best stellar mass estimates for structural components. We computed stellar population models using pegase.2 for the proposed filter setup and confirmed its suitability.

Proposal 18195 - J1002+16 (01) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

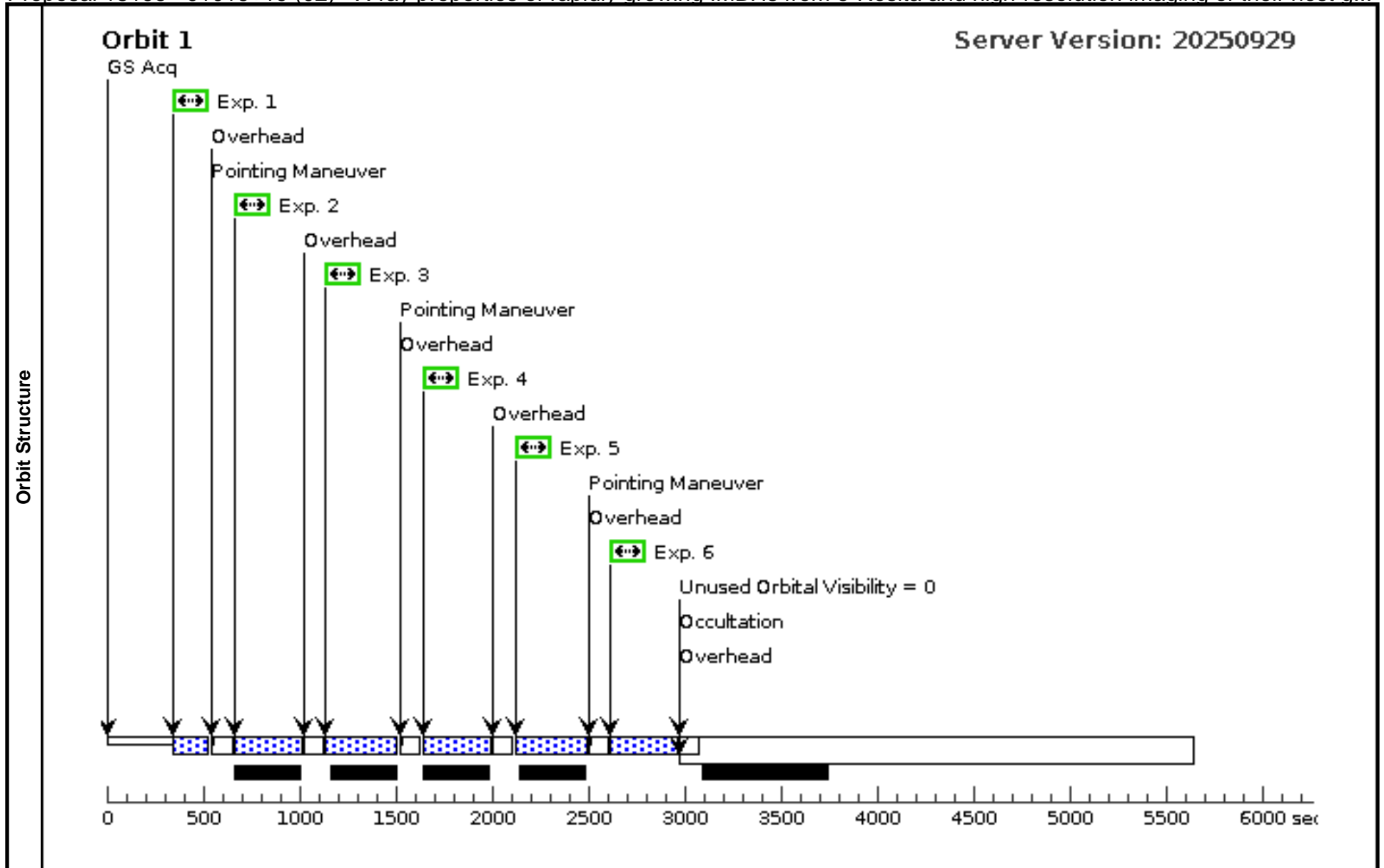
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	SDSSJ101639.87+194048.4	RA: 10 16 39.8700 (154.1661250d) Dec: +19 40 48.40 (19.68011d) Equinox: J2000		V=19.62+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		153 Secs (153 Secs)	
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	2		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
								[==>]	[1]	
5		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
								[==>]	[1]	
6		(2) SDSSJ101639.87+194048.4	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
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Proposal 18195 - J1016+19 (02) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

