15442 - GSN 069: a recent AGN re-activation or a long-lasting Tidal Disruption Event ?

Cycle: 25, 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) 6DFGS-GJ011908.7-341131	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	3	17-Jan-2018 15:06:34.0	yes

3 Total Orbits Used

ABSTRACT

We request an XMM-Newton and HST/STIS observation of GSN 069, an ultra-soft, unabsorbed, highly variable X-ray source optically classified as a Seyfert 2 AGN. Its high Eddington ratio (0.5) makes GSN 069 an exceptional high Eddington ratio 'true Seyfert 2 galaxy' candidate. The data so far suggest two possible interpretations: 1) a recent re-activation of the AGN after a period of low activity or quiescence or 2) an unusual (but not unique) long-lived outburst due to a Tidal Disruption Event (TDE). With our joint XMM/HST program we aim at clarifying the nature of this most

exceptional source and derive constraints on the formation and evolution of BLR, disc winds, and AGN X-ray coronae in the first scenario, or on the nature of rare sustained TDEs in the second.

OBSERVING DESCRIPTION

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 search 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 formation and evolution of the BLR and/or of an associated wind/outflow.

The HST scheduling should ideally be coordinated with the approved XMM-Newton observation (XMM-Newton Obs.ID # 08236801, 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. According to the HST Visit and Orbit planners and to the XMM-Newton visibility tool, opportunities do exist for simultaneous observations especially from 3 of December 2018 to 17 of January 2019. However, we stress again that simultaneous observations are preferred, not mandatory.

Visit

Proposal 15442, Visit 1 (01) Wed Jan 17 20:06:35 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA

Special Requirements: (none)

Comments: Visit comprising 3 orbits. The first orbit is for target acquisition and for 1 scientific exposure with G230L. The other two orbits are for two scientific exposures with G140L.

Fixed Targets

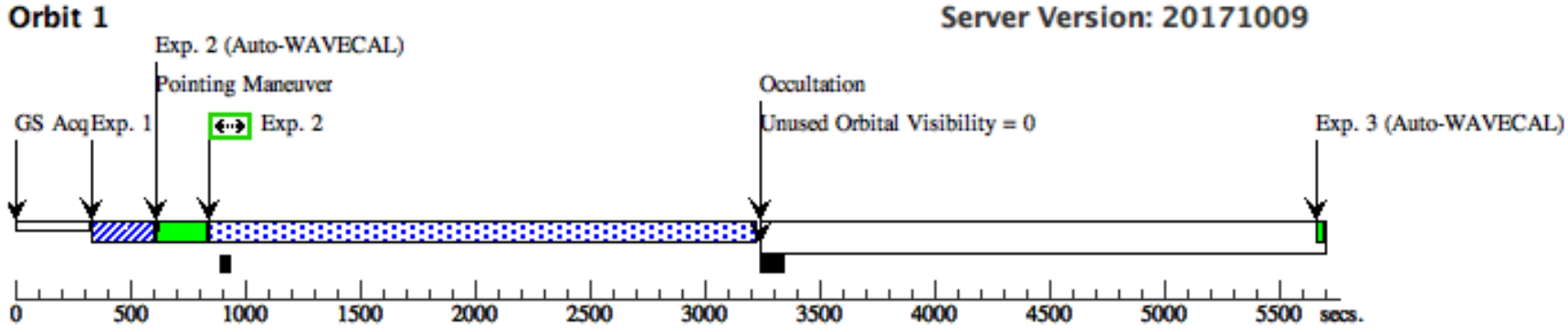
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	6DFGS-GJ011908.7-341131 Alt Name1: GSN069	RA: 01 19 8.6400 (19.7860000d) Dec: -34 11 30.47 (-34.19180d) Equinox: J2000	Redshift: 0.018186	V=15.5+/-0.5	Reference Frame: ICRS

