



10927 - The Weight-Watcher Program for Subdwarfs

Cycle: 15, 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	(2) G006-026B	FGS	1	11-Jun-2007 21:28:29.0	yes
02	(4) G061-024	FGS	1	11-Jun-2007 21:28:32.0	yes
03	(5) G166-045	FGS	1	11-Jun-2007 21:28:34.0	yes
41	(6) G182-041	FGS	1	11-Jun-2007 21:28:35.0	yes
42	(6) G182-041	FGS	1	11-Jun-2007 21:28:37.0	yes
51	(3) G099-048	FGS	1	11-Jun-2007 21:28:38.0	yes
52	(3) G099-048	FGS	1	11-Jun-2007 21:28:40.0	yes
53	(5) G166-045	FGS	1	11-Jun-2007 21:28:42.0	yes

8 Total Orbits Used

ABSTRACT

We propose to use HST/FGS1r to measure five subdwarf spectroscopic binaries to determine masses for the components. Their metallicities, $[Fe/H]$, range from -0.5 to -2.5, and their projected minimum separations range from 9 to 24 mas. These binaries are resolvable with HST/FGS1r but not any ground-based technique.

Currently, there are only two subdwarf systems having any mass measurements. The proposed work will boost the total number of subdwarf systems with masses from two to seven, and allow us to construct the first mass-luminosity relation for low-metallicity stars.

OBSERVING DESCRIPTION

We will use FGS1r to observe the targets in TRANSFER mode in an attempt to resolve the spectroscopic binaries. The observations will be made at a time that corresponds to maximum elongation (or projected separation). This measurement will be used to establish the angular extent of each binary's semi-major axis, which will yield the orbital inclination, and when combined with the spectroscopic data, the mass of each star.

Visit	Proposal 10927, Visit 01, completed Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 20-JUL-2006:00:00:00 AND 15-AUG-2006:00:00:00									
	(Visit 01) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnostics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	G006-026B	RA: 03 39 34.9300 (54.8955417d) Dec: +18 18 51.60 (18.31433d) Equinox: J2000	Proper Motion RA: 0.0137s/yr Proper Motion Dec: -0.193"/yr Epoch of Position: 2000.0	V=12.71+/-0.2 B-V=1.56	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(2) G006-026B	G006-026B	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1		Sequence 1-2 Non-Int	375.0 Secs	
	2	(2) G006-026B	G006-026B	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs	[1]
									[=>]	[1]
Orbit Structure	Orbit 1									

Visit	Proposal 10927, Visit 02, scheduling Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 11-JUN-2007:00:00:00 AND 30-JUN-2007:00:00:00									
	(Visit 02) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	G061-024	RA: 12 57 31.9600 (194.3831667d) Dec: +18 41 36.40 (18.69344d) Equinox: J2000	Proper Motion RA: -0.0156s/yr Proper Motion Dec: 0.111"/yr Epoch of Position: 2000.0	V=8.97+/-0.1 B-V=0.67	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(4) G061-024	G061-024	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1		Sequence 1-2 Non-Int	375.0 Secs [=>]	[1]
	2	(4) G061-024	G061-024	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs [=>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20070325</p> <p>Timeline labels: GS Acq, Setup Exp. 1, Exp. 1, Exp. 2, Home, Occultation, Unused Visibility = 3.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>									

Visit	Proposal 10927, Visit 03, scheduling Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 09-JUN-2007:00:00:00 AND 22-JUN-2007:00:00:00									
	(Visit 03) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnostics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	G166-045	RA: 14 49 2.3600 (222.2598333d) Dec: +25 42 9.20 (25.70256d) Equinox: J2000	Proper Motion RA: -0.0006s/yr Proper Motion Dec: -0.345"/yr Epoch of Position: 2000.0	V=9.73+/-0.2 B-V=0.44	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) G166-045	G166-045	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1	GS ACQ SCENARI O ONEBIT	Sequence 1-2 Non-Int	375.0 Secs [=>]	[1]
	2	(5) G166-045	G166-045	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs [=>]	[1]
Orbit Structure	<h3>Orbit 1</h3> <p style="text-align: right;">Server Version: 20070325</p>									
	<p>Timeline details: GS Acq (~100s), Setup Exp. 1 (~400s), Exp. 2 (~1100s), Home (~3000s), Unused Visibility = 94 (~3100s), Occultation (~3150s). Total duration shown is 5500 seconds.</p>									

Visit	Proposal 10927, Visit 41, completed Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 01-FEB-2007:00:00:00 AND 15-FEB-2007:00:00:00									
	(Visit 41) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(6)	G182-041	RA: 18 09 26.5500 (272.3606250d) Dec: +27 55 23.30 (27.92314d) Equinox: J2000	Proper Motion RA: -0.0162s/yr Proper Motion Dec: -0.148"/yr Epoch of Position: 2000.0	V=12.65+/-0.2 B-V=0.93	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) G182-041	G182-041	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1		Sequence 1-2 Non-Int	375.0 Secs [=>]	[1]
	2	(6) G182-041	G182-041	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs [=>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20070325</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows: 'GS Acq' at 0s, 'Setup Exp. 1' at approximately 400s, 'Exp. 2' at approximately 1100s, 'Home' at 3000s, 'Unused Visibility = 8' at 3000s, and 'Occultation' at approximately 3100s. A blue checkered region covers the period from approximately 600s to 3000s. A long horizontal bar spans from approximately 3100s to 5500s.</p>									

