



14467 - A White Dwarf with an Actively Disintegrating Asteroid

Cycle: 23, 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) WD-1145+017	COS/FUV COS/NUV	5	30-Jan-2016 21:04:04.0	yes

5 Total Orbits Used

ABSTRACT

We have recently discovered a white dwarf where an asteroid is actively disintegrating. Using data from K2, transits with periods less than 5 hours have been detected from at least 6 fragments. Evidence for circumstellar dust is found by comparing UKIDSS and WISE data. High-resolution optical spectroscopic data from Keck show that the host star is heavily polluted with 11 heavy elements and circumstellar gas. We propose follow-up with time-resolved ultraviolet spectroscopy with the Cosmic Origins Spectrograph to: (i) detect new photospheric elements such as carbon; (ii)

monitor any changes of the circumstellar absorption lines during a transit; (iii) measure a transit light curve in the ultraviolet to compare with simultaneous ground-based photometry which we will separately acquire.

OBSERVING DESCRIPTION

We aim to understand WD 1145+017 system, which has a heavily polluted atmosphere, a dust disk, circumstellar gas as well as six or more transiting planetesimals. Specifically, our goal is threefold: (i) to detect new elements that only have transitions in the ultraviolet; (ii) use TIME-TAG data to monitor the potential changes of circumstellar lines; (iii) measure a transit light curve in the ultraviolet.

To cover all the lines of interest, we will employ the G130M grating with a central wavelength of 1291 Angstrom and a wavelength coverage of 1137-1274 Angstrom and 1292-1432 Angstrom. For target acquisition, we will employ both ACQ/SEARCH and ACQ/IMG.

Proposal 14467 - Visit 01 - A White Dwarf with an Actively Disintegrating Asteroid