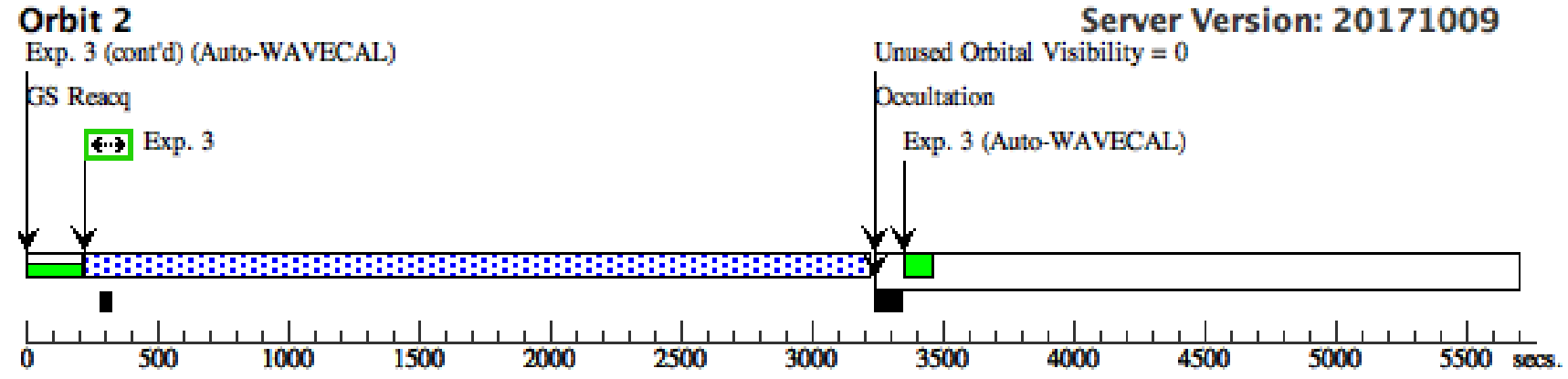
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[BLR, NUCLEUS, SEYFERT]

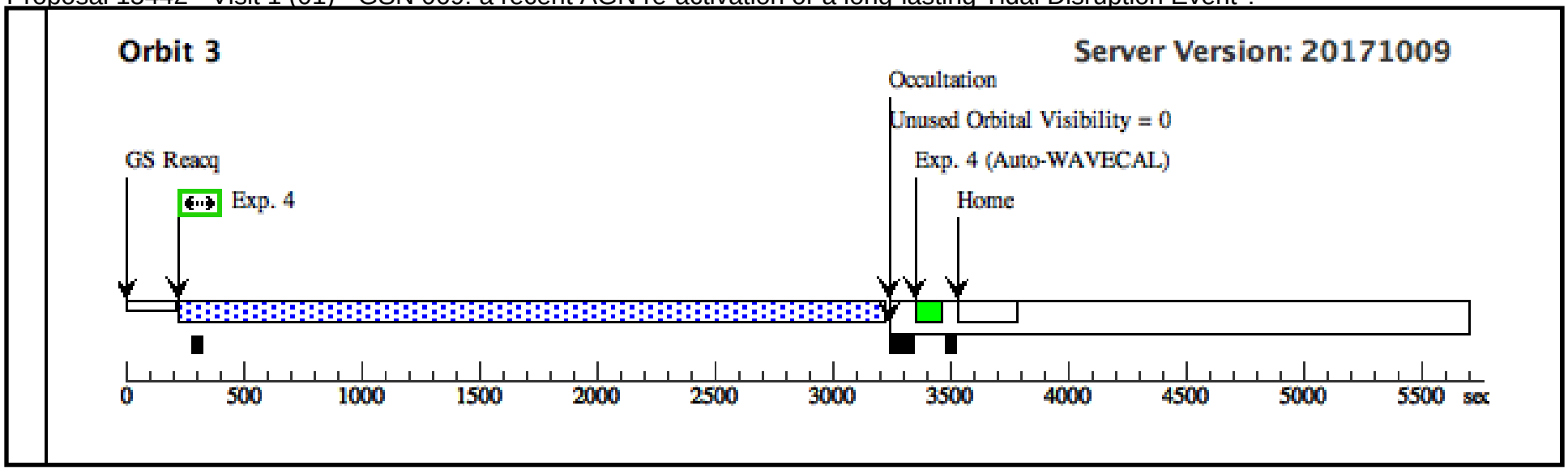
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1045275)	(1) 6DFGS-GJ011908.7-341131	STIS/CCD, ACQ, F28X50LP	MIRROR				10 Secs (10 Secs) *[==>]*	***[1]***
2	G230L (1045281)	(1) 6DFGS-GJ011908.7-341131	STIS/NUV-MAMA, ACCUM, 52X0.5	G230L 2376 A				2340 Secs (2340 Secs) *[==>]*	***[1]***
3	G140L first (1045283)	(1) 6DFGS-GJ011908.7-341131	STIS/FUV-MAMA, ACCUM, 52X0.5	G140L 1425 A				2948 Secs (2948 Secs) *[==>]*	***[2]***
4	G140 L second (1045283)	(1) 6DFGS-GJ011908.7-341131	STIS/FUV-MAMA, ACCUM, 52X0.5	G140L 1425 A				2948 Secs (2948 Secs) *[==>]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20171009
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 4
Exp. 4 (Auto-WAVECAL)
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