



10478 - Dynamical Masses and Radii of Four White Dwarf Stars

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Edmund Nelan (PI)	Space Telescope Science Institute	nelan@stsci.edu
Mr. Russell Makidon (CoI)	Space Telescope Science Institute	makidon@stsci.edu

VISITS

<i>Visit</i>	<i>Targets</i>	<i>Configurations</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(2) WD1639-REF1 (6) WD1639-REF6 (7) WD1639-REF7 (1) WD1639+153	FGS	1	20-Jun-2005 11:48:58.0	yes
02	(2) WD1639-REF1 (6) WD1639-REF6 (7) WD1639-REF7 (1) WD1639+153 (3) WD1639-REF2 (4) WD1639-REF3	FGS	1	20-Jun-2005 11:49:17.0	yes

Proposal 10478 - Overview

<i>Visit</i>	<i>Targets</i>	<i>Configurations</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
03	(14) WD1818-GSC2-REF3 (9) WD1818-GSC1-REF1 (12) WD1818-GSC2-REF1 (15) WD1818-GSC2-REF4 (8) WD1818+126 (13) WD1818-GSC2-REF2 (10) WD1818-GSC1-REF2 (11) WD1818-GSC1-REF3	FGS	1	20-Jun-2005 11:49:34.0	yes
04	(14) WD1818-GSC2-REF3 (9) WD1818-GSC1-REF1 (12) WD1818-GSC2-REF1 (15) WD1818-GSC2-REF4 (8) WD1818+126 (13) WD1818-GSC2-REF2 (10) WD1818-GSC1-REF2 (11) WD1818-GSC1-REF3	FGS	1	20-Jun-2005 11:49:50.0	yes

4 Total Orbits Used

ABSTRACT

The cool white dwarf stars WD1639+153 and WD1818+126 were recently resolved by HST FGS1r to be double degenerate binary systems with projected separations of 112 mas and 174 mas respectively. At a distance of less than 50 pc they may both have periods shorter than about 20 years, making them ideal candidates for follow up studies for dynamical mass determinations. This will increase the number of white dwarfs with dynamical mass measurements from the current 4 up to 8. Continued observations of these white dwarfs along with nearby field stars with the FGS will accurately determine the orbital elements and parallax of each system. The mass and radius of all four white dwarfs can be determined to an unprecedented 1%, making it possible to test and calibrate the theoretical white dwarf mass radius relation at the cool end of the cooling curve for the DA and DC subclasses. Since the components of the binary are coeval, once the mass and radius, and hence the cooling age of each star is

Proposal 10478 - Overview

known, it will be possible to estimate the relation between the initial mass and final mass for all four white dwarfs. We are requesting a total of 4 HST orbits per year for the next three cycles to initiate the process that will result in a determination of the mass and radius of the four white dwarfs.

OBSERVING DESCRIPTION

We will use FGS1r in its high angular resolution observing mode (TRANS) to resolve the white dwarf binary systems. Each exposure will be comprised of about 20 scans. The interferograms derived from each scan will be cross-correlated and co-added to yield a high SNR. To further suppress the noise (these targets are near the FGS's faint limiting magnitude), the co-added interferograms will be carefully smoothed by being represented as a piece-wise smooth segmented polynomial. These observations will yield the separation and position angle of the binary components, as well as the brightness of each. In addition, the binary and field stars simultaneously in the FGS FOV will be observed in POS mode to accurately determine the relative positions of the stars. This will facilitate the construction of an inertial reference frame for the binary, thereby allowing the relative orbit that will be ultimately determined from the TRANS data to be converted into a physical orbit. This will allow us to determine the relative mass of each white dwarf in the binary system. In addition, the POS mode data will give the proper motion and parallax of the binary, which will allow us to compute the mass and radius of each white dwarf.

ADDITIONAL COMMENTS

The observations should be scheduled to occur at times of maximum parallax factor to allow us to determine the distance to each of these two white dwarf binary systems.

