15898 - Planetary Pollution from the Habitable Zone of a White Dwarf

Cycle: 27, Proposal Category: GO

(UV Initiative)

(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) WD1054-226	STIS/CCD STIS/NUV-MAMA	4	08-Jul-2019 12:00:37.0	yes

4 Total Orbits Used

ABSTRACT

On 24 Mar 2019, using high-cadence photometry, we discovered the second white dwarf system with planetary transit events. We have confirmed the period of numerous events to all be 25 h, which corresponds to a semimajor axis well within the habitable zone of the stellar remnant. The transit activity is essentially continuous at the few to several percent level, from blue to red wavelengths with no color dependence. Here we propose STIS near-ultraviolet spectroscopy to constrain the bulk chemistry of the planetary material accreted by the white dwarf. These observations will be sensitive to silicon and carbon, which cannot be accessed via ground-based observations, and are key components of both rocky and icy planetary materials.

OBSERVING DESCRIPTION

The goal of this program is to obtain high S/N near-ultraviolet spectroscopy of the white dwarf WD1054-226 to probe for metal absorption lines. The visit structure is straigh-forward: we acquire the target with the F28X50LP broad-band filter, and then switch to G230L time-tagged spectroscopy.

Visit

Proposal 15898, WD1054-226 (01) Mon Jul 08 16:00:38 GMT 2019

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Fixed Targets

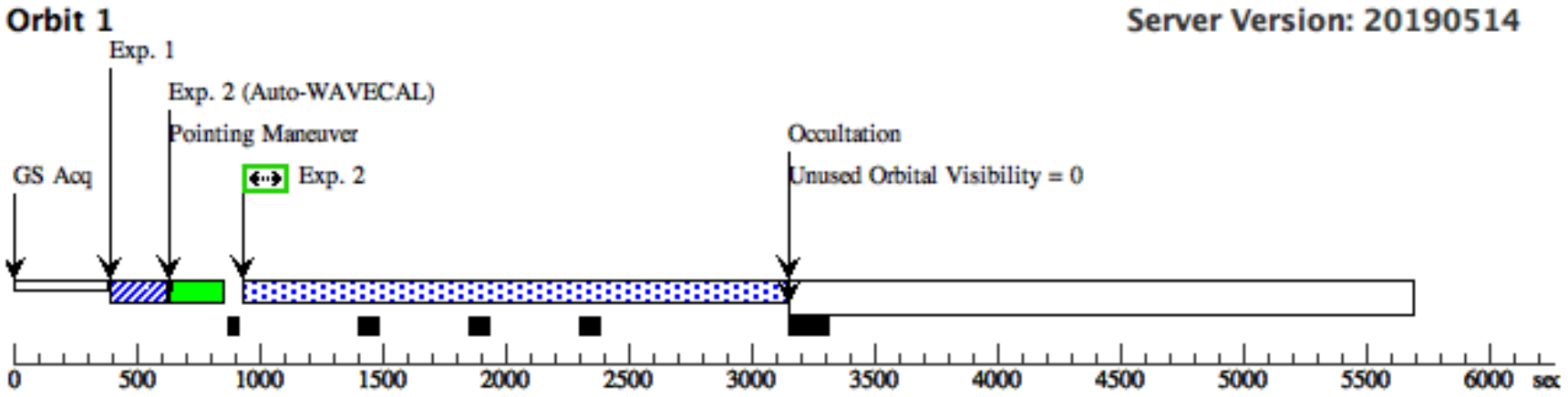
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD1054-226	RA: 10 56 38.6314 (164.1609642d) Dec: -22 52 56.08 (-22.88224d) Equinox: J2000	Proper Motion RA: -78.919 mas/yr Proper Motion Dec: 297.948 mas/yr Epoch of Position: 2000	V=16.0+/-0.1	Reference Frame: ICRS

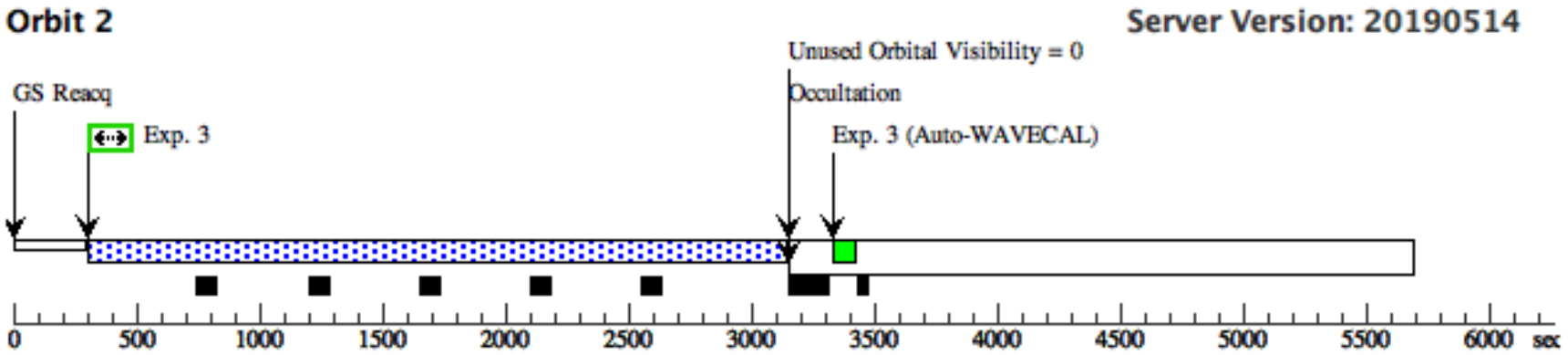
Comments: GALEX NUV=
Category=STAR
Description=[DA]
Extended=NO