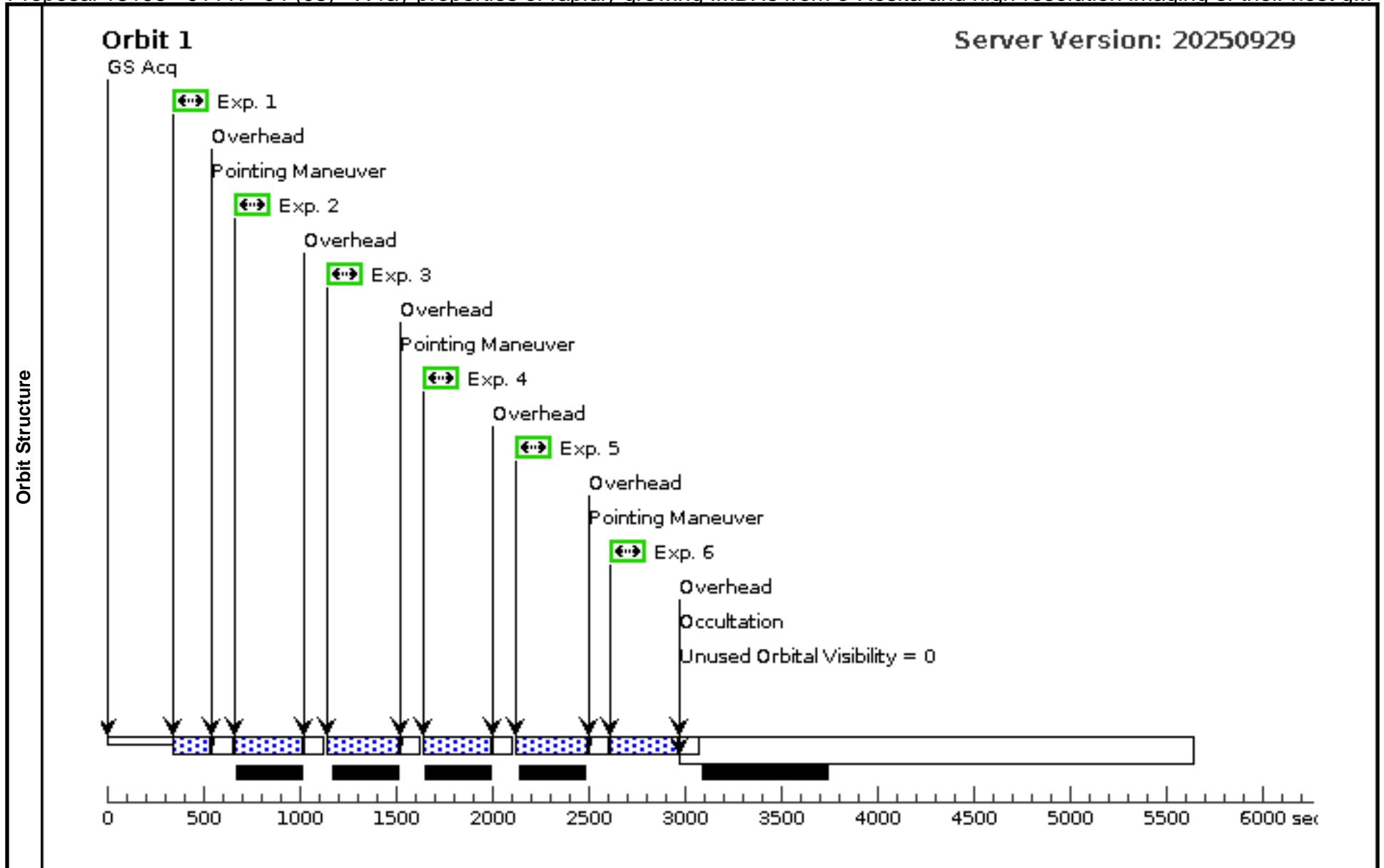
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	SDSSJ100207.03+163048.6	RA: 10 02 7.0200 (150.5292500d) Dec: +16 30 48.71 (16.51353d) Equinox: J2000	Epoch of Position: 2000	V=17.57+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		153 Secs (153 Secs)	
									[==>]	[1]
	2		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
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5		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
								[==>]	[1]	
6		(1) SDSSJ100207.03+163048.6	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
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Proposal 18195 - J1117+04 (03) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

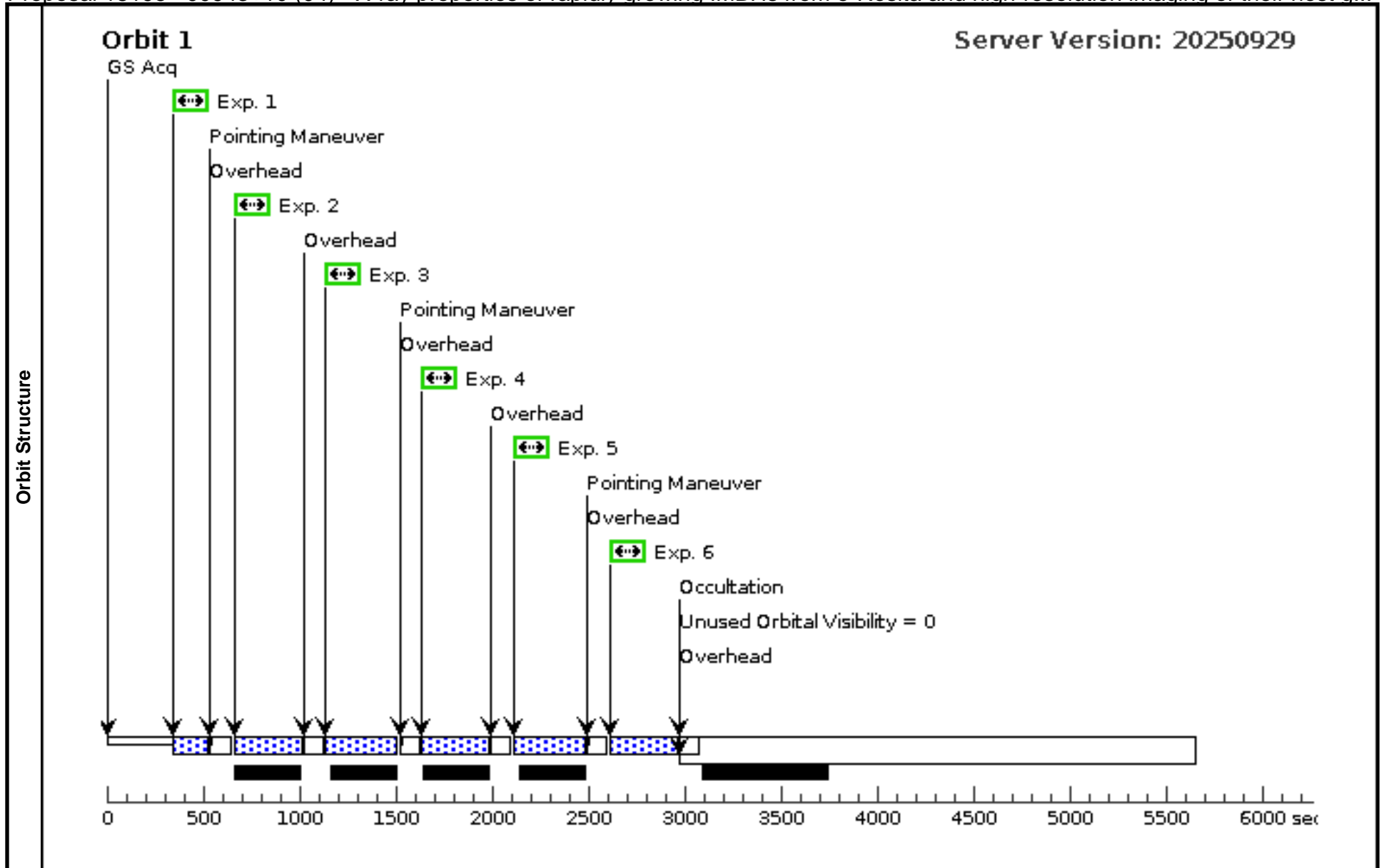
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	SDSSJ111749.18+044315.5	RA: 11 17 49.1800 (169.4549167d) Dec: +04 43 15.50 (4.72097d) Equinox: J2000		V=18.72+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		156 Secs (156 Secs)	
									[==>]	[1]
	2		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
								[==>]	[1]	
5		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
								[==>]	[1]	
6		(3) SDSSJ111749.18+044315.5	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
								[==>]	[1]	



Proposal 18195 - J0943+10 (04) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

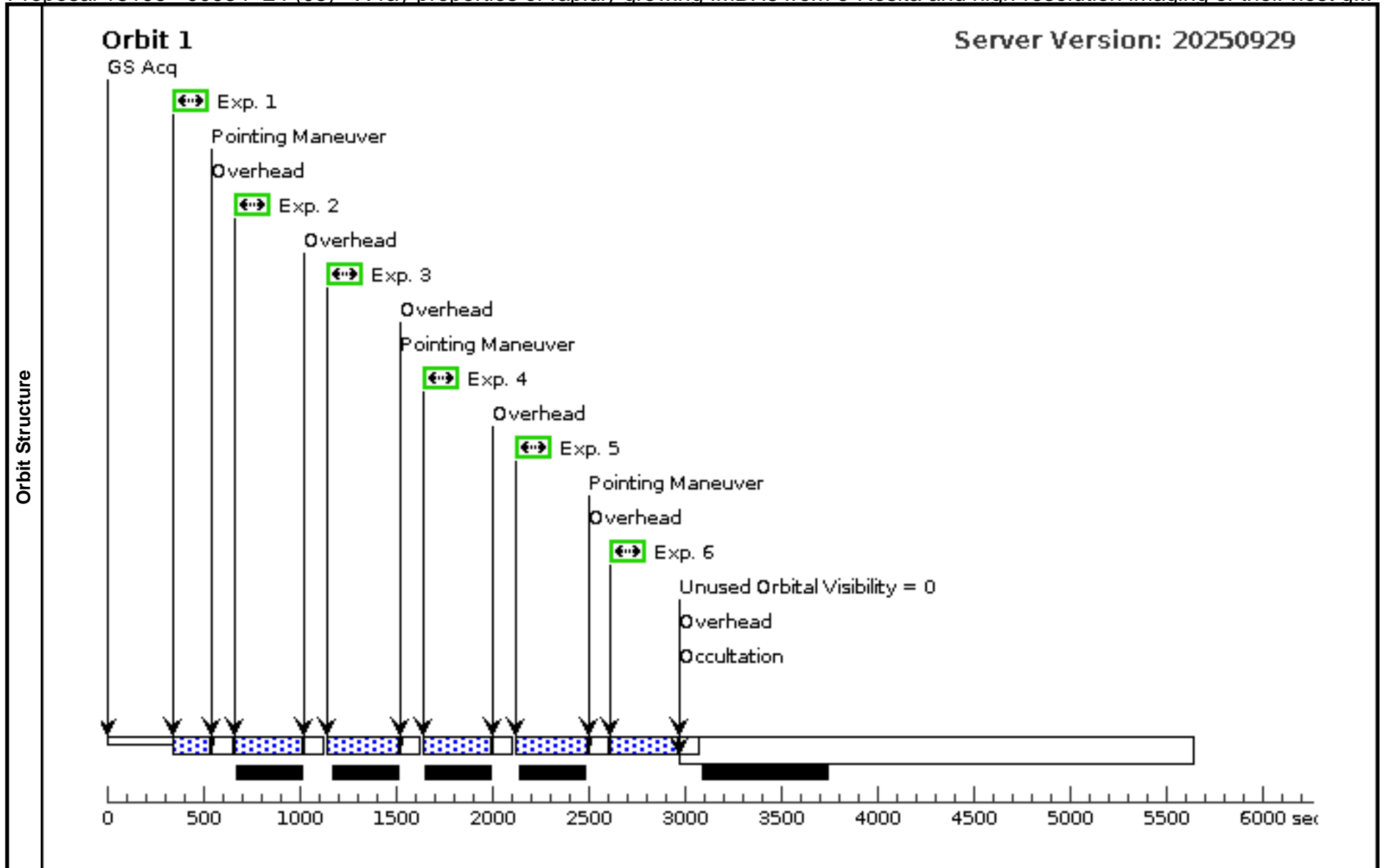
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	SDSSJ094314.26+102348.7	RA: 09 43 14.2600 (145.8094167d) Dec: +10 23 48.70 (10.39686d) Equinox: J2000		V=18.30+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		151 Secs (151 Secs)	
									[==>]	[1]
	2		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
								[==>]	[1]	
5		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
								[==>]	[1]	
6		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
								[==>]	[1]	



Proposal 18195 - J0934+24 (05) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

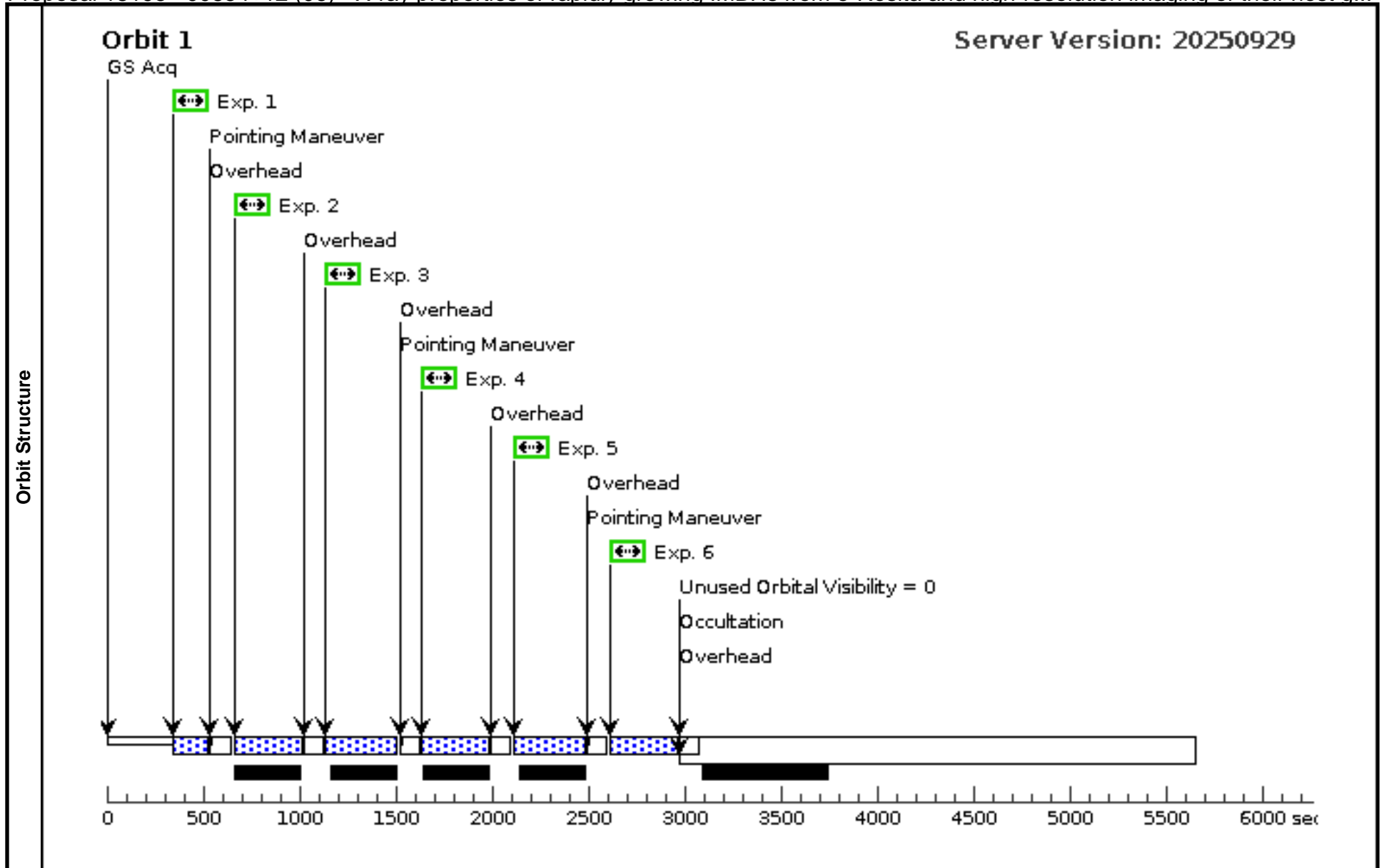
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	SDSSJ093401.24+245342.5	RA: 09 34 1.2400 (143.5051667d) Dec: +24 53 42.50 (24.89514d) Equinox: J2000		V=16.12+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		156 Secs (156 Secs)	
									[==>]	[1]
	2		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
								[==>]	[1]	
5		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
								[==>]	[1]	
6		(5) SDSSJ093401.24+245342.5	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
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Proposal 18195 - J0854+12 (06) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imaging of their host g...