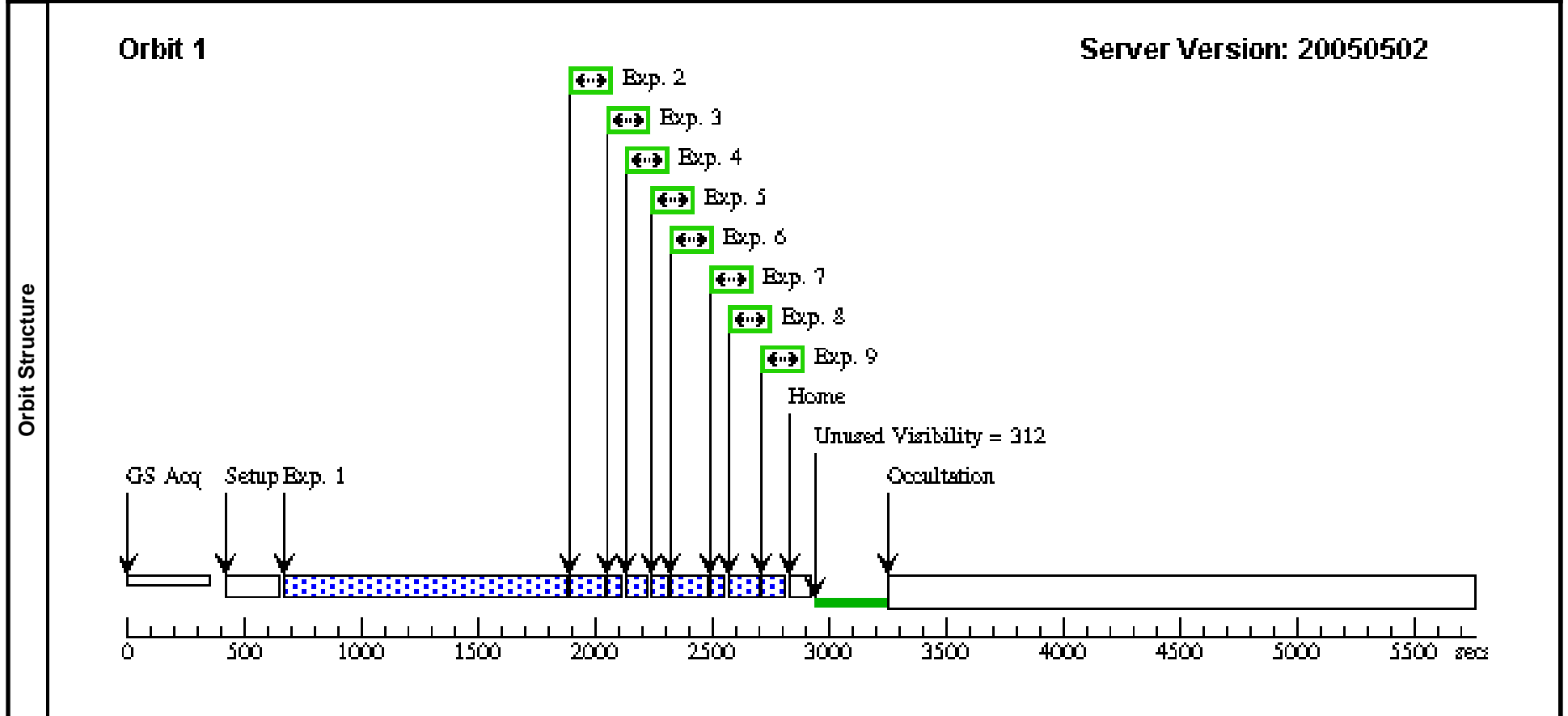
Proposal 10478 - Visit 01 - Dynamical Masses and Radii of Four White Dwarf Stars

