



# 14919 - First UV Spectroscopy of an Incipient Stellar Merger in Its Pre-Merger Phase

Cycle: 24, Proposal Category: GO

(UV Initiative)

(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) KIC-9832227	COS/FUV COS/NUV	7	21-Apr-2017 21:15:03.0	yes

7 Total Orbits Used

## ABSTRACT

Stellar mergers between nondegenerate stars have long been thought to have an important influence on stellar clusters, and perhaps be the origin of a number of types of peculiar stars. It is estimated that a significant fraction of stars eventually undergo a merger. No spectroscopic observations of a pre-merger system in its final interacting phase have ever been obtained. Models of the merger process are in wide disagreement. They predict a number of observable effects leading up to the merger, some of which can affect the merger process itself. Mergers, and the final common-envelope binary phase of stars, are not well understood, partly because the models have not been well tested. We propose to obtain the first UV spectroscopy

Proposal 14919 (STScI Edit Number: 0, Created: Friday, April 21, 2017 8:15:05 PM EST) - Overview

of a Kepler contact binary system which will merge in about 2022. These observations will provide crucial constraints on merger models for the first time. Our observations will also determine the nature of the UV excess of this system already detected by broadband UV photometry. Whether the UV excess comes from a white dwarf companion or from some other process, knowing its nature is essential to understanding this system and its forthcoming merger.

### **OBSERVING DESCRIPTION**

We wish to obtain a series of spectra in a single visit in order to cover a complete period of the target.

Proposal 14919 - Visit 01 - First UV Spectroscopy of an Incipient Stellar Merger in Its Pre-Merger Phase

Sat Apr 22 01:15:05 GMT 2017

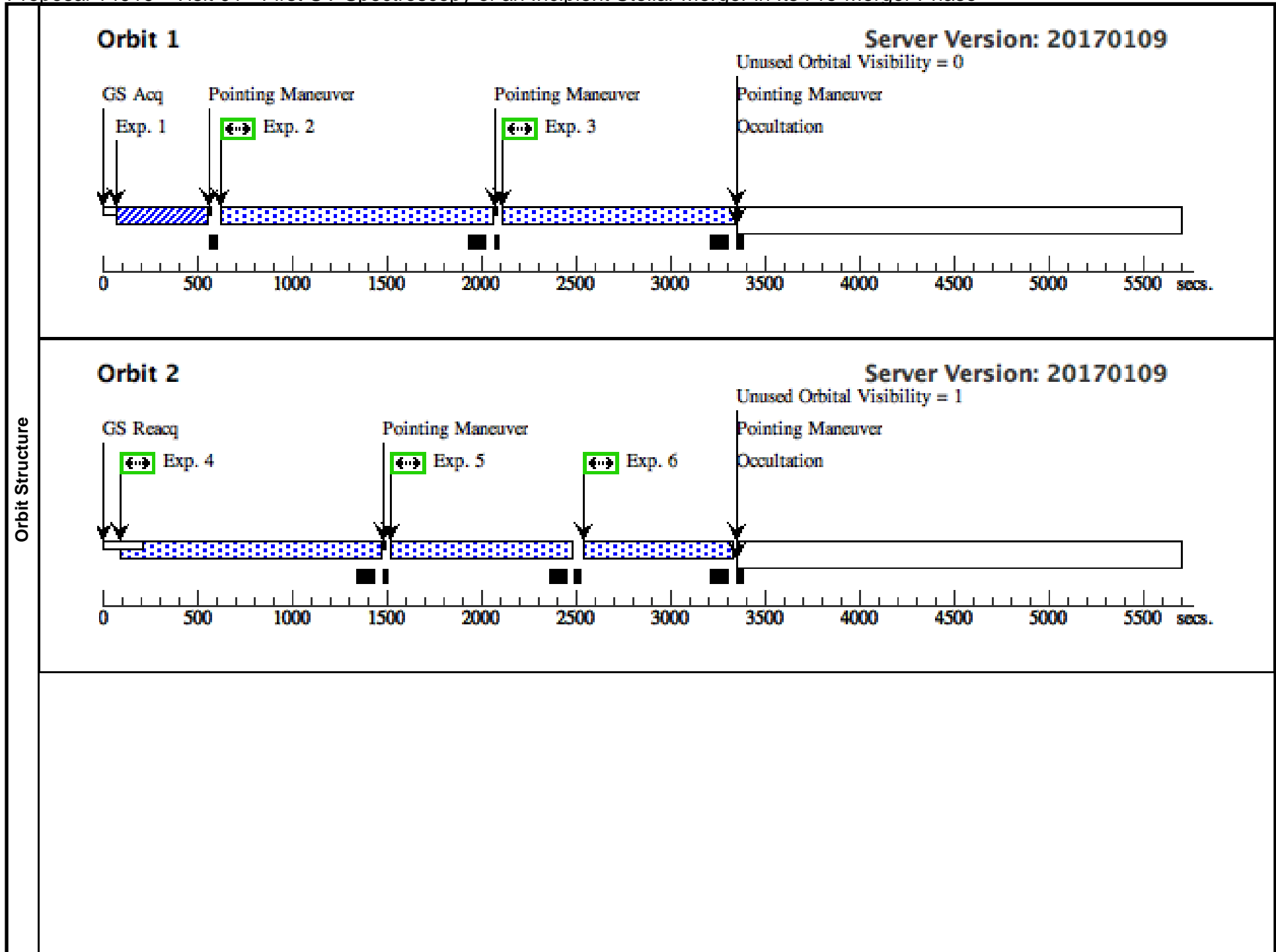
<b>Visit</b>	<p><b>Proposal 14919, Visit 01, implementation</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: (none)</p>					
<b>Diagnostics</b>	(Visit 01) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>
	(1)	KIC-9832227	RA: 19 29 15.9480 (292.3164500d) Dec: +46 37 19.89 (46.62219d) Equinox: J2000		V=12.369	Reference Frame: ICRS
	<i>Comments: Extended=NO</i>					

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#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
Exposures	1	(COS.ta.921 170)	(1) KIC-9832227	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			81 Secs (81 Secs)			
								[==>]		[1]	
	2	(COS.sp.920 763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=1; BUFFER-TIME=11 50			1260 Secs (1260 Secs)		
								[==>]		[1]	
	3	(COS.sp.920 770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 2950 A	FP-POS=1; BUFFER-TIME=89 0			1000 Secs (1000 Secs)		
								[==>]		[1]	
	4	(920763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=10 90; FP-POS=2			1200 Secs (1200 Secs)		
								[==>]		[2]	
	5	(COS.sp.920 770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=64 0; FP-POS=1			750 Secs (750 Secs)		
								[==>]		[2]	
	6	(COS.sp.920 770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=66 5; FP-POS=2			775 Secs (775 Secs)		
								[==>]		[2]	
	7	(920763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=10 90; FP-POS=3			1200 Secs (1200 Secs)		
								[==>]		[3]	
	8	(COS.sp.920 770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=14 90; FP-POS=2			1600 Secs (1600 Secs)		
								[==>]		[3]	
9	(920763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=49 0; FP-POS=4			600 Secs (600 Secs)			
							[==>]		[4]		
10	(920763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=49 0; FP-POS=1			650 Secs (650 Secs)			
							[==>]		[4]		
11	(920770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=51 0; FP-POS=3			620 Secs (620 Secs)			
							[==>]		[4]		
12	(920770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=51 0; FP-POS=4			620 Secs (620 Secs)			
							[==>]		[4]		
13	(920763)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=11 30; FP-POS=2			1240 Secs (1240 Secs)			
							[==>]		[5]		
14	(920770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=14 50; FP-POS=3			1560 Secs (1560 Secs)			
							[==>]		[5]		
15	(920770)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=13 25; FP-POS=4			1435 Secs (1435 Secs)			
							[==>]		[6]		
16	(920770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=12 90; FP-POS=4			1430 Secs (1430 Secs)			
							[==>]		[6]		

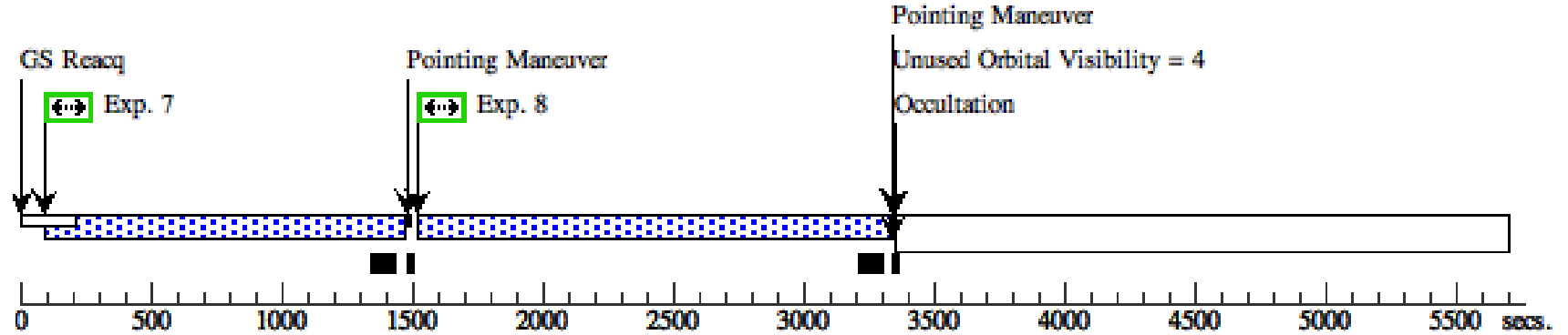
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17	(920770)	(1) KIC-9832227	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=10 90; FP-POS=3	1200 Secs (1200 Secs)	[7]
						[==>]	
18	(920770)	(1) KIC-9832227	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=21 0; FP-POS=ALL	320 Secs (1280 Secs)	[7]
						[==>(Split 1)]	
						[==>(Split 2)]	
						[==>(Split 3)]	
[==>(Split 4)]							



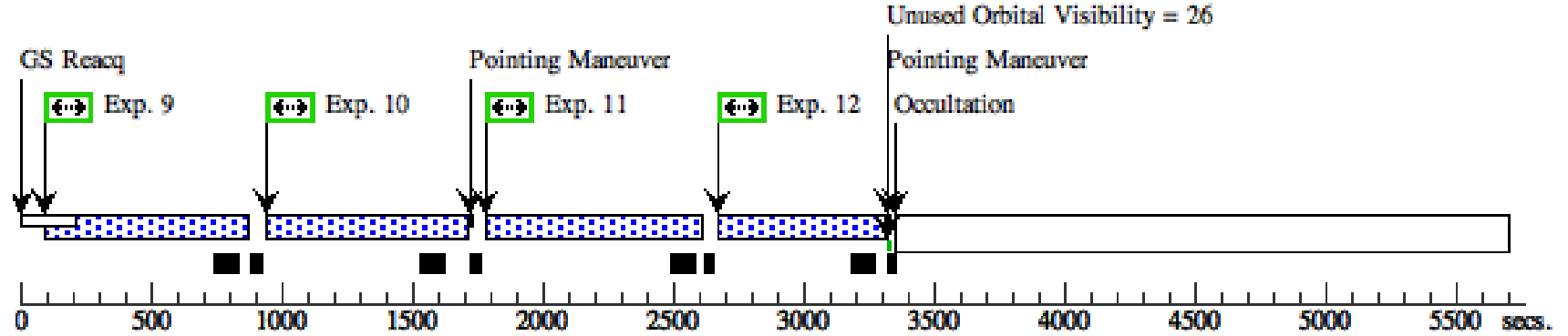
### Orbit 3

Server Version: 20170109



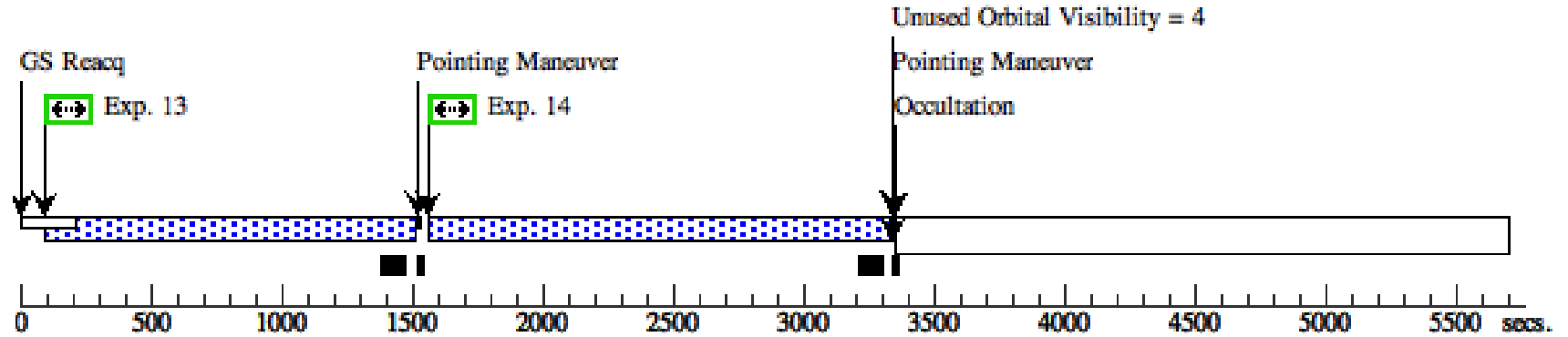
### Orbit 4

Server Version: 20170109



### Orbit 5

Server Version: 20170109



### Orbit 6

Server Version: 20170109

