12565 - Primordial Carbon Abundances in Extremely Metal-Poor Stars

Cycle: 19, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
02	(2) HD84937	COS/NUV	1	10-Feb-2012 21:02:52.0	yes
03	(3) BD-13D3442	COS/NUV	2	10-Feb-2012 21:03:00.0	yes
04	(4) G64-12	COS/NUV	2	10-Feb-2012 21:03:06.0	yes
05	(5) LP815-43	COS/NUV	2	10-Feb-2012 21:03:15.0	yes
01	(1) BD+03D0740	COS/NUV	1	10-Feb-2012 21:03:20.0	yes
51	(1) BD+03D0740	COS/NUV	1	10-Feb-2012 21:03:25.0	yes

9 Total Orbits Used

ABSTRACT

We propose a novel approach towards defining the intital carbon abundance of extremely metal-poor stars. We will observe the C I 1930.9A line, which is detectable in unevolved turnoff stars even for [Fe/H] < -3.0. COS 1941A spectra and ground-based echelle spectra of the CH bands at 3142A and 4315A will both be analyzed with theoretical spectral calculations, and the results compared to understand better the effect of atmospheric convective motions on the CH features normally used for carbon determinations. Because the low-excitation C I 1930.9A line is virtually immune from non-LTE effects, the results should place the carbon abundances of these stars on a firm footing, of importance for theoretical scenarios of single star formation at these low metallicities.

OBSERVING DESCRIPTION

We will determine the carbon abundance of five extremely metal-poor stars from the C I line at 1903.9A, using near-UV spectra obtained in this program. These, and ground-based echelle spectra of the CH bands at 3142A and 4315A, will be analyzed by overplotting theoretical spectral calculations broadened by the appropriate the instrumental resolution.

Visit

Proposal 12565, Visit 02, completed Sat Feb 11 02:03:30 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

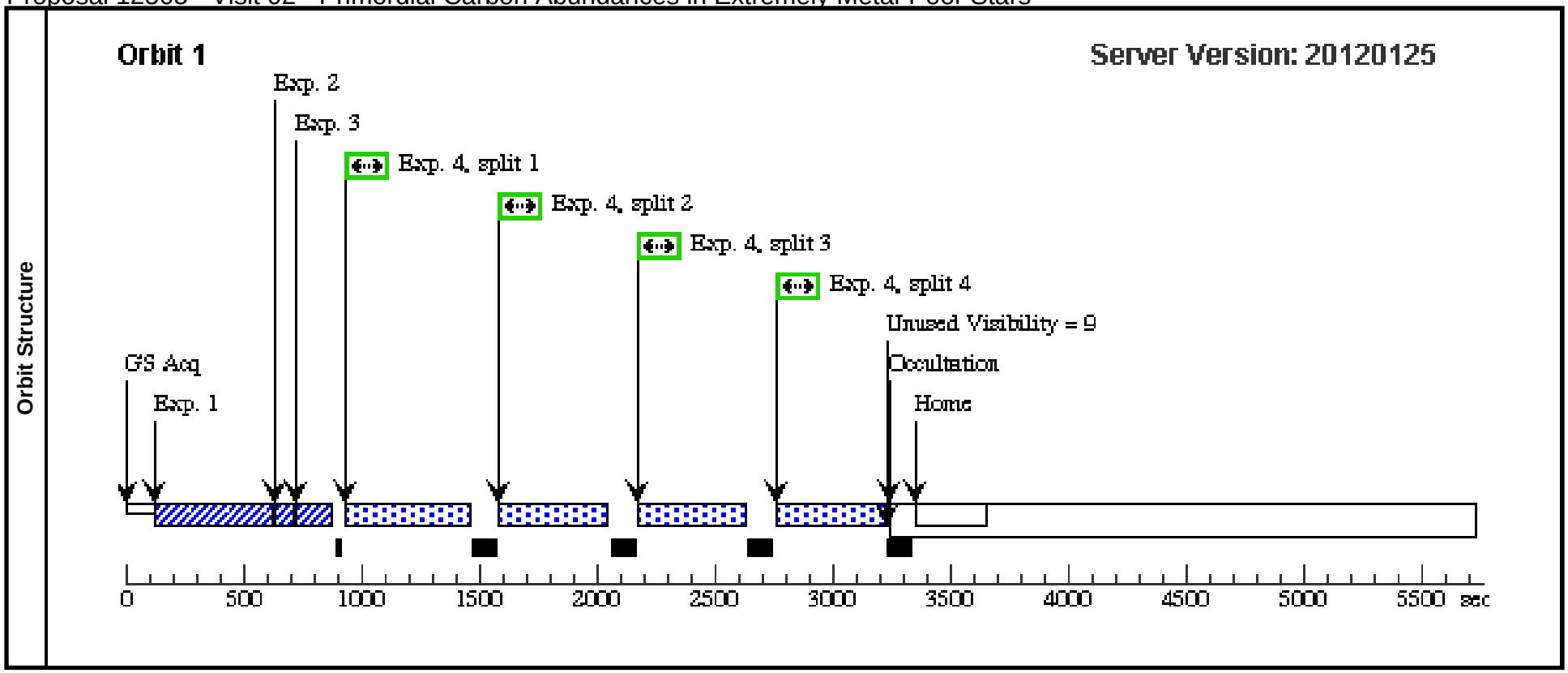
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	HD84937 Alt Name1: HIP48152 Alt Name2: TYC834-654-1	RA: 09 48 55.8860 (147.2328583d) Dec: +13 44 46.26 (13.74618d) Equinox: J2000	Proper Motion RA: +373.05 mas/yr Proper Motion Dec: -774.38 mas/yr Parallax: .01374" Epoch of Position: 1991.36 Radial Velocity: -16.7 km/sec	V=8.28 B 8.69	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
RA, Dec, and Epoch from Tycho2 I/259.
Proper Motion RA & Dec and Parallax from Hipparchos I/311.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179902)	(2) HD84937	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			0.6 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179904)	(2) HD84937	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				1.6 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179902)	(2) HD84937	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			0.6 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.179945)	(2) HD84937	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=442; FLASH=YES; FP-POS=ALL			442 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***