Mon Jun 20 15:49:56 GMT 2005

Visit	Proposal 10478, Visit 01 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 120.0D TO 145.0 D; BETWEEN 01-AUG-2005:00:00:00 AND 01-SEP-2005:00:00:00									
	Diagnostics	(Visit 01) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA								
(Visit 01) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA										
(Visit 01) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS										
(Visit 01) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	WD1639+153	RA: 16 41 36.7000 (250.4029167d) Dec: +15 12 36.38 (15.21011d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.005s/yr Proper Motion Dec: -0.736"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=15.7+/-0.1	Coordinate Source: Other_Source: HST Cycle 10 Observations				
	(2)	WD1639-REF1 Alt Name1: GSC1520.00549	RA: 16 41 39.6000 (250.4150000d) Dec: +15 12 1.87 (15.20052d) Equinox: J2000 Plate Id: 02D2	Parallax: 0.0" Epoch of Position:	V=10.73+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG				
	(6)	WD1639-REF6 Alt Name1: GSC1520.00628	RA: 16 41 22.4500 (250.3435417d) Dec: +15 14 11.80 (15.23661d) Equinox: J2000 Plate Id: 01GC	Parallax: 0.0" Epoch of Position:	V=13.9+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG				
	(7)	WD1639-REF7 Alt Name1: GSC1520.00612	RA: 16 41 25.9400 (250.3580833d) Dec: +15 15 44.39 (15.26233d) Equinox: J2000 Plate Id: 01GC	Parallax: 0.0" Epoch of Position:	V=13.26+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	1	(1) WD1639+153	FGS, TRANS, 1	F583W	STEP-SIZE=0.5; SCANS=25	POS TARG 0,-17	Sequence 1-9 Non-Int	800.0 Secs [==>]	[1]
	2	2	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	25.0 Secs [==>]	[1]
	3	3	(2) WD1639-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	5.0 Secs [==>]	[1]
	4	6	(6) WD1639-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	10.0 Secs [==>]	[1]
	5	7	(7) WD1639-REF7	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	5.0 Secs [==>]	[1]

Proposal 10478 - Visit 01 - Dynamical Masses and Radii of Four White Dwarf Stars

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	6	8	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	25.0 Secs [==>]	[1]
	7	9	(2) WD1639-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	5.0 Secs [==>]	[1]
	8	11	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	25.0 Secs [==>]	[1]
	9	12	(6) WD1639-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-9 Non-Int	10.0 Secs [==>]	[1]



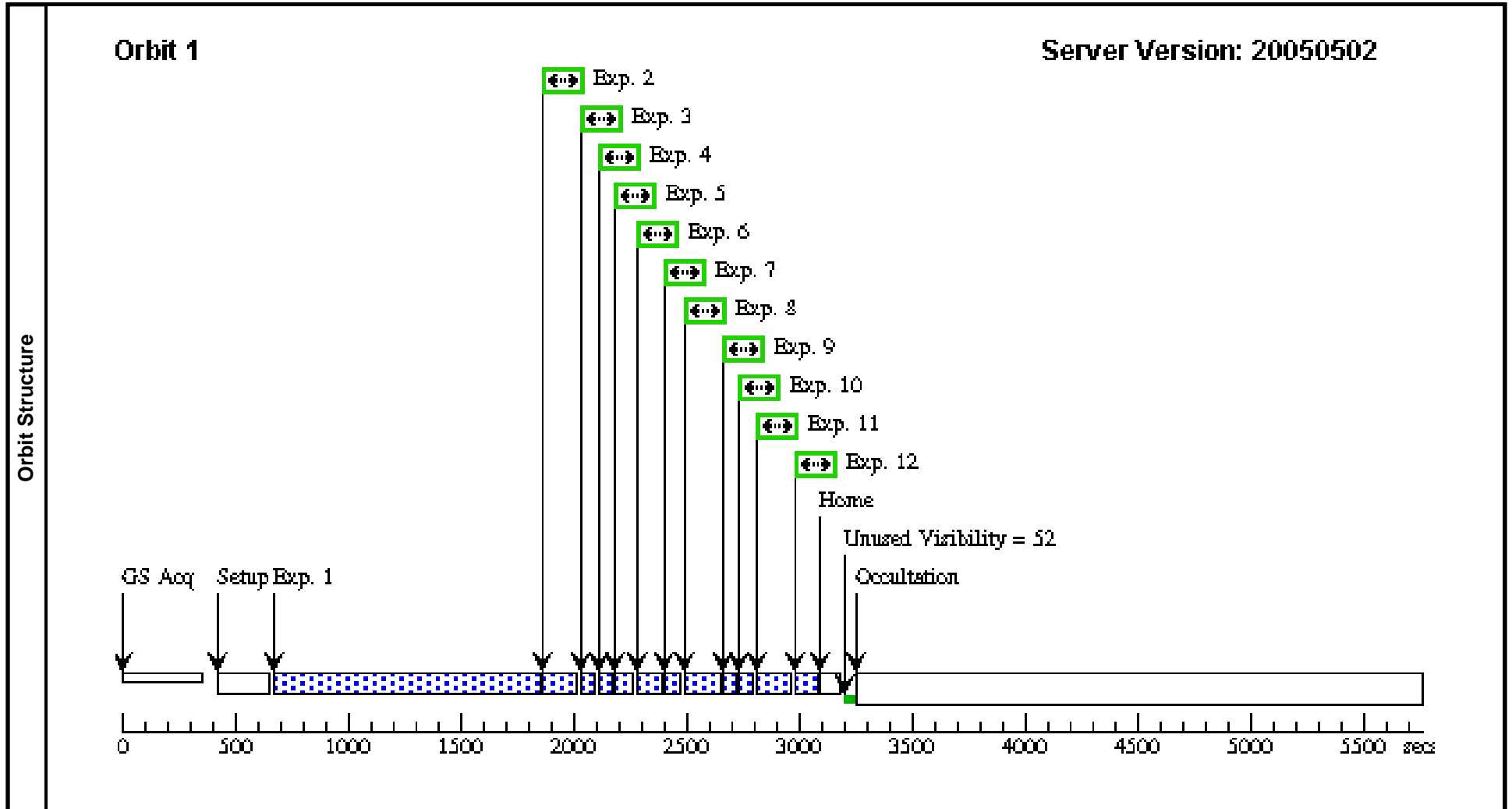
Proposal 10478 - Visit 02 - Dynamical Masses and Radii of Four White Dwarf Stars

Mon Jun 20 15:49:59 GMT 2005

Visit	Proposal 10478, Visit 02 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 294.0D TO 296.0 D; BETWEEN 02-FEB-2006:00:00:00 AND 09-FEB-2006:00:00:00					
Diagnostics	(Visit 02) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS (Visit 02) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	WD1639+153	RA: 16 41 36.7000 (250.4029167d) Dec: +15 12 36.38 (15.21011d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.005s/yr Proper Motion Dec: -0.736"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=15.7+/-0.1	Coordinate Source: Other_Source: HST Cycle 10 Observations
	(2)	WD1639-REF1 Alt Name1: GSC1520.00549	RA: 16 41 39.6000 (250.4150000d) Dec: +15 12 1.87 (15.20052d) Equinox: J2000 Plate Id: 02D2	Parallax: 0.0" Epoch of Position:	V=10.73+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG
	(3)	WD1639-REF2 Alt Name1: GSC1520.00514	RA: 16 41 54.1000 (250.4754167d) Dec: +15 11 19.20 (15.18867d) Equinox: J2000 Plate Id: 02D2	Parallax: 0.0" Epoch of Position:	V=12.1+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG
	(4)	WD1639-REF3 Alt Name1: GSC1520.00496	RA: 16 41 49.1300 (250.4547083d) Dec: +15 11 1.97 (15.18388d) Equinox: J2000 Plate Id: 01GC	Parallax: 0.0" Epoch of Position:	V=14.69+/-0.0	Coordinate Source: GUIDE_STAR_CATALOG
	(6)	WD1639-REF6 Alt Name1: GSC1520.00628	RA: 16 41 22.4500 (250.3435417d) Dec: +15 14 11.80 (15.23661d) Equinox: J2000 Plate Id: 01GC	Parallax: 0.0" Epoch of Position:	V=13.9+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG
	(7)	WD1639-REF7 Alt Name1: GSC1520.00612	RA: 16 41 25.9400 (250.3580833d) Dec: +15 15 44.39 (15.26233d) Equinox: J2000 Plate Id: 01GC	Parallax: 0.0" Epoch of Position:	V=13.26+/-0.1	Coordinate Source: GUIDE_STAR_CATALOG