Proposal 10927 - Visit 42 - The Weight-Watcher Program for Subdwarfs

Tue Jun 12 01:28:45 GMT 2007

Visit	Proposal 10927, Visit 42, completed Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 15-MAR-2007:00:00:00 AND 30-MAR-2007:00:00:00									
	(Visit 42) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnostics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	G182-041	RA: 18 09 26.5500 (272.3606250d) Dec: +27 55 23.30 (27.92314d) Equinox: J2000	Proper Motion RA: -0.0162s/yr Proper Motion Dec: -0.148"/yr Epoch of Position: 2000.0	V=12.65+/-0.2 B-V=0.93	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) G182-041	G182-041	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1		Sequence 1-2 Non-Int	375.0 Secs	
	2	(6) G182-041	G182-041	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs	[1]
									[=>]	[1]
Orbit Structure	Orbit 1									

Visit	Proposal 10927, Visit 51, completed Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 07-NOV-2006:00:00:00 AND 21-NOV-2006:00:00:00									
	(Visit 51) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnostics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	G099-048	RA: 05 59 5.9900 (89.7749583d) Dec: +04 10 38.70 (4.17742d) Equinox: J2000	Proper Motion RA: 0.0179s/yr Proper Motion Dec: -0.232"/yr Epoch of Position: 2000.0	V=11.89+/-0.2 B-V=0.70	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) G099-048	G099-048	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1		Sequence 1-2 Non-Int	350.0 Secs	
	2	(3) G099-048	G099-048	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-Int	1370.0 Secs	[1]
									[=>]	[1]
Orbit Structure	Orbit 1									
	<p>Server Version: 20070325</p> <p>Unused Visibility = 16</p> <p>Occultation</p> <p>Homs</p> <p>GS Acq</p> <p>Setup Exp. 1</p> <p>Exp. 2</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Proposal 10927 - Visit 52 - The Weight-Watcher Program for Subdwarfs

Tue Jun 12 01:28:46 GMT 2007

Visit	Proposal 10927, Visit 52, completed Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: ORIENT 28.0D TO 32.0D FROM 51; BETWEEN 07-NOV-2006:00:00:00 AND 21-NOV-2006:00:00:00										
	(Visit 52) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS										
Diagnostics											
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(3)	G099-048	RA: 05 59 5.9900 (89.7749583d) Dec: +04 10 38.70 (4.17742d) Equinox: J2000	Proper Motion RA: 0.0179s/yr Proper Motion Dec: -0.232"/yr Epoch of Position: 2000.0	V=11.89+/-0.2 B-V=0.70	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1	(3) G099-048	G099-048	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1			Sequence 1-2 Non-Int	350.0 Secs [=>]	[1]
	2	(3) G099-048	G099-048	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1		Sequence 1-2 Non-Int	1370.0 Secs [=>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20070325</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows: 'GS Acq' at 0s, 'Setup Exp. 1' at 500s, 'Exp. 2' at 1200s, 'Home' at 3000s, and 'Occultation' at 3100s. A blue checkered area between 3000s and 3100s is labeled 'Unused Visibility = 16'. A green vertical line is at 3000s. The timeline ends at 5500s.</p>										

Visit	Proposal 10927, Visit 53 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: BETWEEN 09-JUN-2007:00:00:00 AND 29-JUN-2007:00:00:00									
	(Visit 53) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	G166-045	RA: 14 49 2.3600 (222.2598333d) Dec: +25 42 9.20 (25.70256d) Equinox: J2000	Proper Motion RA: -0.0006s/yr Proper Motion Dec: -0.345"/yr Epoch of Position: 2000.0	V=9.73+/-0.2 B-V=0.44	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) G166-045	G166-045	FGS, TRANS, 1	F583W	SCANS=5; STEP-SIZE=1	GSPAIR N68I00026 9F20000000000F0; GS ACQ SCENARI O ONEBIT	Sequence 1-2 Non-In t	375.0 Secs [==>]	[1]
2	(5) G166-045	G166-045	G166-045	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.3	SAME POS AS 1	Sequence 1-2 Non-In t	1370.0 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20070325</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows: 'GS Acq' at 0s, 'Setup Exp. 1' at ~300s, 'Exp. 1' at ~400s, 'Exp. 2' at ~1100s, 'Horns' at ~3000s, and 'Occultation' at ~3100s. A blue checkered bar represents the main exposure period from ~1100s to ~3000s. A green bar at ~3000s is labeled 'Horns'. A large white area from ~3100s to ~5500s is labeled 'Unused Visibility = 94'.</p>									