Orbit Structure
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Server Version: 20120125
Exp. 2
Exp. 3
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Visibility = 9
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12565, Visit 03, completed Sat Feb 11 02:03:30 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Fixed Targets

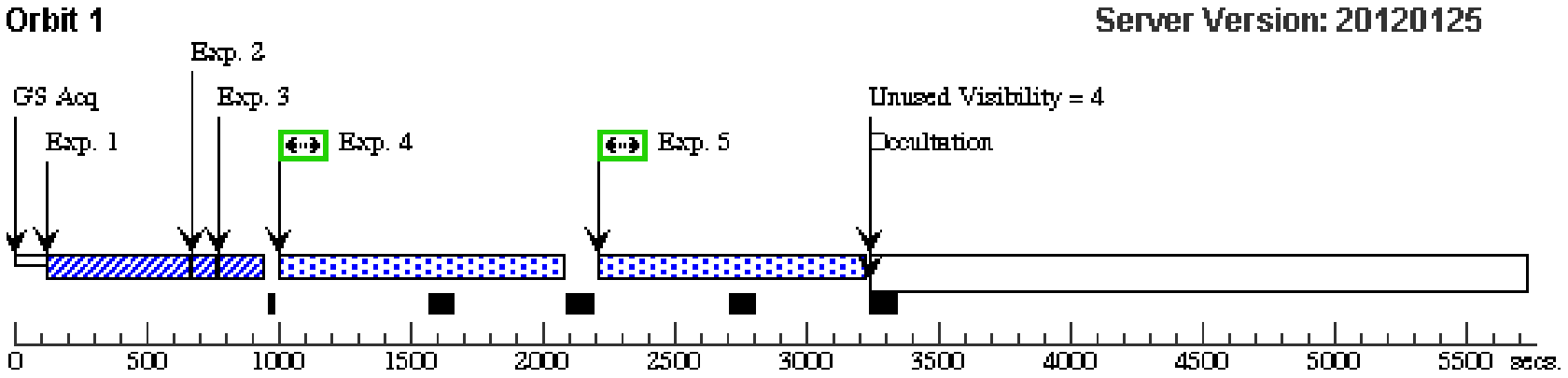
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	BD-13D3442 Alt Name1: TYC5523-1415-1	RA: 11 46 50.6360 (176.7109833d) Dec: -14 06 41.84 (-14.11162d) Equinox: J2000	Proper Motion RA: +25.0 mas/yr Proper Motion Dec: -196.7 mas/yr Parallax: 0" Epoch of Position: 1991.77 Radial Velocity: +159 km/sec	V=10.37 B 10.69	Reference Frame: ICRS