Proposal 10478 - Visit 02 - Dynamical Masses and Radii of Four White Dwarf Stars

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	1	(1) WD1639+153	FGS, TRANS, 1	F583W	STEP-SIZE=0.5; SCANS=25	POS TARG 0,0	Sequence 1-12 Non-Int	775.0 Secs [==>]	[1]
	2	2	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
	3	3	(2) WD1639-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	5.0 Secs [==>]	[1]
	4	4	(3) WD1639-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	5.0 Secs [==>]	[1]
	5	5	(4) WD1639-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs [==>]	[1]
	6	6	(6) WD1639-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs [==>]	[1]
	7	7	(7) WD1639-REF7	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	5.0 Secs [==>]	[1]
	8	8	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
	9	9	(2) WD1639-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	5.0 Secs [==>]	[1]
	10	10	(3) WD1639-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	5.0 Secs [==>]	[1]
	11	11	(1) WD1639+153	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
12	12	(6) WD1639-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs [==>]	[1]	



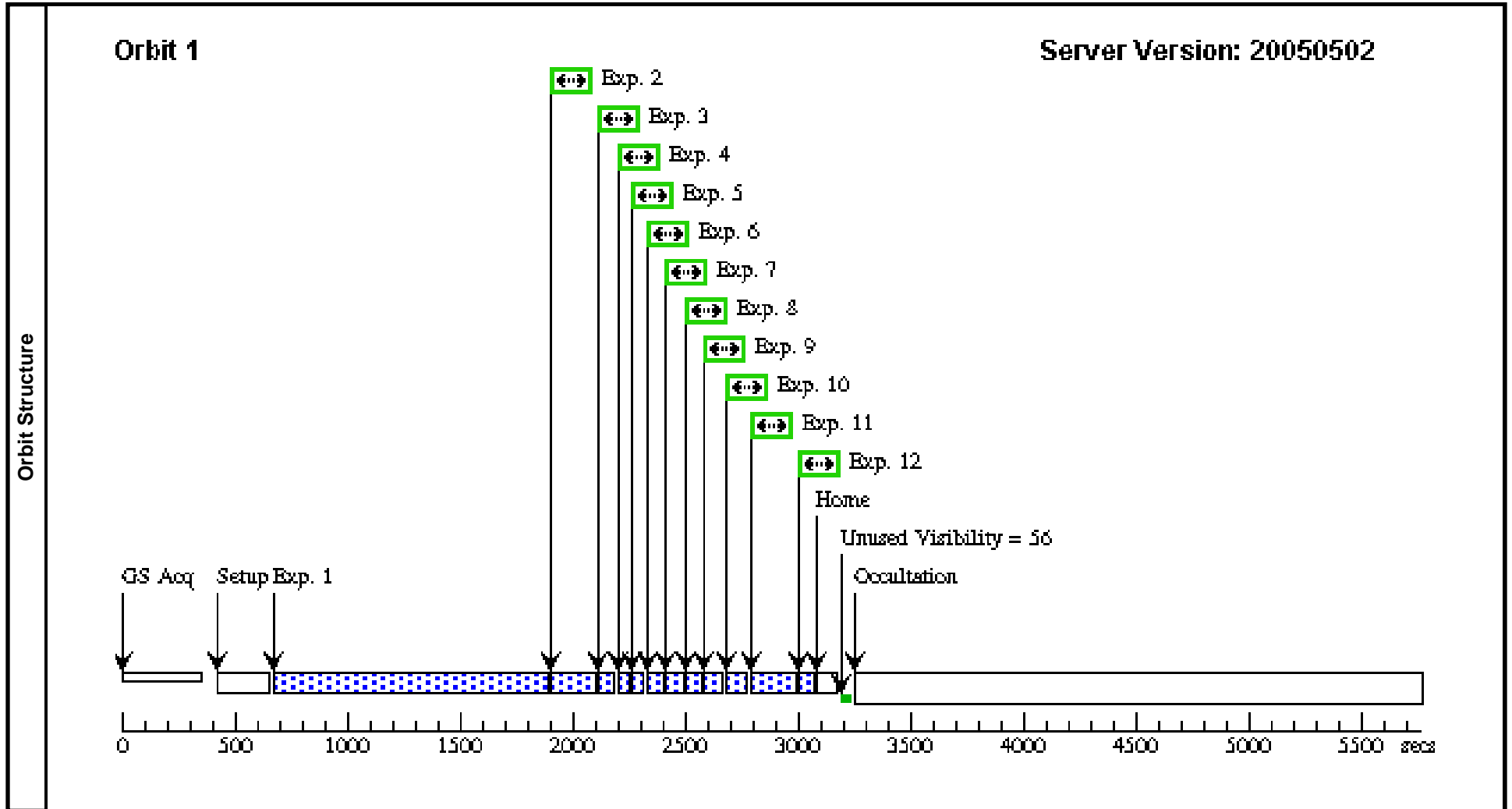
Proposal 10478 - Visit 03 - Dynamical Masses and Radii of Four White Dwarf Stars