Thu Jan 22 20:00:21 GMT 2026

Visit	Proposal 18195, J0854+12 (06), scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 0D TO 10 D; ORIENT 40D TO 270 D; ORIENT 310D TO 359.99 D									
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Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	SDSSJ085431.45+121757.2	RA: 08 54 31.4500 (133.6310417d) Dec: +12 17 57.20 (12.29922d) Equinox: J2000		V=17.68+/-0.03	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		151 Secs (151 Secs)	
									[==>]	[1]
	2		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)	
									[==>]	[1]
	3		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)	
									[==>]	[1]
	4		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)	
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5		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)		
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6		(6) SDSSJ085431.45 +121757.2	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)		
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Proposal 18195 - J0943+10 - visit 04 repeat (07) - X-ray properties of rapidly growing IMBHs from e-Rosita and high-resolution imagin...

Thu Jan 22 20:00:21 GMT 2026

Visit	Proposal 18195, J0943+10 - visit 04 repeat (07) Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous			
	(4)	SDSSJ094314.26+102348.7	RA: 09 43 14.2600 (145.8094167d) Dec: +10 23 48.70 (10.39686d) Equinox: J2000				V=18.30+/-0.03	Reference Frame: ICRS			
Comments: Category=GALAXY Description=[DWARF COMPACT, QSO] Extended=NO											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F350LP	FLASH=3	POS TARG 0,0		151 Secs (151 Secs)		
									[==>]		[1]
	2		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F350LP		POS TARG 0.099,0.106		348 Secs (348 Secs)		
									[==>]		[1]
	3		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 2		348 Secs (348 Secs)		
									[==>]		[1]
	4		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F300X	FLASH=21	SAME POS AS 1		348 Secs (348 Secs)		
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5		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 1		348 Secs (348 Secs)			
								[==>]		[1]	
6		(4) SDSSJ094314.26+102348.7	WFC3/UVIS, ACCUM, UVIS2	F600LP		SAME POS AS 2		348 Secs (348 Secs)			
								[==>]		[1]	