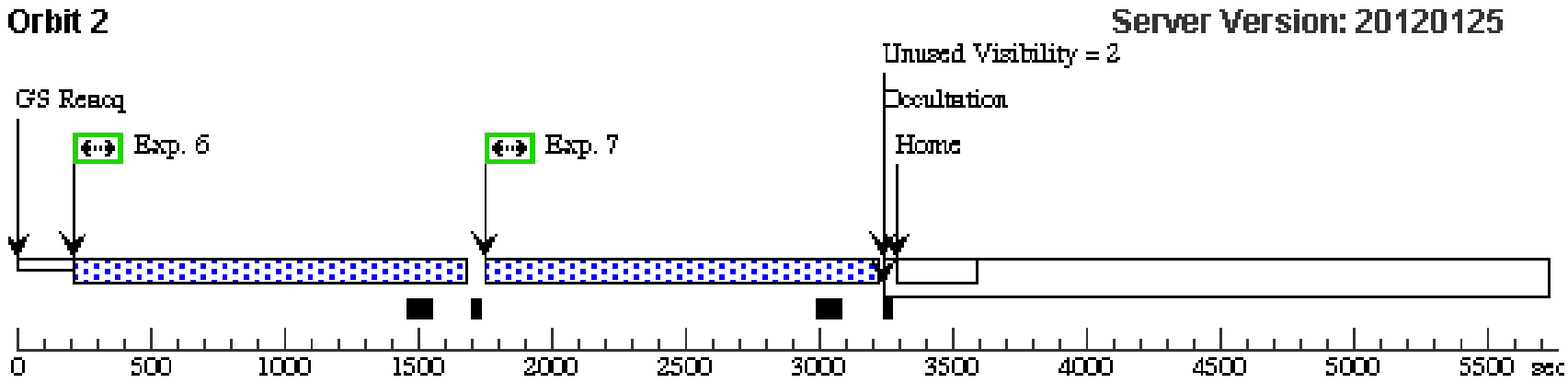
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
RA, Dec, Epoch, and Proper Motion RA & Dec are from Tycho2, catalog I/259.
No parallax found.
B from SIMBAD.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179910)	(3) BD-13D3442	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			5.1 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179911)	(3) BD-13D3442	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				11.9 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179910)	(3) BD-13D3442	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			5.1 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.180297)	(3) BD-13D3442	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=5000; FLASH=YES; FP-POS=1			996 Secs *[==>]*	***[1]***
5	spectrum (cos.sp.180297)	(3) BD-13D3442	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=5000; FLASH=YES; FP-POS=2			996 Secs *[==>]*	***[1]***
6	spectrum (cos.sp.180297)	(3) BD-13D3442	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1240; FLASH=YES; FP-POS=3			1457 Secs *[==>]*	***[2]***
7	spectrum (cos.sp.180297)	(3) BD-13D3442	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1240; FLASH=YES; FP-POS=4			1457 Secs *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 12565, Visit 04, scheduling Sat Feb 11 02:03:31 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Fixed Targets

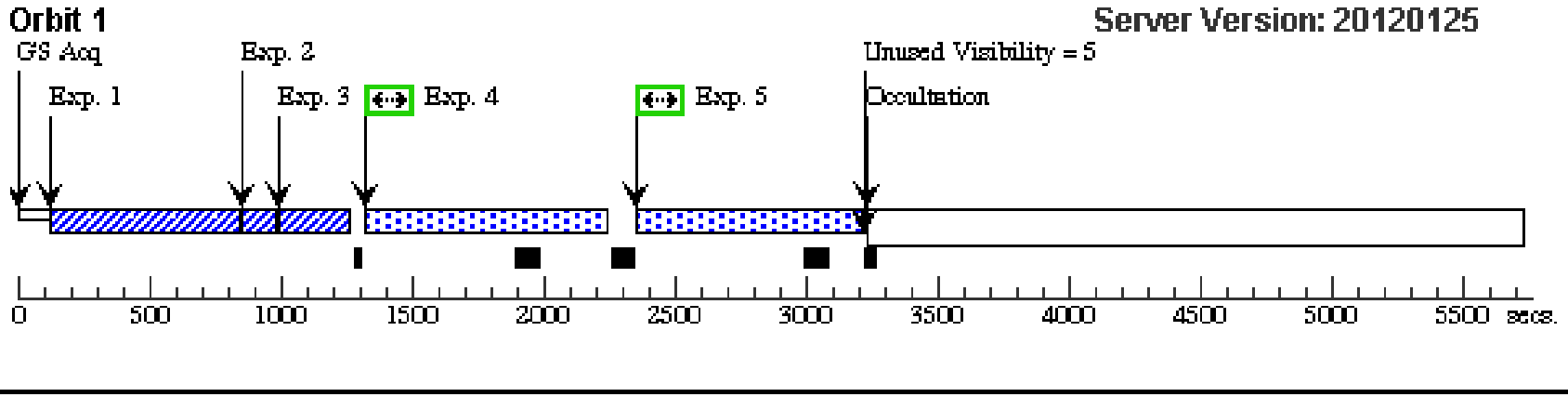
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	G64-12 Alt Name1: HIP66673 Alt Name2: TYC4967-579-1	RA: 13 40 2.6240 (205.0109333d) Dec: -00 02 18.08 (-.03836d) Equinox: J2000	Proper Motion RA: -226.8 mas/yr Proper Motion Dec: -83.3 mas/yr Parallax: .00057" Epoch of Position: 1991.57 Radial Velocity: +442.5 km/sec	V=11.49 B 11.87	Reference Frame: ICRS

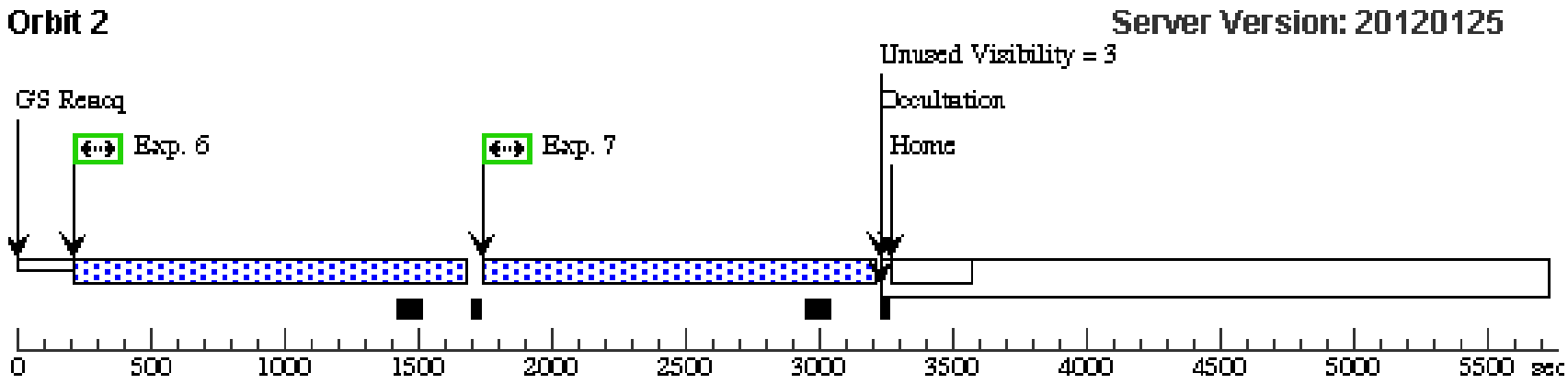
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
RA, Dec, Epoch, and Proper Motion RA & Dec from Tycho2 I/259.
Parallax from Hipparchos I/311.
B from SIMBAD.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179912)	(4) G64-12	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			25.4 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179914)	(4) G64-12	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				48.4 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179912)	(4) G64-12	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			25.4 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.180300)	(4) G64-12	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=500; FLASH=YES; FP-POS=1			839 Secs *[==>]*	***[1]***
5	spectrum (cos.sp.180300)	(4) G64-12	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=635; FLASH=YES; FP-POS=2			839 Secs *[==>]*	***[1]***
6	spectrum (cos.sp.180300)	(4) G64-12	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1200; FLASH=YES; FP-POS=3			1451 Secs *[==>]*	***[2]***
7	spectrum (cos.sp.180300)	(4) G64-12	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1200; FLASH=YES; FP-POS=4			1451 Secs *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 12565, Visit 05, scheduling Sat Feb 11 02:03:32 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Fixed Targets

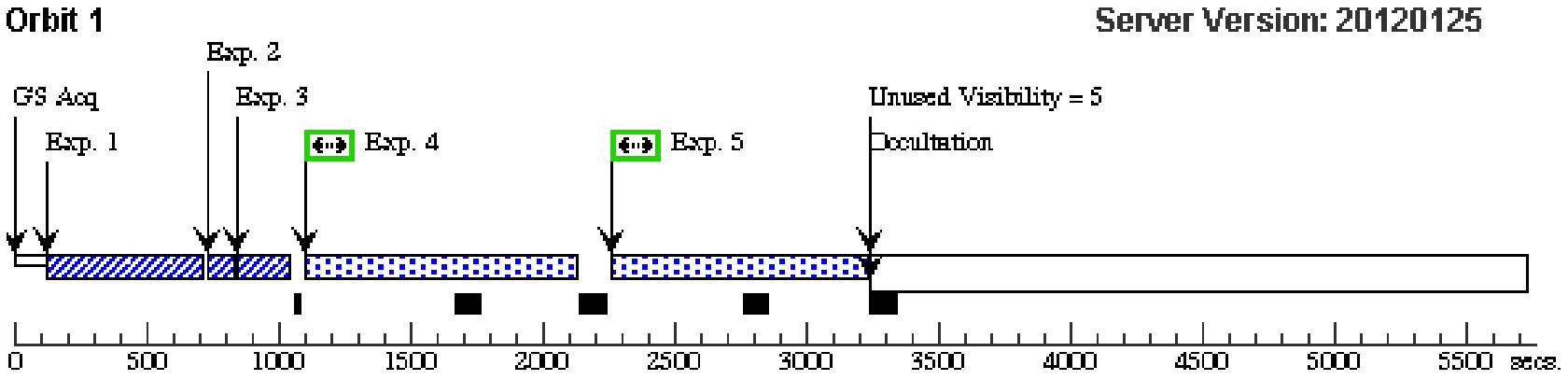
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	LP815-43 Alt Name1: TYC6338-816-1	RA: 20 38 13.3630 (309.5556792d) Dec: -20 26 8.92 (-20.43581d) Equinox: J2000	Proper Motion RA: -111.5 mas/yr Proper Motion Dec: -225.1 mas/yr Parallax: 0" Epoch of Position: 1991.48	V=10.91 B 11.29	Reference Frame: ICRS

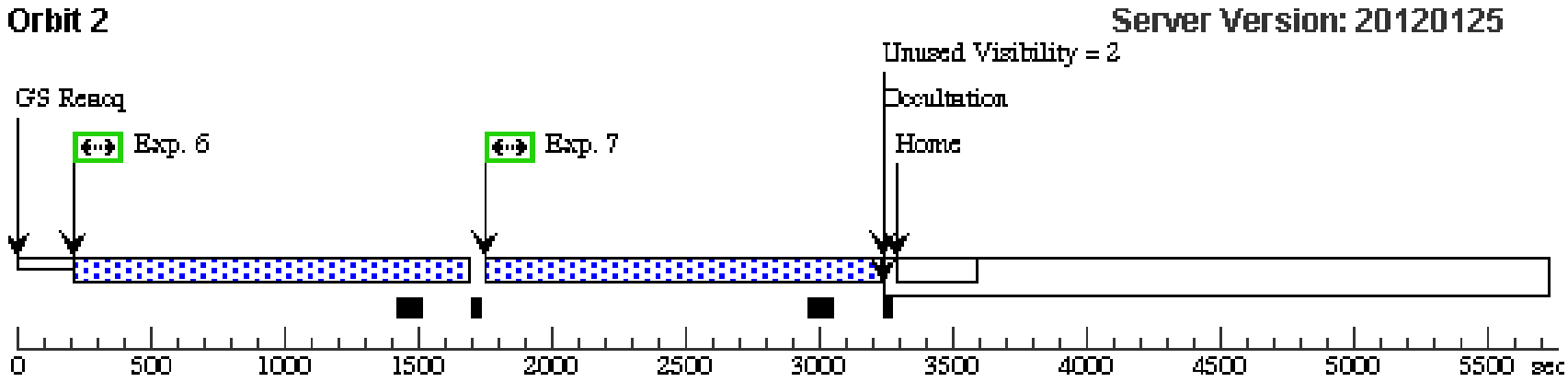
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
RA, Dec, Epoch, and Proper Motion RA & Dec from Tycho2 catalog I/259.
No parallax found.
B from SIMBAD.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179915)	(5) LP815-43	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			11.2 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179916)	(5) LP815-43	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				23.6 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179915)	(5) LP815-43	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			11.2 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.180306)	(5) LP815-43	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=5000; FLASH=YES; FP-POS=1			949 Secs *[==>]*	***[1]***
5	spectrum (cos.sp.180306)	(5) LP815-43	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=5000; FLASH=YES; FP-POS=2			949 Secs *[==>]*	***[1]***
6	spectrum (cos.sp.180306)	(5) LP815-43	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1200; FLASH=YES; FP-POS=3			1459 Secs *[==>]*	***[2]***
7	spectrum (cos.sp.180306)	(5) LP815-43	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=1200; FLASH=YES; FP-POS=4			1459 Secs *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 12565, Visit 01, completed Sat Feb 11 02:03:33 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