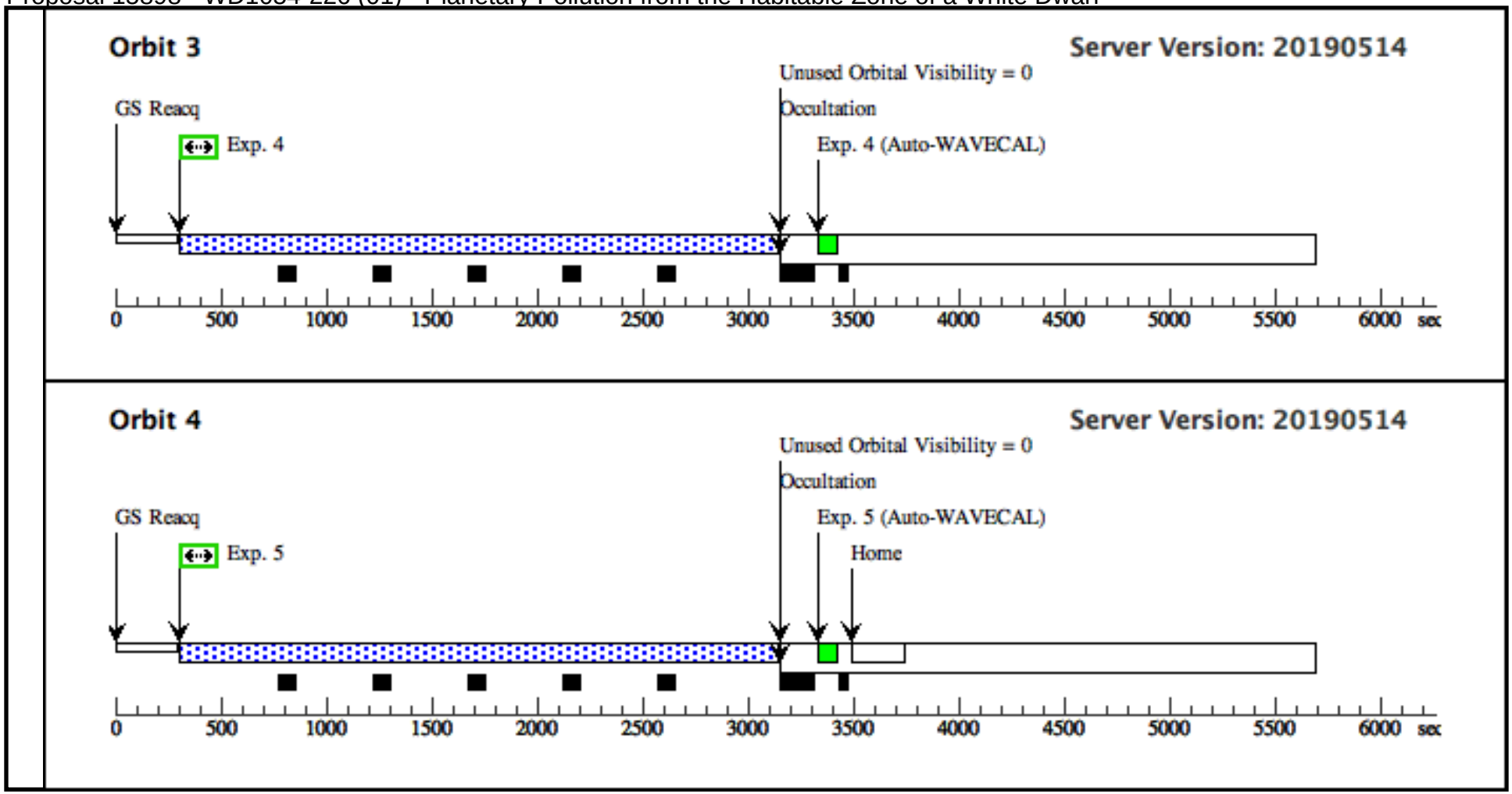
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1365202)	(1) WD1054-226	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs)	
								[==>]	***[1]***
2	(STIS.sp.1365204)	(1) WD1054-226	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=450			2175 Secs (2175 Secs)	
								[==>]	***[1]***
3	(STIS.sp.1365204)	(1) WD1054-226	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=450			2827 Secs (2827 Secs)	
								[==>]	***[2]***
4	(STIS.sp.1365204)	(1) WD1054-226	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=450			2804 Secs (2804 Secs)	
								[==>]	***[3]***
5	(STIS.sp.1365204)	(1) WD1054-226	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=450			2804 Secs (2804 Secs)	
								[==>]	***[4]***

Orbit Structure






Orbit 3
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Occultation
GS Reacq
Exp. 4
Exp. 4 (Auto-WAVECAL)
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 4
Server Version: 20190514
Unused Orbital Visibility = 0
Occultation
GS Reacq
Exp. 5
Exp. 5 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec