12524 - Enabling High-z Discoveries Through UV Spectroscopy of Low-Redshift Super-Luminous Supernovae

Cycle: 19, Proposal Category: GO

(Availability Mode: SUPPORTED)

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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	(2) PTF11RKS	WFC3/UVIS	1	04-Jun-2012 21:09:01.0	yes
02	(3) PTF12DAM	WFC3/UVIS	1	04-Jun-2012 21:09:08.0	yes
03	(3) PTF12DAM	WFC3/UVIS	1	04-Jun-2012 21:09:14.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
04	(3) PTF12DAM	WFC3/UVIS	1	04-Jun-2012 21:09:20.0	yes
53	(3) PTF12DAM	WFC3/UVIS	1	04-Jun-2012 21:09:26.0	yes

5 Total Orbits Used

ABSTRACT

A new class of stellar outbursts dwarfing the most powerful supernovae observed in the past century has recently been uncovered by wide field optical imaging surveys. With peak luminosities in excess of 10^44 erg/s and total radiative outputs greater than 10^51 erg, these events push the limits of conventional supernova explosion theory. A few of these events have now been monitored by Swift, and these observations reveal high-UV luminosities as well. These super-luminous supernovae (SLSNe) are thus of great potential interest for probing the high redshift universe, but current constraints on their (time-variable) UV spectral energy distributions are weak. This leads to significant uncertainties as to the observational signatures of high-redshift SLSNe in optical or IR studies. To address this, we propose a ToO program for NUV spectroscopy to follow-up new SLSNe discoveries in Cycle 19 supplemented with Swift UV photometry and ground based optical imaging and spectroscopy from the Keck and Palomar observatories.

OBSERVING DESCRIPTION

We will acquire NUV spectra of one superluminous supernova (SLSN) with the UVIS G280 grism on WFC3 over four epochs to monitor its spectral evolution. Each observation will consist of a single orbit. The first observation should take place soon after the target is discovered and spectroscopically confirmed from the ground. Subsequent observations may be scheduled at 7 to 14 day intervals and are thus non-disruptive.

Our targets will be supplied by PTF survey, although we could include discoveries from ROTSE-III or elsewhere in exceptional circumstances. Targets must have spectroscopically confirmed redshifts and be classified as SLSNe.

Visit

Proposal 12524, Visit 01, completed Tue Jun 05 01:09:32 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 16-JAN-2012:00:00:00 AND 21-JAN-2012:00:00:00

Comments: NUV spectra of PTF11rks

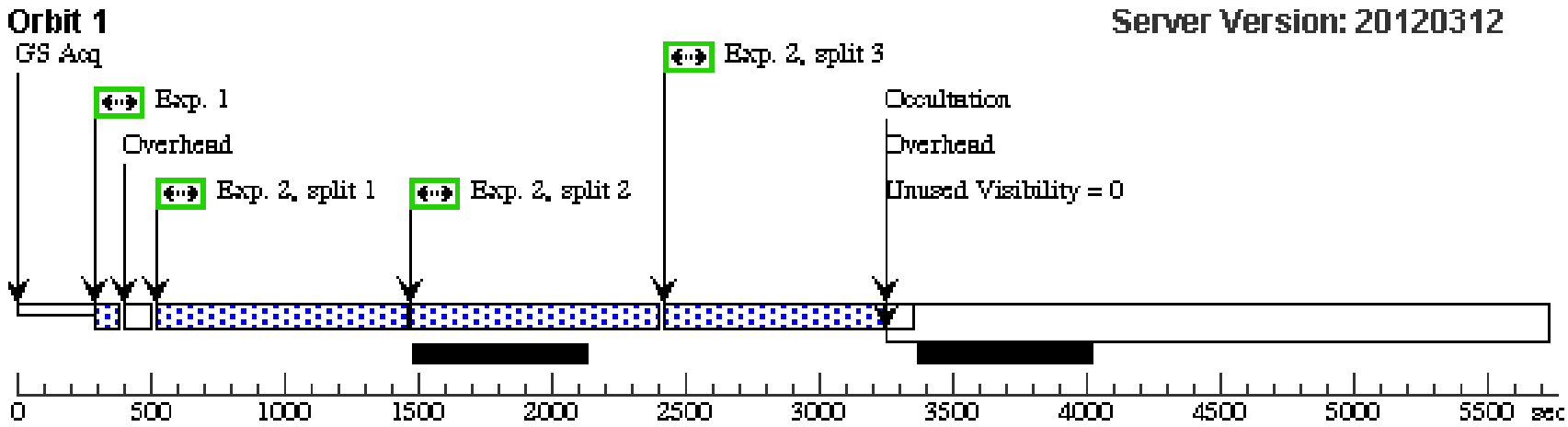
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	PTF11RKS	RA: 01 39 45.5083 (24.9396179d) Dec: +29 55 27.01 (29.92417d) Equinox: J2000		V=19.3+/-0.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Acquisition	(2) PTF11RKS	WFC3/UVIS, ACCUM, G280-REF	F300X		POS TARG 0,-50		62 Secs *[==>]*	 ***[1]***
2	NUV grism spectra	(2) PTF11RKS	WFC3/UVIS, ACCUM, UVIS	G280	CR-SPLIT=3	POS TARG null,-50		2460 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	 ***[1]***

Orbit Structure



Visit

Proposal 12524, Visit 02, completed Tue Jun 05 01:09:33 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 21-MAY-2012:00:00:00 AND 28-MAY-2012:00:00:00

Comments: NUV spectra of PTF12dam

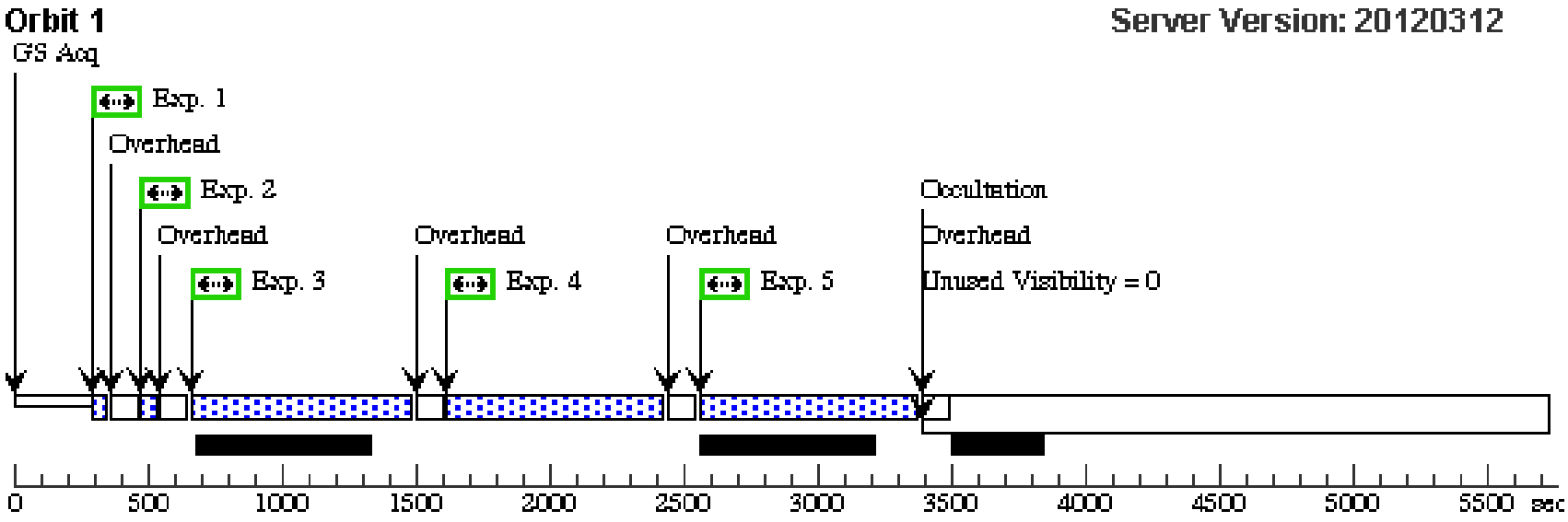
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	PTF12DAM	RA: 14 24 46.2002 (216.1925008d) Dec: +46 13 48.32 (46.23009d) Equinox: J2000		V=17.3+/-0.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	pre-acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F200LP		POS TARG 0,-50; GS ACQ SCENARIO BASE1B3		20 Secs *[==>]*	 ***[1]***
2	acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F300X		POS TARG 0,-50		30 Secs *[==>]*	 ***[1]***
3	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
4	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
5	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 12524, Visit 03, scheduled Tue Jun 05 01:09:33 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 02 BY 3 D TO 45 D

Comments: NUV spectra of PTF12dam

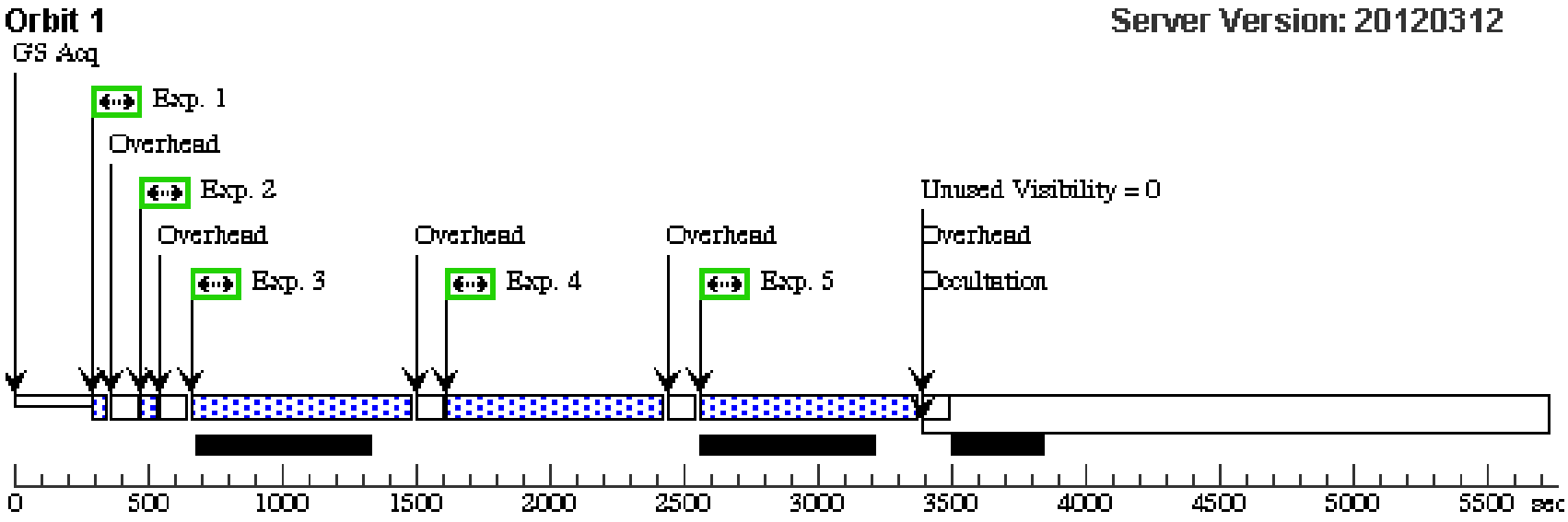
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	PTF12DAM	RA: 14 24 46.2002 (216.1925008d) Dec: +46 13 48.32 (46.23009d) Equinox: J2000		V=17.3+/-0.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	pre-acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F200LP		POS TARG 0,-50; GS ACQ SCENARIO BASE1B3		20 Secs *[==>]*	 ***[1]***
2	acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F300X		POS TARG 0,-50		30 Secs *[==>]*	 ***[1]***
3	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
4	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
5	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 12524, Visit 04, scheduling Tue Jun 05 01:09:34 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 03 BY 7 D TO 50 D

Comments: NUV spectra of PTF12dam

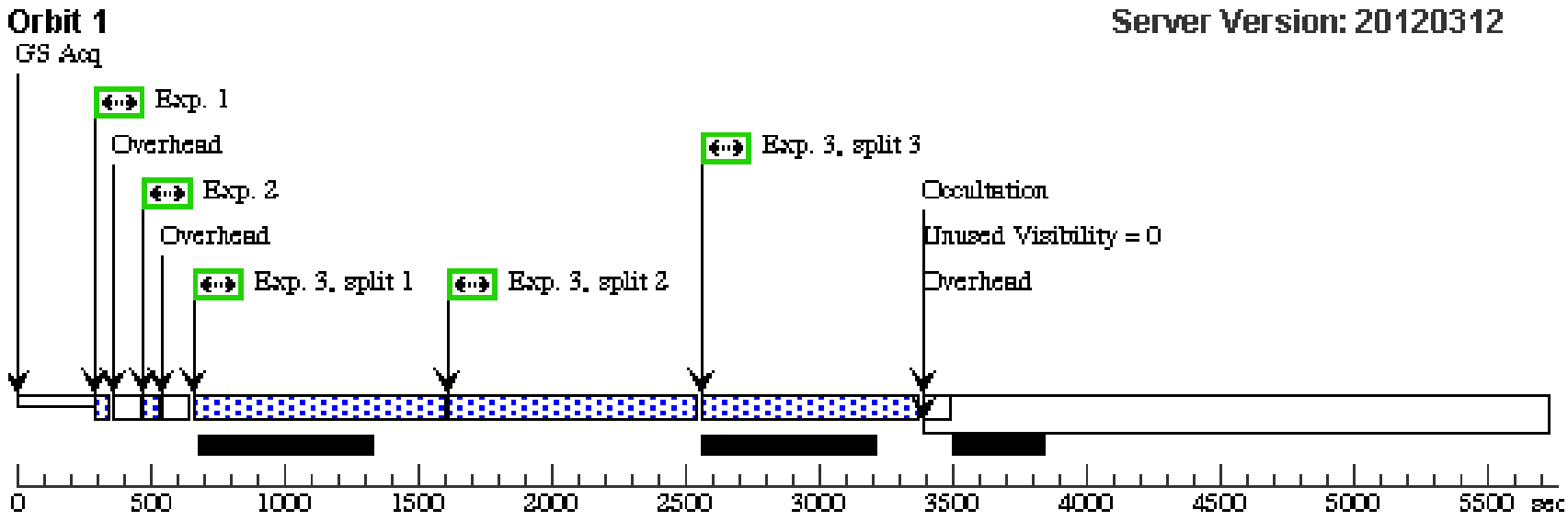
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	PTF12DAM	RA: 14 24 46.2002 (216.1925008d) Dec: +46 13 48.32 (46.23009d) Equinox: J2000		V=17.3+/-0.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	pre-acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F200LP		POS TARG 0,-50; GS ACQ SCENARIO BASE1B3		20 Secs *[==>]*	 ***[1]***
2	acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F300X		POS TARG 0,-50		30 Secs *[==>]*	 ***[1]***
3	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280	CR-SPLIT=3	POS TARG null,-50		2448 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	 ***[1]***

Orbit Structure



Visit

Proposal 12524, Visit 53 Tue Jun 05 01:09:35 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: AFTER 02 BY 3 D TO 45 D

Comments: NUV spectra of PTF12dam This is a repeat of visit 03 which was lost due to a safing.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	PTF12DAM	RA: 14 24 46.2002 (216.1925008d) Dec: +46 13 48.32 (46.23009d) Equinox: J2000		V=17.3+/-0.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	pre-acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F200LP		POS TARG 0,-50; GS ACQ SCENARIO BASE1B3		20 Secs *[==>]*	 ***[1]***
2	acquisition	(3) PTF12DAM	WFC3/UVIS, ACCUM, G280-REF	F300X		POS TARG 0,-50		30 Secs *[==>]*	 ***[1]***
3	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
4	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***
5	NUV grism spectra	(3) PTF12DAM	WFC3/UVIS, ACCUM, UVIS	G280		POS TARG null,-50; NEW ALIGNMENT		816 Secs *[==>]*	 ***[1]***

Orbit Structure