Mon Jun 20 15:50:02 GMT 2005

Visit	Proposal 10478, Visit 03 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 137.0D TO 142.0 D; BETWEEN 03-AUG-2005:00:00:00 AND 12-AUG-2005:00:00:00						
	Diagnostics	(Visit 03) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS					
Fixed Targets		#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	WD1818+126	RA: 18 20 30.8800 (275.1286667d) Dec: +12 39 17.70 (12.65492d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.007s/yr Proper Motion Dec: 0.271"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=16.06+/-0.1	Coordinate Source: Other_Source: HST Cycle 10 Proposal	
	(9)	WD1818-GSC1-REF1 Alt Name1: GSC1018.02189	RA: 18 20 23.6700 (275.0986250d) Dec: +12 39 43.80 (12.66217d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=10.92+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG	
	(10)	WD1818-GSC1-REF2 Alt Name1: GSC1018.02278	RA: 18 20 26.3600 (275.1098333d) Dec: +12 39 25.20 (12.65700d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=12.7+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG	
	(11)	WD1818-GSC1-REF3 Alt Name1: GSC1018.01251	RA: 18 20 31.9700 (275.1332083d) Dec: +12 38 48.12 (12.64670d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=12.97+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG	
	(12)	WD1818-GSC2-REF1 Alt Name1: N020230030828	RA: 18 20 33.8600 (275.1410833d) Dec: +12 39 5.56 (12.65154d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.23+/-0.2	Coordinate Source: Other_Source: GSC2	
	<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformations.</i>						
	(13)	WD1818-GSC2-REF2 Alt Name1: N020230030566	RA: 18 20 35.3400 (275.1472500d) Dec: +12 38 50.74 (12.64743d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.49+/-0.2	Coordinate Source: Other_Source: GSC2	
<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformations</i>							

Proposal 10478 - Visit 03 - Dynamical Masses and Radii of Four White Dwarf Stars

	Fixed Targets (continued)									
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(14)	WD1818-GSC2-REF3 Alt Name1: N020230031910	RA: 18 20 33.6100 (275.1400417d) Dec: +12 40 16.29 (12.67119d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.43+/-0.3	Coordinate Source: Other_Source: GSC2				
	<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformation</i>									
	(15)	WD1818-GSC2-REF4 Alt Name1: N020230031978	RA: 18 20 29.4800 (275.1228333d) Dec: +12 40 21.03 (12.67251d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=15.01+/-0.2	Coordinate Source: Other_Source: GSC2				
	<i>Comments: position and magnitude from GSC2, color transformation using Kriss & Stys</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	1	(8) WD1818+126	FGS, TRANS, 1	F583W	STEP-SIZE=0.4; SCANS=20	POS TARG 0,0	Sequence 1-12 Non-Int	880.0 Secs [==>]	[1]
	2	2	(8) WD1818+126	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
	3	3	(9) WD1818-GSC1-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	4	4	(10) WD1818-GSC1-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	5	5	(11) WD1818-GSC1-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	6	6	(12) WD1818-GSC2-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	7	7	(13) WD1818-GSC2-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	8	8	(10) WD1818-GSC1-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	9	9	(14) WD1818-GSC2-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	10	10	(15) WD1818-GSC2-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	11	11	(8) WD1818+126	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
	12	12	(9) WD1818-GSC1-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]



Proposal 10478 - Visit 04 - Dynamical Masses and Radii of Four White Dwarf Stars

Mon Jun 20 15:50:03 GMT 2005

Visit	Proposal 10478, Visit 04 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 245.0D TO 255.0 D; BETWEEN 27-MAR-2006:00:00:00 AND 07-APR-2006:00:00:00					
Diagnostics	(Visit 04) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	WD1818+126	RA: 18 20 30.8800 (275.1286667d) Dec: +12 39 17.70 (12.65492d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.007s/yr Proper Motion Dec: 0.271"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=16.06+/-0.1	Coordinate Source: Other_Source: HST Cycle 10 Proposal
	(9)	WD1818-GSC1-REF1 Alt Name1: GSC1018.02189	RA: 18 20 23.6700 (275.0986250d) Dec: +12 39 43.80 (12.66217d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=10.92+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(10)	WD1818-GSC1-REF2 Alt Name1: GSC1018.02278	RA: 18 20 26.3600 (275.1098333d) Dec: +12 39 25.20 (12.65700d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=12.7+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(11)	WD1818-GSC1-REF3 Alt Name1: GSC1018.01251	RA: 18 20 31.9700 (275.1332083d) Dec: +12 38 48.12 (12.64670d) Equinox: J2000 Plate Id: 00JB	Parallax: 0.0" Epoch of Position:	V=12.97+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(12)	WD1818-GSC2-REF1 Alt Name1: N020230030828	RA: 18 20 33.8600 (275.1410833d) Dec: +12 39 5.56 (12.65154d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.23+/-0.2	Coordinate Source: Other_Source: GSC2
	<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformations.</i>					
(13)	WD1818-GSC2-REF2 Alt Name1: N020230030566	RA: 18 20 35.3400 (275.1472500d) Dec: +12 38 50.74 (12.64743d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.49+/-0.2	Coordinate Source: Other_Source: GSC2	
<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformations</i>						

Proposal 10478 - Visit 04 - Dynamical Masses and Radii of Four White Dwarf Stars

Fixed Targets (continued)	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(14)	WD1818-GSC2-REF3 Alt Name1: N020230031910	RA: 18 20 33.6100 (275.1400417d) Dec: +12 40 16.29 (12.67119d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=14.43+/-0.3	Coordinate Source: Other_Source: GSC2				
<i>Comments: position and magnitude from GSC2, using Kriss & Stys color transformation</i>										
(15)	WD1818-GSC2-REF4 Alt Name1: N020230031978	RA: 18 20 29.4800 (275.1228333d) Dec: +12 40 21.03 (12.67251d) Equinox: J2000 Plate Id: (?)	Parallax: 0.0" Epoch of Position:	V=15.01+/-0.2	Coordinate Source: Other_Source: GSC2					
<i>Comments: position and magnitude from GSC2, color transformation using Kriss & Stys</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	1	(8) WD1818+126	FGS, TRANS, 1	F583W	STEP-SIZE=0.4; SCANS=20	POS TARG 0,0	Sequence 1-12 Non-Int	880.0 Secs [==>]	[1]
	2	2	(8) WD1818+126	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
	3	3	(9) WD1818-GSC1-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	4	4	(10) WD1818-GSC1-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	5	5	(11) WD1818-GSC1-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	6	6	(12) WD1818-GSC2-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	7	7	(13) WD1818-GSC2-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	8	8	(10) WD1818-GSC1-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	9	9	(14) WD1818-GSC2-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	10	10	(15) WD1818-GSC2-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	15.0 Secs [==>]	[1]
	11	11	(8) WD1818+126	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	25.0 Secs [==>]	[1]
12	12	(9) WD1818-GSC1-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]	

