



# 13815 - Early evolution of AGN X-ray coronae and the X-ray, BLR, disc-wind connection

Cycle: 22, 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) 6DFGS-GJ011908.7-341131	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	3	23-Jul-2014 21:44:14.0	yes

3 Total Orbits Used

## ABSTRACT

We request a quasi-simultaneous XMM-Newton and HST/STIS observation of GSN 069, a high-Eddington ratio true/unabsorbed Seyfert 2 galaxy candidate with

ultra-soft X-ray spectrum. From our study of previous X-ray/optical spectra and of UV photometric data, we infer that the lack of BLR in this

peculiar object may be attributed to either (i) the lack of hard X-ray emission or (ii) an evolutionary scenario in which the BLR are just forming. Recent Swift pointings have revealed the emergence of hard X-rays in GSN 069, making the proposed observation highly timely. GSN 069 may represent a true Rosetta stone with which to follow the formation and early evolution of the X-ray corona and to study the connection between X-rays and the BLR/disc-wind system.

## **OBSERVING DESCRIPTION**

The target is a bona-fide true Seyfert 2 galaxy candidate with unabsorbed and ultra-soft X-ray spectrum, but with a type 2 optical spectrum that was obtained quasi-simultaneously with the X-ray observation. From our study of previous X-ray/optical spectra and of UV photometric data, we infer that the lack of BLR in this peculiar object may be attributed to either (i) the lack of hard X-ray emission or (ii) an evolutionary scenario in which the BLR are just forming. Recent Swift pointings have revealed the emergence of hard X-rays in GSN 069, making the proposed observation highly timely. GSN 069 may represent a true Rosetta stone with which to follow the formation and early evolution of the X-ray corona and to study the connection between X-rays and the BLR/disc-wind system.

We plan to perform spectroscopic observations of the Active Galactic Nucleus in the galaxy 6DFGS-GJ011908.7-341131 (a.k.a. GSN069) with the STIS-MAMA using the G230L spectral element in the NUV and the G140L one in the FUV. In both cases, we shall use the 52x0.5 aperture. Of the 3 HST orbits assigned to our program, we devote the first to the target acquisition (point-source) and to the G230L observation. The remaining 2 orbits are devoted to the G140L observations.

With the HST observation, we will be able to obtain line fluxes and profiles for high-ionization emission lines such as Civ and for low-ionization ones such as Mgii. The spectra will be used to look for weak broad components that may reveal the early stages of the formation of the BLR or of an associated wind/outflow.

The HST observation is part of an XMM-Newton approved program and we aim at obtaining quasi-simultaneous HST/STIS and XMM-Newton data, although this is a preferred scheduling, not a strict science requirement. The HST scheduling should ideally be coordinated with the approved XMM-Newton observation (XMM-Newton proposal # 074096, PI: G. Miniutti): we would like to observe the target with HST and with XMM-Newton as simultaneously as possible. We do not set a precise time range, as this is only a preferred scheduling, not a strict requirement. In any case, if simultaneity is not possible, we prefer the XMM-Newton observation to be carried first, and the HST observation to be performed later, with as short as possible a delay. Again, no requirement, just a preferred scheduling.

Proposal 13815 - Visit1 (01) - Early evolution of AGN X-ray coronae and the X-ray, BLR, disc-wind connection

Thu Jul 24 01:44:15 GMT 2014

Visit	<b>Proposal 13815, Visit1 (01)</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/CCD, STIS/FUV-MAMA, STIS/NUV-MAMA Special Requirements: (none) <i>Comments: Visit comprising 3 orbits. The first orbit is devoted to 1 acquisition exposure and to 1 G230L scientific exposure. The remaining 2 orbits are devoted to 2 G140L scientific exposures.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	6DFGS-GJ011908.7-341131 Alt Name1: GSN069	RA: 01 19 8.6400 (19.7860000d) Dec: -34 11 30.45 (-34.19179d) Equinox: J2000	Redshift: 0.018186	V=15.5+/-0.5 Bj~16.2, R~15.3, E(B-V)~0.044	Reference Frame: ICRS			
	<i>Comments: To be coordinated with approved XMM-Newton observation (XMM-Newton proposal # 074096, PI: G. Miniutti). We would like to observe the target with HST and with XMM-Newton as simultaneously as possible. We do not set a precise time range, as this is only a preferred scheduling, not a strict requirement. In any case, if simultaneity is not possible, we prefer the XMM-Newton observation to be carried first, and the HST observation to be performed later, with as short as possible a delay. Again, no requirement, just a preferred scheduling.</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	acq (624771)	(1) 6DFGS-GJ01190 8.7-341131	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT			10 Secs (10 Secs)	
									[==>]	[1]
	2	G230L (624718)	(1) 6DFGS-GJ01190 8.7-341131	STIS/NUV-MAMA, ACCUM, 52X0.5	G230L 2376 A				2357 Secs (2357 Secs)	
									[==>]	[1]
3	G140L#1 (624717)	(1) 6DFGS-GJ01190 8.7-341131	STIS/FUV-MAMA, ACCUM, 52X0.5	G140L 1425 A				2965 Secs (2965 Secs)		
								[==>]	[2]	
4	G140L#2 (624717)	(1) 6DFGS-GJ01190 8.7-341131	STIS/FUV-MAMA, ACCUM, 52X0.5	G140L 1425 A				2965 Secs (2965 Secs)		
								[==>]	[3]	