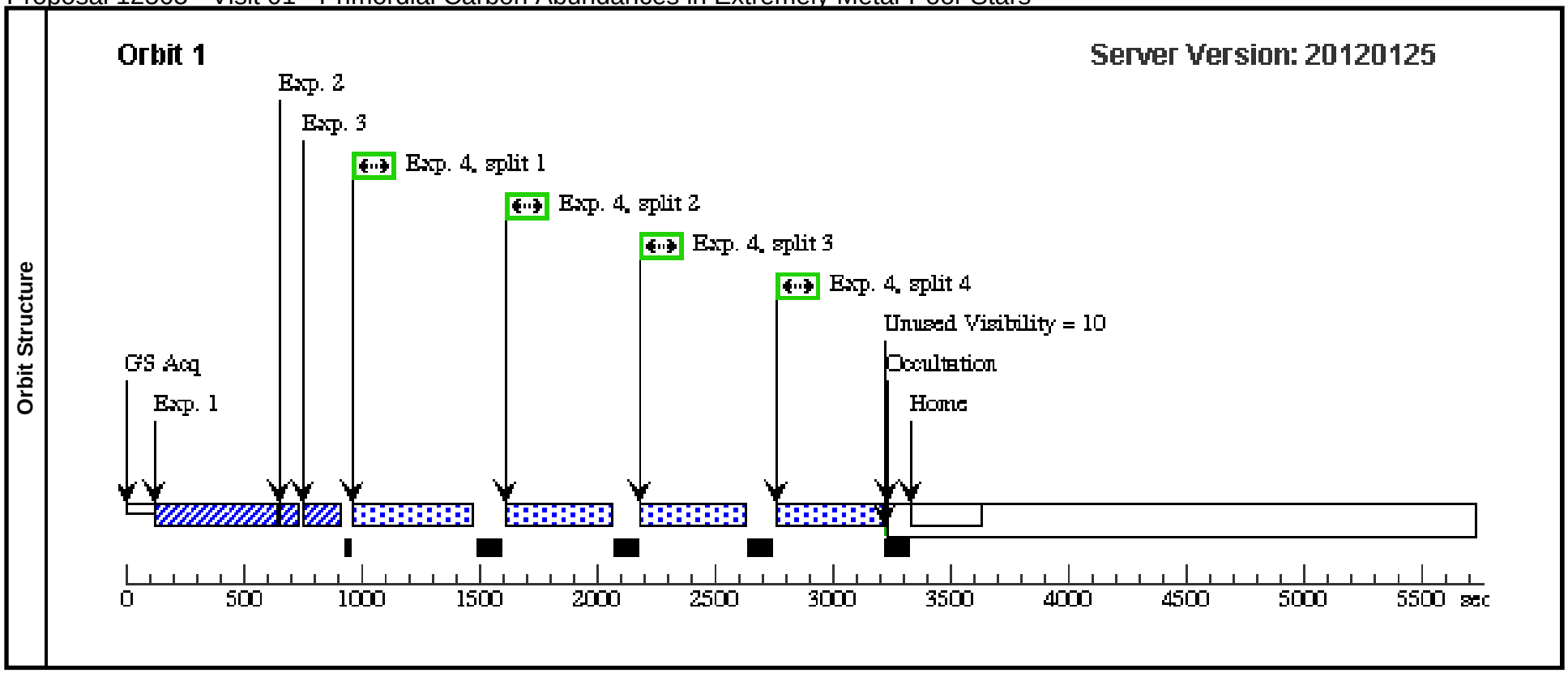
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	BD+03D0740 Alt Name1: HIP23344 Alt Name2: TYC106-1237-1	RA: 05 01 16.5360 (75.3189000d) Dec: +04 06 38.27 (4.11063d) Equinox: J2000	Proper Motion RA: +156.3 mas/yr Proper Motion Dec: -142.7 mas/yr Parallax: .00879" Epoch of Position: 1991.58 Radial Velocity: +173.9 km/sec	V=9.82 B 10.18	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Parallax from Hipparcos I/311.
RA, Dec, Epoch, Proper motion RA & Dec from Tycho2 I/259.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179906)	(1) BD+03D0740	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			2.8 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179908)	(1) BD+03D0740	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				7.0 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179906)	(1) BD+03D0740	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			2.8 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.180294)	(1) BD+03D0740	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=4300; FLASH=YES; FP-POS=ALL			430 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120125
Exp. 2
Exp. 3
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Visibility = 10
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12565, Visit 51 Sat Feb 11 02:03:33 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: This visit is a repeat of failed visit 01