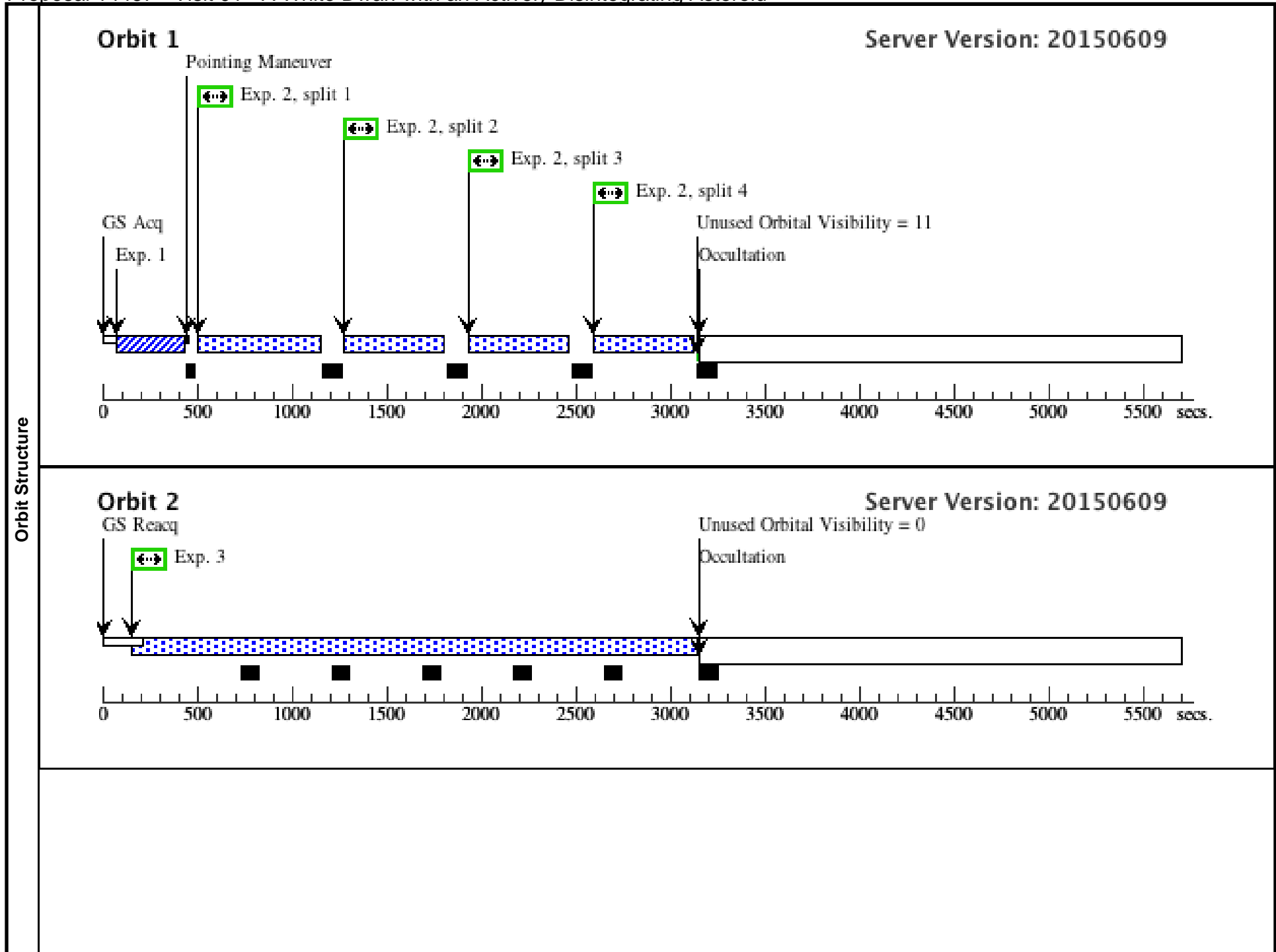
Sun Jan 31 02:04:06 GMT 2016

Visit	Proposal 14467, Visit 01, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 40%
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Diagnostics	(Visit 01) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS
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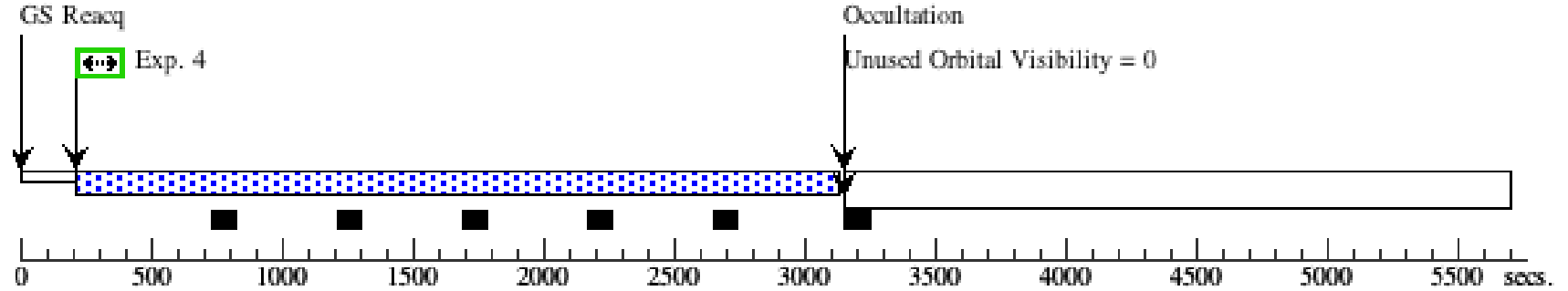
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>WD-1145+017</td> <td>RA: 11 48 33.6270 (177.1401125d) Dec: +01 28 59.45 (1.48318d) Equinox: J2000</td> <td>Proper Motion RA: -43.3 mas/yr Proper Motion Dec: -7 mas/yr Epoch of Position: 2000</td> <td>V=17.3</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	WD-1145+017	RA: 11 48 33.6270 (177.1401125d) Dec: +01 28 59.45 (1.48318d) Equinox: J2000	Proper Motion RA: -43.3 mas/yr Proper Motion Dec: -7 mas/yr Epoch of Position: 2000	V=17.3	Reference Frame: ICRS
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Comments: Extended=NO													

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (COS.ta.756 092)	(1) WD-1145+017	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20 Secs (20 Secs) [==>]	[1]
	2	WD1145+0 17_All (COS.sp.756 093)	(1) WD-1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	SEGMENT=BOTH; FP-POS=ALL; FLASH=YES; BUFFER-TIME=48 0			1000 Secs (1920 Secs) [==>480.0 Secs (Split 1)] [==>480.0 Secs (Split 2)] [==>480.0 Secs (Split 3)] [==>480.0 Secs (Split 4)]	[1]
	3	WD1145+0 17_1 (COS.sp.756 093)	(1) WD-1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=48 0; SEGMENT=BOTH; FLASH=YES; FP-POS=1			2940 Secs (2870 Secs) [==>2870.0 Secs]	[2]
	4	WD1145+0 17_2 (COS.sp.756 093)	(1) WD-1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=48 0; SEGMENT=BOTH; FLASH=YES; FP-POS=2			2945 Secs (2870 Secs) [==>2870.0 Secs]	[3]
	5	WD1145+0 17_3 (COS.sp.756 093)	(1) WD-1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=48 0; SEGMENT=BOTH; FLASH=YES; FP-POS=3			2945 Secs (2870 Secs) [==>2870.0 Secs]	[4]
	6	WD1145+0 17_4 (COS.sp.756 093)	(1) WD-1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=48 0; SEGMENT=BOTH; FLASH=YES; FP-POS=4			2944 Secs (2870 Secs) [==>2870.0 Secs]	[5]



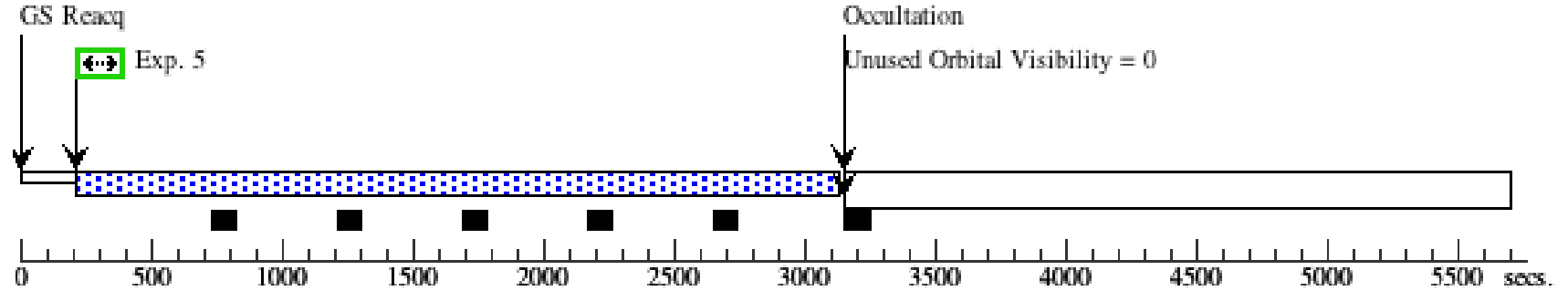
Orbit 3

Server Version: 20150609



Orbit 4

Server Version: 20150609



Orbit 5

Server Version: 20150609