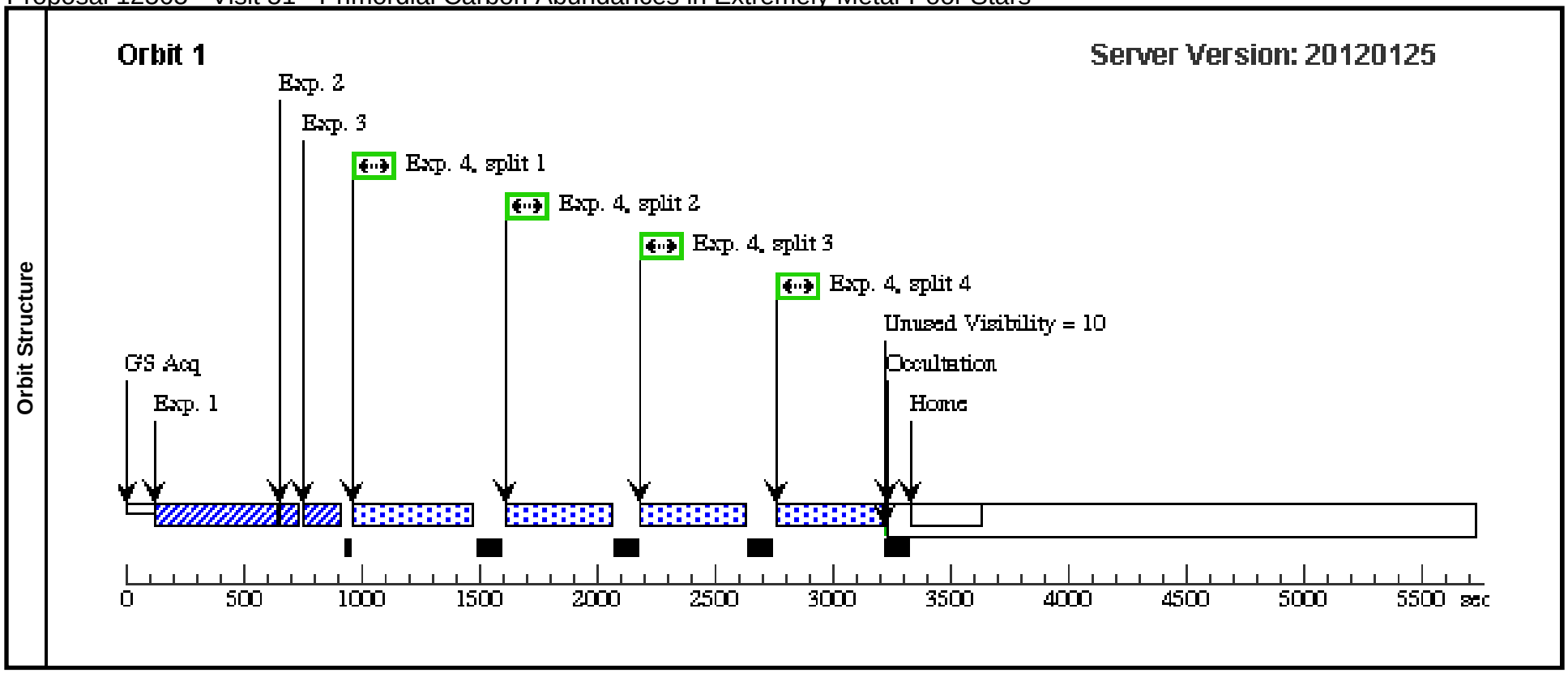
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	BD+03D0740 Alt Name1: HIP23344 Alt Name2: TYC106-1237-1	RA: 05 01 16.5360 (75.3189000d) Dec: +04 06 38.27 (4.11063d) Equinox: J2000	Proper Motion RA: +156.3 mas/yr Proper Motion Dec: -142.7 mas/yr Parallax: .00879" Epoch of Position: 1991.58 Radial Velocity: +173.9 km/sec	V=9.82 B 10.18	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Parallax from Hipparcos I/311.
RA, Dec, Epoch, Proper motion RA & Dec from Tycho2 I/259.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	sp.acq/srch (cos.sa.179906)	(1) BD+03D0740	COS/NUV, ACQ/SEARCH, PSA	G185M 1921 A	SCAN-SIZE=3; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR			2.8 Secs *[==>]*	***[1]***
2	sp.acq/xd (cos.sa.179908)	(1) BD+03D0740	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				7.0 Secs *[==>]*	***[1]***
3	sp.acq/d (cos.sa.179906)	(1) BD+03D0740	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR			2.8 Secs *[==>]*	***[1]***
4	spectrum (cos.sp.180294)	(1) BD+03D0740	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=4300; FLASH=YES; FP-POS=ALL			430 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120125
Exp. 2
Exp. 3
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Visibility = 10
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec