

*\* Start of FAST Run \**

60 inch Telescope Log

Observer: P. Berland

PI: Huchra

Spectrograph: FAST

Grating: 300

Page: 7103

Date: 3/8/99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-20	BIAS				0s	
21-30	FLAT				75	response down ~8% from
31-40	BIAS				0s	last run.
41-50	FLAT				14s	
51-55	sky			57	5s	nice sunset
56	WMP			r	5s	thin cirrus.
57-58	NGC 1790	04:56	+04:52	57	2m	
59	WMP			r		
60	G191B2B	5:01	+52:45	56	2m	
61	WMP			r		
62	ZM035257.9	03:52	+18:59	68	10m	
63	WMP			r		
64	ZM035017.2	03:50	+18:12	68	10m	
65	WMP			r		
66	ZM035019.3	03:04	+18:15	68	8m	
67	WMP			r		
68	ZM035059.2	03:06	+18:32	68	8m	
69	WMP			r		
70	ZM035319.6	03:23	+18:51	68	10m	bomb 2 op # to E
71	WMP			r		
72	ZM035521.8	03:35	+18:46	68	8m	
73	WMP			r		
74	ZM0354624.6	05:46	+18:05	68	5m	
75	WMP			r		
76	ZM035439.7	05:14	+18:29	68	8m	
77	WMP			r		
78	ZM0352950.5	05:29	+18:59	68	10m	
79	WMP			r		

Data was reduced in 2 sections  
 Data before files 163-172 (1200 l grating)  
 and Data after files 163-172

<p>60 inch Telescope Log</p> <p>Observer: <u>PB</u></p> <p>PI: <u>Huchra</u></p>	<p>Spectrograph: <u>FAST</u></p> <p>Grating: <u>300L</u></p> <p>Date: <u>3/8/99</u></p> <p style="text-align: right;">Page: <u>7104</u></p>
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
80	ZMO 5714.4	06:17	+21:13	68	10m	bin by 2 * 10m
81	COMP			T		
82	ZMO 55522.3	06:50	+17:57	68	5m	
83	COMP			T		
84	ZMO 54520.1	06:42	+14:47	68	15m	
85	COMP			T		clouds.
86	ZMO 50558	06:08	+16:52	68	15m	
87	COMP			T		
88	ZMO 52013.0	06:20	+20:11	68	15m	
89	COMP			T		
90	ZMO 54457.1	06:44	+16:46	68	15m	
91	COMP			T		clouds.
92	ZMO 52135.0	06:21	+18:39	68	10m	
93	COMP			T		
94	SN 1999ag	08:27	+21:29	2	20m	PH-45
95	COMP			T		
96	ZMO 62857.2	06:28	+24:32	68	10m	
97	COMP			T		
98	ZMO 64136.6	06:41	+15:10	68	10m	
99	COMP			T		
100	ZMO 61508.1	06:15	+17:53	68	4m	
101	COMP			T		
102	ZMO 65629.6	06:56	+14:31	68	5m	
103	COMP			T		
104	ZMO 65453.3	06:59	+13:10	68	6m	
105	COMP			T		
106	ZMO 68102.5	08:10	+20:31	68	10m	
107	COMP			T		
108	ZMO 68035.2	08:06	+19:48	68	10m	
109	COMP			T		

## 60 inch Telescope Log

Spectrograph: FAST

Observer: PB

Grating: 300L

Page: 7105

PI: Huchra

Date: 3/8/99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
110-111	Foggy 34	10:36	+43:21	SB	90s	clouds.
112	WMP			r		
113	ZM080759.2	08:03	+23:45	68	6m	
114	WMP			r		
115	ZM080921.1	08:09	+19:21	68	6m	Sy 2
116	WMP			r		
117	ZM080659.1	08:06	+19:51	68	6m	
118	WMP			r		
119	ZM080706.5	08:07	+18:06	68	15m	
120	WMP			r		
121	ZM091907.1	09:19	+21:30	68	4m	
122	WMP			r		
123	ZM091802.4	09:18	+20:17	68	5m	
124	WMP			r		
125	ZM091500.0	09:15	+22:35	68	5m	937
126	WMP			r		
127	ZM091023.5	09:10	+19:27	68	4m	
128	WMP			r		
129	ZM091506.0	09:15	+22:20	68	6m	
130	WMP			r		
131	ZM091579.5	09:15	+19:16	68	12m	pec.
132	WMP			r		
133	ZM091528.3	09:15	+21:08	68	7m	
134	WMP			r		
135	ZM091046.1	09:10	+19:36	68	5m	
136	WMP			r		
137	ZM091447.7	09:14	+22:34	68	4m	
138	WMP			r		
139	ZM091547.7	09:15	+22:29	68	6m	
140	WMP			r		

60 inch Telescope Log			Spectrograph: <u>FAST</u>			
Observer: <u>PB</u>			Grating: <u>300L</u>		Page: <u>7106</u>	
PI: <u>Huchra &amp; Torres</u>			Date: <u>3/8/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
141	ZM091517.7	09:15	+18:04	68	12m	clouds.
142	COMP			r		
143	NY227	10:20	+20:27	6	3m	
144	COMP			r		
145	MRK421	11:01	+38:28	6	4m	
146	COMP			r		
147	NH051	12:6	+44:48	6	2m	
148	COMP			r		
149	NH051	12:08	+39:41	6	35s	
150	COMP			r		
151	ZM100109.8	10:01	+27:24	68	12m	
152	COMP			r		
153	ZM100245.5	10:02	+21:40	68	6m	
154	COMP			r		
155	ZM102916.1	10:25	+15:27	68	6m	
156	COMP			r		
157	ZM103347.3	10:33	+12:43	68	5m	919
158	COMP			r		
159	ZM103334.6	10:33	+11:54	68	5m	960
160	COMP			r		
161	SNIPEE	13:17	+18:33	2	3m	8m clouds + moon. PA=12
162	COMP			r		stop.
163-67	HTUN	13:46	+05:06	76	10-20s	1200L; 1.1" slit
68	COMP			r		filter 16; lens = MLO
165-172	FLAT				1m	Torres Test
173	ZM120317.6	12:03	+20:38	68	8m	300L; 3" slit
174	COMP			r		
175	ZM120310.4	12:03	+16:27	68	1.5m	
176	COMP			r		

60 inch Telescope Log  
 Observer: PB  
 PI: Huchra  
 Spectrograph: FAST  
 Grating: 300R  
 Date: 3/8/99  
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
177	ZM121451.4	12:14	+73:59	68	5m	
178	WMP			r		
179	ZM121354.9	12:13	+71:45	68	5m	
180	WMP			r		
181	ZM121109.6	12:11	+18:30	68	5m	
182	WMP			r		
183	ZM120741.9	12:07	+12:02	68	6m	
184	WMP			r		
185	ZM121108.4	12:11	+14:20	68	4m	
186	WMP			r		
187	ZM121729.8	12:17	+21:20	68	5m	
188	WMP			r		
189	ZM120138.4	12:01	+14:29	68	7m	
190	WMP			r		
191	ZM12056A	12:01	+22:37	68	7m	
192	WMP			r		
193	ZM122153.2	12:21	+27:17	68	5m	
194	WMP			r		
195	ZM123048.4	12:30	+23:07	68	8m	
196	WMP			r		
197	ZM123352.7	12:33	+20:27	68	7m	
198	WMP			r		
199	MRK 279	13:51	+61:33	6	3m	
200	WMP			r		
201	N8548	14:15	+25:22	6	3m	
202	WMP			r		
203	SN1999cc	16:07	+37:58	2	15m	a few clouds @ dawn
204	WMP			r		
205/206	ISD053204Z	15:50	+32:05	56	1m	
207	WMP			r		



208-217 BEAS OS  
 218-227 FLAT 14s  
 228-237 BEAS OS  
 238-247 FLAT 7s  
 248-257 DARK 20m

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>7108</u>	
Observer: <u>P Berlin</u>				Grating: <u>3000</u>			
PI: <u>Huchra &amp; Falco</u>				Date: <u>3/9/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments	
1-10	DARK				5m		
11-15	DARK				20m		
16-25	BTS				0s		
26-35	FLAT				7s	a few thin clouds.	
36-45	BTS				0s		
46-55	FLAT				14s		
56-60	sky	zenith		57	2s		
61	WMP			r	5s		
62-64	H 1751971	06:57	+12:13	57	4s		
65	WMP			r			
66-67	G191323	05:4	+57:45	56	2m	1.1	
68	WMP			r			
69-71	G16am	04:11	+55:59	101	2s-40s		
72	WMP			r			
73	ZM041562	04:31	+17:26	88	4m		
74	WMP			r			
75	ZM0434577	04:34	+17:24	68	4m		
76	WMP			r			
77	ZM04327.6	04:43	+17:50	68	8m		
78	WMP			r			
79	ZM0433156	04:33	+17:56	68	5m		
80	WMP			r			
81	02571057	03:0	+05:42	60	5m		
82	WMP			r			
83	072110071	03:23	+00:07	60	6m		
84	WMP			r			
85	030704702	03:10	+42:13	60	7m	superposed stars, but good cm	
86	WMP			r			
87	I284138	03:06	+42:02	60	7m	+ to E. cm ok	
88	WMP			r			

chip gain cal a little low

noise ~ 7.8

gain ~ 1.09

60 inch Telescope Log				Spectrograph: <u>FAST</u>		
Observer: <u>PB</u>				Grating: <u>300L</u>		Page: <u>7109</u>
PI: <u>Falco</u>				Date: <u>3/9/99</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
89	03212 p1734	03:24	+17:45	60	12m	
90	WMP			r		
91	04350 p2201	04:01	+22:12	60	5m	
92	WMP			r		
93	04020 p0419	04:05	+04:26	60	12m	V. LSB em
94	WMP			r		
95	04024 p0417	04:05	+04:24	60	4m	
96	WMP			r		
97	04341 m0224	04:36	-02:17	60	4m	
98	WMP			r		
99	04349 m0523	04:37	-02:16	60	3m	
100	WMP			r		
101	04361 p0005	04:38	+00:11	60	4m	
102	WMP			r		
103	04305 p0555	04:33	+05:21	60	10s	stellar nuc S <sub>0</sub> 1!!
104	WMP			r		
105	04320 p0301	04:32	+03:04	60	4m	
106	WMP			r		
107	04374 p0515	04:40	+07:20	60	3m	N gal
108	WMP			r		
109	04374 p0714	04:40	+07:20	60	2m	S gal
110	WMP			r		
111	05516 p1158	05:57	+11:56	60	2m	
112	WMP			r		
113	06041 p0550	06:03	+07:49	60	4m	
114	WMP			r		
115	06192 p0224	06:21	+10:21	60	2m	
116	WMP			r		
117	06306 p1205	06:33	+12:05	60	10S	sup star  fuzz
118	06306 p1205	"	"	60	10m	←  fuzz of.
119	WMP			r		

118 - "fuzz" symmetrically distributed around  
 superposed star: cannot get  
 galaxy velocity - NO em lines.

60 inch Telescope Log			Spectrograph: <u>FAST</u>			
Observer: <u>PB</u>			Grating: <u>3002</u>		Page: <u>7110</u>	
PI: <u>Falco &amp; Huchra</u>			Date: <u>3/9/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
120	B66ce	06:03	+27:11	100	6m	clouds coming in
121	WMP			r		
122	SN1999aa	06:27	+71:29	2	20m	PA=20
123	WMP			r		
124	06301p1013	06:33	+40:41	60	8m	
125	WMP			r		
126	06348p6530	06:39	+65:27	60	7m	
127	WMP			r		
128	06306p1205	06:36	+80:36	60	6m	
129	WMP			r		
130	06372p7121	06:39	+74:20	60	5m	
131	WMP			r		
132	06376p7129	06:44	+74:26	60	5m	bn by 2; * to W
133	WMP			r		
134	06392p6608	06:44	+66:06	60	3m	
135	WMP			r		
136	06382p6543	06:43	+65:40	60	4m	
137	WMP			r		
138	06364p5316	06:40	+53:12	60	4m	
139	WMP			r		known there is a skunk
140	06389p3130	06:42	+74:26	60	4m	inside the building.
141	WMP			r		
142	2M091647.5	09:16	+21:57	60	5m	
143	WMP			r		
144	2M091530.1	09:15	+23:36	60	5m	+ to W
145	WMP			r		
146/147	Ferret 34	10:36	+45:01	50	20s	
148	WMP			r		



60 inch Telescope Log		Spectrograph: <u>FAST</u>				
Observer: <u>PB</u>		Grating: <u>300R</u>			Page: <u>711</u>	
PI: <u>Falco et al</u>		Date: <u>3/9/99</u>				
Number	Object	R. A.	Dec.	L/R	Exp	Comments
149, 150, 35, 79	Horseshoe	09:57	+11:25	99	20m	for Andy Santopetersi
150, 2, 74, 30	WMP			↑	x6	+ Kris Erikson <u>5" slit</u> Holmberg IX Horseshoe
161	N3227	10:20	+20:07	6	3m	3" slit ↓
162	WMP			↑		
163	MRK22	11:01	+15:24	6	4m	
164	WMP			↑		
165, 79	SN1998S	11:46	+47:28	2	20m	x3
166, 80	WMP			↑		
171	H2M	13:21	+36	56	2m	PA=90
172	WMP			↑		
173, 75	SN1999E	13:17	-18:33	2	20m	x2 PA=16 strange sn
174, 76	WMP			↑		
177	12588p1021	13:00	+70:11	60	4m	thin clouds!
178	WMP			↑		
179	MRK27A	13:51	+16:33	6	3m	
180	WMP			↑		
181	13346p757	13:35	+78:02	60	5m	
182	WMP			↑		
183	13033p5352	13:05	+53:35	60	4m	sup *?; gal spec ok! pec.
184	WMP			↑		
185	13015p1510M	13:03	+12:54	60	12m	nice blue. extended em.
186	WMP			↑		
187	13125p1729	13:14	+17:13	60	3m	
188	WMP			↑		
189	13344p1747	13:16	+17:24	60	3m	
190	WMP			↑		
191	13411p1818	13:42	+18:18	60		
192	WMP			↑		

60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>7112</u>	
Observer: <u>PB</u>			Grating: <u>300L</u>			
PI: <u>Krishner</u>			Date: <u>3/9/99</u>			
Number	Object	R. A.	Dec.	L/R	Exp	Comments
193	15587p5435	1540	+5819	60	12m	
194	WMP			f		
195	16237p7103	1633	+7403	68	11m	
196	WMP			f		
197	SN199ac	1607	+0758	2	15m	PA=6
198	WMP			f		
199	MRKSN	1653	+3945	6	5m	
200	WMP			f		
201	N5548	1441	+2522	6	3m	
202	WMP			f		
203	N5866	1505	+5557	57	4m	
204	WMP			f		thin clouds scattered
205-214	BIAS				0s	@ dawn
215-224	FLAT				7s	
225-234	BIAS				0s	
235-244	FLAT				14s	
245-254	FLAT				9s	bin by 2; 5" slit for Andy

60 inch Telescope Log  
 Observer: CALKINS  
 PI: All, Muzerole, Kishner, Falco  
 Spectrograph: FAST  
 Grating: 300L  
 Date: 3/10/99  
 Page: 7113

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-5	DARK				15m	
6-15	BIAS				0s	
16-25	FLAT				6s	
26-35	BIAS				0s	
36-45	FLAT				12s	
46	Hittner 600	6 45	2 08	#56	2m	
47	comp			↑		
48	AGK2 p14783	7 20	14 54	#57	5s	
49	comp			↑		
50	AKN120	5 16	00 08	#60	3m	object to west
51	comp			↑		
52	MS2967	6 41	9 28	#82	20m	
53	comp			↑		
54-56	ML1816	6 40	9 47	#82	20m	
57	comp			↑		
58	MS2859	6 40	9 28	#82	15m	
59	comp			↑		
60	SN1999aa	8 27	21 29	#2	15m	PA = 22.0, object east
61	comp			↑		
62	PG0846p249	8 48	24 42	#56	2m	PA = 37°
63	comp			↑		
64	CG421p5142.5.5	6 45	51 42	#60	5m	object east
65	comp			↑		
66	CG425p4390.5	6 46	43 47	#60	7m	
67	comp			↑		
68	CG427p4352	6 46	42 49	#60	2m	
69	comp			↑		
70	CG433p7434	6 46	74 31	#60	2.5m	object east
71	comp			↑		
72	CG440p3340	6 47	33 35	#60	2.5m	

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>714</u>	
Observer: <u>CALKINS</u>				Grating: <u>XOOL</u>			
PI: <u>FALCO</u>				Date: <u>3/10/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments	
73	comp			↑			
74	06448p0546	6 47	5 39	F60	1m	stellar?	
75	comp			↑			
76	06467p2544	6 49	25 41	F60	7m	PA=69°	
77	comp			↑			
78	06468p2545	6 49	25 42	F60	5m	object west, PA=69°	
79	comp			↑			
80	06470p2626	6 50	26 22	F60	6m	PA=69°	
81	comp			↑			
82	06470p2543	6 50	25 40	F60	5m		
83	comp			↑			
84	06475p3331	6 50	33 28	F60	4m	object west PA=69°	
85	comp			↑			
86	06476p3330	6 50	33 26	F60	3m		
87	comp			↑			
88	06476p3335	6 50	33 31	F60	3m		
89	comp			↑			
90	06483p1258	6 51	12 55	F60	3m		
91	comp			↑			
92	06478p3335	6 51	23 31	F60	3m		
93	comp			↑			
94	06482p2649	6 51	26 46	F60	2.5m		
95	comp			↑			
96	06487p2733	6 51	27 28	F60	12m	central object	
97	comp			↑			
98	06494p1518	6 52	15 14	F60	3m	object west	
99	comp			↑			
100	06495p1519	6 52	15 14	F60	4m		
101	comp			↑			
102	06489p5715	6 53	57 10	F60	12m		

74 star; NO FUZZ ON SLIT

## 60 inch Telescope Log

Observer: CALIXINSPI: All, Koranyi, TustinSpectrograph: FASTGrating: 300LPage: 7115Date: 3/10/99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
103	comp			↑		
104	N3227	10 23	19 51	#6	3m	
105	comp			↑		
106	M421	11 04	38 12	#6	4m	
107	comp			↑		
108	N4151	12 10	39 24	#6	30s	
109	comp			↑		
110	N4258	12 18	47 18	#6	2m	
111	comp			↑		
112	mlw4-i.033	12 03	2 51	#35	12m	
113	comp			↑		
114	mlw4-i.034	12 01	00 58	#35	12m	
115	comp			↑		
116	mlw4-i.037	12 03	00 50	#35	17m	
117	comp			↑		
118	mlw4-i.038	12 06	00 36	#35	12m	
119	comp			↑		
120	mlw4-i.042	12 03	00 52	#25	20m	
121	comp			↑		
122	mlw4-i.044	12 09	01 50	#35	20m	redo? emission
123	comp			↑		
124	A1644D5003	12 58	-17 57	#81	6m	
125	comp			↑		
126	A1644D5004	12 57	-17 56	#81	15m	
127	comp			↑		
128	A1644D5009	12 54	-17 55	#81	12m	
129	comp			↑		
130	A1644D5025	12 55	-17 41	#81	15m	object east
131	comp			↑		
132	A1644D5028	12 58	-17 37	#81	20m	

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>7116</u>
Observer: <u>CALICINA</u>				Grating: <u>3000L</u>		
PI: <u>Justin, Ally, Hubert</u>				Date: <u>3/10/99</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
123	comp			↑		
134	MRK 279	13 52	69 17	#6	3m	
135	comp			↑		
136	SS1425pdx	14 26	60 25	#6	10m	
137	comp			↑		
138	NS548	14 17	25 07	#6	3m	
139	comp			↑		
140	2M144427.3p	14 44	12 15	#68	12m	
141	comp			↑		
142	2M145252.7p	14 52	12 21	#68	3m	
143	comp			↑		
144	2M144937.7p	14 49	18 42	#68	4m	
145	comp			↑		
146	2M145324.2p	14 53	18 28	#68	9m	clouds moving in
147	comp			↑		
148	2M143527.7p	14 35	23 31	#68	8m	
149	comp			↑		
150	2M145240.7p	14 52	21 58	#68	6m	
151	comp			↑		
152	2M144540.6p	14 45	14 03	#68	6m	
153	comp			↑		
154	2M145418.3p	14 54	17 43	#68	7m	clouds invade last hour!
155	comp			↑		
156-160	sky			#57	2s	
161	comp			↑		
162-171	BIGS				0s	
172-181	FLAT				6s	
182-191	BIGS				0s	
192-201	FLAT				12s	
202-211	DARK				15m	

60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>2/17</u>	
Observer: <u>CALYONS</u> <u>Kirchner</u>		Grating: <u>3006</u>		Date: <u>3/11/99</u>		
PI: <u>All, Kenyon Garcia, Hiltnerole</u>						
Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-20	BIAS				0s	
21-30	PLAT				6s	
31-40	BIAS				0s	
41-50	FLAT				12s	
51-55	sky			#57	2s	
56	comp			↑		
57	Hiltner 600	6 45	2 07	#56	2m	
58	comp			↑		
59	HDS 2971	7 00	27 08	#57	5s	poor seeing
60	comp			↑		
61	BC Gem	6 03	27 41	#100	6m	
62	comp			↑		
63-65	CICam	4 19	55 59	#107	2,209s	
66	comp			↑		
67	MS1417	6 40	9 45	#82	20m	bright object west
68	comp			↑		
69	MS1520	6 41	9 45	#82	20m	in/out of clouds
70	comp			↑		
						searching for holes wait out snow & clouds
71	N3227	10 23	19 51	#6	3m	terrible seeing!
72	comp			↑		
73	Feige 34	10 39	43 06	#56	90s	PA = 17°
74	comp			↑		
75	sm1999aa	8 27	21 29	#2	202m	PA = 62°
76	comp			↑		
77	sm1999aa	12 01	14 06	#2	15m	PA = 35°
78	comp			↑		

NOISE + GAIN CALC. LOW

NOISE ~ 2.7 in 7.8

GAIN ~ 1.1

60 inch Telescope Log			Spectrograph: <u>FAST</u>			
Observer: <u>CAUGENS</u>			Grating: <u>300L</u>		Page: <u>7118</u>	
PI: <u>Falco</u>			Date: <u>3/11/99</u>			
Number	Object	R. A.	Dec.	L/R	Exp	Comments
79	10581m0252	11 00	-2 53	F60	6m	PA = 59°
80	comp			↑		
81	N5492_14.0	11 00	10 31	F60	5m	
82	comp			↑		
83	10589m0156	11 01	-2 14	F60	20m	
84	comp			↑		
85	10597p1030	11 02	10 15	F60	3m	
86	comp			↑		
87	10599p1700	11 02	16 43	F60	20m	
88	comp			↑		
89	N3523_13.8	11 02	75 05	F60	10m	
90	comp			↑		
91	11010p5958	11 04	59 40	F60	4m	
92	comp			↑		
93	11010m0114	11 05	-1 30	F60	3m	
94	comp			↑		
95	11027m0031	11 05	-00 47	F60	4m	
96	comp			↑		
97	11035p0335	11 06	3 19	F60	4m	
98	comp			↑		
99	11036p0335	11 06	3 19	F60	4m	
100	comp			↑		
101	11037p6708	11 06	66 49	F60	4m	
102	comp			↑		
103	11086p5649	11 11	56 29	F60	5m	redo?
104	comp			↑		
105	11068m0035	11 09	-00 57	F60	8m	
106	comp			↑		
107	11072m0221	11 09	-3 40	F60	7m	Sy
108	comp			↑		



## 60 inch Telescope Log

Observer: CALKINS

Huchra

Spectrograph: FASTGrating: 3000LPage: 7119PI: Fico, Ali, Koranyi, KirshnerDate: 3/1/99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
109	11085m0318	11 10	-3 34	#60	10m	
110	comp			↑		
111	MRK421	11 04	38 12	#6	4m	
112	comp			↑		
113	114051	12 03	44 31	#6	2m	
114	comp			↑		
115	mkw12-i.053	14 01	10 29	#35	20m	
116	comp			↑		
117	mkw12-i.054	14 06	10 13	#35	15m	
118	comp			↑		
119	mkw12-i.055	13 59	10 21	#35	20m	
120	comp			↑		
121	mkw12-i.056	13 59	9 41	#35	15m	
122	comp			↑		
123	mkw12-i.057	14 06	9 34	#35	20m	
124	comp			↑		
125	mkw12-i.058	14 02	10 31	#35	15m	
126	comp			↑		
127	MRK279	12 52	69 17	#6	3m	
128	comp			↑		
129	NS548	14 17	25 07	#6	3m	
130	comp			↑		
131	sn1999ac	16 07	7 57	#2	17m	PA=4°
132	comp			↑		
133	2M133733-9p	15 37	21 13	#68	4m	star west
134	comp			↑		
135	2M170254-7p	17 02	22 55	#68	4m	
136	comp			↑		
137	NS866	15 06	55 45	#57	1m	
138	comp			↑		

60 inch Telescope Log Observer: <u>CALICENS</u> PI: <u>AI</u>	Spectrograph: <u>FAST</u> Grating: <u>300L</u> Date: <u>3/11/99</u>
Page: <u>7120</u>	

Number	Object	R. A.	Dec.	L/R	Exp	Comments
179	BDp332642	15: 51	22 56	155G	1m	
190	comp			↑		
141-150	Bias				0s	
151-160	FLAT				6s	
161-170	Bias				0s	
171-180	FLAT				12s	
181-190	DARK				15m	

## ZMASS Velocity Field Test

60 inch Telescope Log

Observer: CALKINSPI: Muchra, Kochanek, PahreSpectrograph: FASTGrating: 300L/600LPage: 7121Date: 3/12/99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
1-7	DARK				15m	binby 4, 300L, 3" slit
8	FLAT			Test	60s	binby 1, 600L, 2", 494 K1
9	comp			Test		
10	BIAS			Test		
11-15	sky			#57	20s	
16	comp			↑		
17-26	BIAS				0s	
27-36	FLAT				60s	
37	Hiltner 600	6 45	2 08	#56	90s	poor seeing
38	comp			↑		star west
39	G191B2B	5 05	52 49	#56	2m	
40	comp			↑		
41	PG0823p546	8 26	54 27	#56	4m	
42	comp			↑		
43	HD78235	9 08	29 39	Test	N/A	0.5 guide rate
44	comp			↑		
45	HD78235	9 08	29 39	Test	N/A	1.0 guide rate
46	comp			↑		
47	HD78235	9 08	29 39	Test	N/A	2.0 guide rate
48	comp			↑		
49	comp			↓		
50-52	2MJ080036	8 00	15 40	Test	20m	PA=39°, seeing improved
53	comp			↑		star "west"
54	comp			↓		
55-57	2MJ080806.11	8 08	14 49	Test	20m	PA=-5.0°
58	comp			↑		
59	comp			↓		
60-62	2MJ090215.84	9 02	16 49	Test	20m	PA=54°, good seeing
63	comp			↑		
64	HD90717	10 29	29 43	Test	N/A	0.5 guide rate

ZMASS

Velocity Field Test

60 inch Telescope Log

Observer: CALKINSPI: Huchra, Kochanek, PahreSpectrograph: FASTGrating: 600LPage: 7122Date: 3/12/99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
65	comp			↑		
66	G11140	11 37	29 48	#56	4m	
67	comp			↑		
68	comp			↓		
69-71	ZMJ091348.50	9 13	16 51	Test	20m	
72	comp			↑		
73	HD 81786	16 15	31 27	Test	N/A	0.5 guide rate
74	comp			↑		
75	comp			↓		
76-78	ZMJ102511.52	10 25	17 14	Test	20m	
79	comp			↑		
80	comp			↓		
81-83	ZMJ104851.09	10 48	12 59	Test	20m	PA = 109, seeing deteriorating
84	comp			↑		
85	HD115004	13 13	46 09	Test	N/A	0.5 guide rate
86	comp			↑		
87	comp			↓		
88-90	ZMJ160629.76	16 06	17 44	Test	20m	PA = 24°, seeing stabilized
91	comp			↑		
92	comp			↓		
93-94	ZMJ142658.25	14 27	12 52	Test	20, 10m	PA = 22°, scan rising
95	comp			↑		
96	HD147025	16 18	25 53	Test	N/A	0.5 guide rate
97	comp			↑		
98	BDP332642	15 51	32 57	#56	2.5m	
99	comp			↑		
100-104	sky			#57	5s	
105	comp			↑		
106-115	BIAS				0s	
116-125	FLAT				60s	
126-135	DARK				15m	

## 60 inch Telescope Log

Observer: K. Derry / N. CaldwellPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7123Date: 3-13-99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
22-31	FLAT					
32-41	BIAS					
43	COMP					
44	HD66141	8 02 16	2 26 04		1	wrong star, Vel std
	COMP					
46	HD45410	6 26 27	58 12 8		3	
	COMP					
48	HD48432	6 42 34	57 13 25		5	
	COMP					
50	HD51530	6 55 43	26 8 55		10	wrong star
	COMP					
52	HD54719	7 7 58	30 19 45		4	
	COMP					
54	HD66141	8 02 16	2 20 04		2	Vel std
	COMP					
56	HD51530	6 55 43	26 8 55		5	
	COMP					
58	HD57264	7 18 42	36 51 24		4	
	COMP					
60	HD57727	7 20 26	25 8 54		4	
	COMP					
62	Hiltner600	6 42 37	2 11 25		300	PA = 13.0, 5" slit, Flux std
	COMP					
64	N2880	9 29 35	62 29 51		1800	PA = 30.0
	COMP					
66	N2880	9 29 35	62 29 51		1800	
	COMP					
68	N2880	9 29 35	62 29 51		1800	
	COMP					
70	Klein II	9 57 07.7	68 35 55		600	set tilt to 752

## 60 inch Telescope Log

Observer: K. Dendy / N. CaldwellPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7124Date: 3-13-99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
71	COMP					
72	F32DIHII					HIIpos 762
73	VCC1250 COMP	12 27 28	12 37 30		1800	PA = -54.0
75	VCC1250 COMP	12 27 28	12 37 30		1800	
77	VCC523 COMP	12 19 32	13 4 0		1800	PA = -30
79	VCC523 COMP	12 19 32	13 4 0		1800	
81	VCC523 COMP	12 19 32	13 4 0		1800	
83	VCC698 COMP	12 21 33	11 29 42		1800	PA = +42.0
85	VCC698 COMP	12 21 33	11 29 42		1800	
87	VCC698 COMP	12 21 33	11 29 42		1800	
89	NSB31 COMP	15 04 07	1 13 09		1800	PA = +12.0
91	NSB31 COMP	15 04 07	1 13 09		1800	
93	NSB31 COMP	15 04 07	1 13 09		1800	
95	PG170Bp602 COMP	17 08 36	60 13 52		300	PA = +12.0, 5" slit, Flux std
97	HD161096 COMP	17 43 28	4 34 02		0.5	PA = +12, 3" slit, Vel std
99-108	BIAS					
109-118	FLAT				15	
119-124	DARK				1800	

## 60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7125Date: 3-14-99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1	COMP					
2-6	BIAS					300 gpm
7-11	FLAT				15	300 gpm
12-21	BIAS					600 gpm
22-26	FLAT				15	
27	H1Hner600 COMP	6 42 37	2 11 25		360	DA=13.0, 5" slit Flx std
29	N2693 COMP	8 56 58	51 20 44		1800	PA=30, 3" slit
31	N2693 COMP	8 56 58	51 20 44		1800	
33	N2693 COMP	8 56 58	51 20 44		1800	
35	VCC2048 COMP	12 44 44	10 28 36		1800	PA=-50.0
37	VCC2048 COMP	12 44 44	10 28 36		1800	
39	VCC2048 COMP	12 44 44	10 28 36		1800	
41	VCC2048 COMP	12 44 44	10 28 36		1800	clouds increasing
43	VCC1283 COMP	12 27 47	13 51 12		1800	PA=35.0
45	VCC1283 COMP	12 27 47	13 51 12		1800	
47	VCC1283 COMP	12 27 47	13 51 12		1800	
49	VCC1283 COMP	12 27 47	13 51 12		1800	
51	UGC9519	14 46 21	34 22 15		1800	clouded out for while





## 60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7127Date: 3-15-99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1	COMP					
2-4	DARK				1800	
5-14	BIAS					
15-24	FLAT				15	
25-29	SKY				15	
30	COMP					
31	HD40035	5 55 25	54 17 0		0.5	Rose Stand.
	COMP					
33	HD41330	6 02 48	35 23 50		3	Rose Stand.
	COMP					
35	HD41597	6 05 34	58 56 42		3	Rose Stand.
	COMP					
37	HD43042	6 11 54	19 10 31		2	Rose Stand.
	COMP					
39	HD43380	6 14 33	46 22 56		4	Rose Stand.
	COMP					
41	HD66141	8 2 16	2 20 4		1	Vel. Standard
	COMP					
43	Hiltner600	6 42 37	2 11 25		150	PA=13, 5" slit, Flux Std.
	COMP					5" slit
45-49	BIAS					binby 2, 3" slit, 300 gpm
50-54	FLAT				15	"
	COMP					"
56	CICam	4 19 42	55 59 58		2	
58	CICam	4 19 42	55 59 58		20	
60	CICam	4 19 42	55 59 58		90	
	COMP					
62	BBGem	6 03 31	27 41 52		300	binby 2, 300 gpm

## 60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7128Date: 3-15-99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
63	COMP					
64	COMP					binby 3, 600 gpm
65	N2778	9 12 24	35 1 40		1800	PA = 80
	COMP					
67	N2778	9 12 24	35 1 40		1800	
	COMP					
69	N3248	10 27 45	22 50 40		1800	PA = -60
	COMP					
71	N3248	10 27 45	22 50 40		1800	
	COMP					
73	VCC1279	12 30 18	12 19 44		1800	PA = -50, star near slit
	COMP					
75	VCC1279	12 30 18	12 19 44		1800	
	COMP					
77	VCC1475	12 33 05	16 15 57		1800	PA = -20, no guide star
	COMP					
79	VCC1475	12 33 05	16 15 57		1800	
	COMP					
81	VCC1475	12 35 05	16 15 57		1800	
	COMP					
83	VCC1827	12 37 40	8 39 30		1800	PA = 50
	COMP					
85	VCC1827	12 37 40	8 39 30		1800	
	COMP					
87	VCC1827	12 37 40	8 39 30		1800	
	COMP					
89	VCC1827	12 37 40	8 39 30		1800	
	COMP					
91	N5424	14 02 58	9 25 36		1800	PA = +50
	COMP					



60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7130Date: 3-17-99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-5	DARK				1800	
6-15	BIAS					
16-25	FLAT				15	
26-31	SKY				15	
32	COMP ↑					
33	COMP ↓					
34	HD30652	4 49 50	6 57 41		0.5	Rose Stand.
35	COMP ↑					
36	COMP ↓					
37	HD34411	5 15 37	40 03 25		2	Rose Stand.
38	COMP ↑					
39	COMP ↓					
40	HD35296	5 21 30	17 20 20		2	Rose Stand
41	COMP ↑					
42	COMP ↓					
43	HD37984	5 39 53	1 27 7		2	Rose Stand
44	COMP ↑					
45	↓ COMP					
46	HD66141	8 02 16	2 20 04		1	Velocity Stand.
47	COMP ↑					
48	↓ COMP					
49	Hiltner600	6 42 37	2 11 25		150	5" slit, PA=13, Flux St.
50	COMP ↑					
51-55	BIAS					300 gpm, 3" slit, binby 2
56-60	FLAT				15	
61	↓ COMP					
62	CICam	4 19 42	55 59 58		2	
63	COMP					
64	CICam	4 19 42	55 59 58		20	
65	COMP					

## 60 inch Telescope Log

Observer: K. DenchPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7131Date: 3-17-99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
66	CI Cam	4 19 42	55 59 53		90	
67	COMP ↑					
68	↓ COMP					
69	BG Gem	6 03 30	27 41 51		300	
70	COMP ↑					
71	COMP ↓					
72	F32 HII	10 19 59.9	69 11 28		600	600 gm, tilt 752, binby 3 PA = 50.0
73	COMP ↑					
74	↓ COMP					
75	A10484p72	10 52 6	71 46 29		1800	tilt 452, PA = 40.0
76	COMP ↑					↑
77	A10484p72	10 52 6	71 46 29		1800	no guide star
78	COMP ↑					↓
79	A10484p72	10 52 6	71 46 29		1800	
80	COMP ↑					
81	↓ COMP					
82	VCC1521	12 33 46	10 59 34		1800	PA = -45
83	COMP					
84	VCC1521	12 33 46	10 59 34		1800	
85	COMP					
86	VCC1521	12 33 46	10 59 34		1800	
87	COMP					
88	VCC1521	12 33 46	10 59 34		1800	
89	COMP ↑					
90	COMP ↓					
91	VCC389	12 17 31	15 14 18		1800	PA = 37.0
92	COMP					
93	VCC389	12 17 31	15 14 18		1800	
94	COMP					
95	VCC389	12 17 31	15 14 18		1800	



60 inch Telescope Log

Observer: K. DewdyPI: N. CaldwellSpectrograph: FASTGrating: 600Date: 3-18-99Page: 7133

Number	Object	R. A.	Dec.	L/R	Exp	Comments
1-3	DARK					
4-13	BIAS				15	
14-23	FLAT					
24	↓ COMP				15	
25-29	SKY					
30	COMP ↓				10	Rose Standard
31	HD45282	6 24 3	3 27 24			
32	↑ COMP					
33	COMP ↓				3	Rose Standard
34	HD48781	6 43 51	48 50 41			
35	↑ COMP					
36	COMP ↓				3	Rose Standard
37	HD51536	6 55 43	26 8 55			
38	↑ COMP					
39	COMP ↓				3	Rose Standard
40	HD52711	7 0 20	29 25 22			
41	↑ COMP					
42	COMP ↓					
43	HD55280	7 11 33	59 43 45		2	Rose Standard
44	↑ COMP					
45	COMP ↓					
46	HD66141	8 02 16	2 20 4		1	Vel. Standard
47	↑ COMP					
48	COMP ↓					
49	Hiltner 600	17 08 36	60 13 52		150	PA=13, 5" slit, Flux Stand.
50	↑ COMP					
51-55	BIAS					
56-60	FLAT				15	300 gpm, 3" slit, PA=90
61	COMP ↓					↓

## 60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7134Date: 3-18-99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
62	CICam	4 19 42	55 59 58		2	↑
63	COMP					
64	CICam	4 19 42	55 59 58		20	Emission Line Stars
65	COMP					binby?, 360 gpm
66	CICam	4 19 42	55 59 58		90	↓
67	↑ COMP					
68	COMP ↓					600 gpm
69	N2918	9 35 44	31 42 16		1800	PA = -85.0
70	COMP					
71	N2918	9 35 44	31 42 16		1800	
72	COMP ↑					
73	↓ COMP					
74	N3156	10 12 42	3 7 50		1800	PA = -35.0, v. bright guide star
75	COMP ↑					
76	N3156	10 12 42	3 7 50		1800	
77	↑ COMP					
78	COMP ↓					
79	VCC218	12 14 32	12 34 0		1800	PA = -50
80	COMP					
81	VCC218	12 14 32	12 34 0		1800	
82	COMP					
83	VCC218	12 14 32	12 34 0		1800	
84	COMP					
85	VCC218	12 14 32	12 34 0		1800	
86	↑ COMP					
87	COMP ↓					
88	VCC1422	12 32 14	10 14 57		1800	PA = 0
89	COMP					
90	VCC1422	12 32 14	10 14 57		1800	
91	COMP					



## 60 inch Telescope Log

Observer: K. DendyPI: N. CaldwellSpectrograph: FASTGrating: 600Page: 7135Date: 3-18-99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
92	VCC1422	12 34 14	10 14 57		1800	
93	COMP					
94	VCC1422	12 34 14	10 14 57		1800	
95	↑ COMP					
96	COMP ↓					
97	VCC966	12 24 31	15 44 18		1800	PA=60
98	COMP					
99	VCC966	12 24 31	15 44 18		1800	
100	↑ COMP					
101	COMP ↓					
102	NS611	14 24 4	33 2 27		1800	PA=85
103	COMP					
104	NS611	14 24 4	33 2 27		1800	
105	↑ COMP					
106	COMP ↓					PA=13 ↑
107	PG1708p602	17 08 36	60 13 52		600	5" slit, Flux Stand.
108	↑ COMP					↓
109	COMP ↓					3" slit
110	HD161096	17 43 28	4 34 2		0.3	Vel. Stand.
111	↑ COMP					
112	COMP ↓					
113	HD150449	16 36 59	56 06 46		3	Rose Stand.
114	↑ COMP					
115	COMP ↓					
116	HD150680	16 41 17	31 36 11		0.5	Rose Stand.
117	↑ COMP					
118	COMP ↓					
119	HD152815	16 52 46	21 2 16		3	Rose Stand.
120	↑ COMP					



60 inch Telescope Log

Observer: E. Falco

PI: E. Falco

Spectrograph: FAST

Grating: 300

Page: 3137

Date: 19-20 March 99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-5	BIAS			#60	0	
6-12	FOCUS - COMP			↑		930 bins 3
13-17	BIAS			↑		
18-27	FLAT			↓	6	
28-32	DARK			↓	300	
33-39	DARK			↓	600	
40-45	SKY	20m		0	2,5x4	
46	COMP			↑	6	
47	HD 52971			57	10	
48	COMP			↑		
49	BG Gem			100	600	x2
50	COMP			↑		↓
51	CI Can			107	120	↓
52	COMP			↑		
53	Hiltner 600			57	60	x3
54	COMP			↑	6	↓
55	HD 52971			57	4	↓
56	COMP			↑	6	
57	05335p3154			60	120	
58	COMP			↑		
59	05274p6741			60	300	
60	COMP			↑		
61	05265p6734			60	180	
62	COMP			↑		
63	05317p0246			60	600	
64	COMP			↑		
65	08397p6510			60	180	
66	COMP			↑		
67	08414p4155			60	600	
68	COMP			↑		

bin by 2 data reduced with flats + bias  
from March 20 (next night)

60 inch Telescope Log  
 Observer: E. Falco  
 PI: E. Falco  
 Spectrograph: FAST  
 Grating: 300  
 Date: 19-20 March 99  
 Page: 7138

Number	Object	R.A.	Dec.	L/R	Exp	Comments
69	08450p7030			60	120	>3
70	COMP			↑	6	
71	08479p2925			60	300	
72	COMP			↑		
73	08460p7202N			60	300	
74	COMP			↑		
75	08468p7200			60	180	
76	COMP			↑		
77	08502p0138			60	180	
78	COMP			↑		
79	08506m0128			60	180	
80	COMP			↑		
81	08512p0526			60	300	
82	COMP			↑		
83	08527m0205			60	180	
84	COMP			↑		
85	08526p1215			60	300	
86	COMP			↑		
87	N3216			60	180	
88	COMP			↑		
89	10201m0321			60	300	
90	COMP			↑	6	
91	10206m0321			60	300	confusion etc in
92	COMP			↑		
93	10209m0308			60	300	
94	COMP			↑		
95	10207p2008			60	180	
96	COMP			↑		
97	10204p5717			60	180	still granby
98	COMP			↑		

60 inch Telescope Log

Observer: E. Falco

PI: E. Falco

Spectrograph: FAST

Grating: 300

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Date: 19-20 March 99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
95	10206 m 0321			60	300	x3
96	COMP			↑		
97	10204 p 5717			60	300	
98	COMP			↑		
99	10215 p 1351			60	300	
100	COMP			↑		
101	10195 p 7852			60	180	
102	COMP			↑		
103	11128 p 4625			60	300	
104	COMP			↑		
105	11128 m 0329			60	300	
106	COMP			↑		
107	N 3601			60	180	
108	COMP			↑		
109	11134 m 0004			60	300	
110	COMP			↑	6	
111	11137 p 2927			60	300	
112	COMP			↑	6	
113	11154 p 5402			60	300	
114	COMP			↑	6	
115	11156 p 5905			60	300	
116	COMP			↑	6	
117	11144 p 7520			60	300	
118	COMP			↑		
119	N 4411 B			60	300	
120	COMP			↑		
121	± 3358			60	300	Balmers, weak
122	COMP			↑		
123	N 4485			60	180	
124	COMP			↑		

60 inch Telescope Log				Spectrograph: <u>FAST</u>		
Observer: <u>E. Falco</u>				Grating: <u>300</u>		Page: <u>7140</u>
PI: <u>E. Falco</u>				Date: <u>19-20 March 1999</u>		
Number	Object	R. A.	Dec.	L/R	Exp	Comments
125	12283p 5735			60	300	x3
126	COMP			↑	6	
127	13303m 0250			60	300	
128	COMP			↑	6	
129	13304m 0246			60	300	
130	COMP			↑	6	
131	13311m 0138			60	300	
132	COMP			↑	6	
133	13330p 0627			60	300	may need more, em
134	COMP			↑		
135	13331m 0040			60	240	OK, need more
136	COMP			↑	6	
137	13332m 0047			60	300	strong H $\alpha$
138	COMP			↑	6	
139	13337m 0155			60	300	ab, E
140	COMP			↑	6	
141	13338p 0625			60	600	
142	COMP			↑		
143	13376m 0238			60	300	a wee bit weak
144	COMP			↑		comp, forget it! ab
144	13501m 0146			60	180	weak ab
145	COMP			↑	6	
146	13510m 0049			60	300	em
147	COMP			↑		
148	13531p 2518			60	300	
149	COMP			↑		
150	13544p 4032			60	180	OK
151	COMP			↑	6	
152	14117m 0039			60		
153	COMP			↑	300	

60 inch Telescope Log		Spectrograph: <u>FAST</u>				
Observer: <u>E. Falco</u>		Grating: <u>300</u>			Page: <u>7141</u>	
PI: <u>E. Falco</u>		Date: <u>19-20 March 99</u>				
Number	Object	R.A.	Dec.	L/R	Exp	Comments
154	14119 m 0304			60	300	em!
155	COMP			↑		
156	14121 m 0003			60	300	em
157	COMP			↑		
158	14124 p 0021			60	300	E. abs
159	COMP			↑	6	
160	14127 p 0503			60	300	em
161	COMP			↑	6	
162	14128 m 0253			60	300	
163	COMP			↑		
164	14133 p 1626E			60	600	em?
165	COMP			↑	6	
166	14135 m 0101			60	300	em
167	COMP			↑	6	
168	16286 p 6949			60	300	
169	COMP			↑	6	
170	16306 p 7408			60	480	em
171	COMP			↑	6	
172	N 6182			60	180	E
173	COMP			↑	6	
174	16363 p 7167			60	480	em
175	COMP			↑		
176	E 1224			60	180	em
177	COMP			↑	6	
<del>178</del>	<del>17053 p 4311</del>			<del>60</del>	<del>240</del>	
178	17053 p 4311↑			60	240	E
179	COMP			↑	6	
180	17199 p 0640			60	180	E
181	COMP			↑	6	
182-191	BIAS				0	

60 inch Telescope Log

Spectrograph: FAST

Observer: E. Falco

Grating: 300

Page: 7142

PI: E-Falco

Date: 19-20 March 99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
192-201	FLAT				8	> 3



## 60 inch Telescope Log

Observer: E. FelcoPI: E. FelcoSpectrograph: FASTGrating: 300Page: 7143Date: 20-21 March 99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
1-10	BIAS					x3
11-20	BIAS					x2
21-30	FLAT				10	x2
31-40	FLAT				8	x3 FOCUS 920
41-50	DARK				5, 10m	↓
51-55	SKY	zen			3	
56	COMP			↑	6	
57	H D 5297 1			57	<del>45</del>	
58	COMP			↑	6	
59	Hiltner 600			56	60	
60	COMP			↑	6	
61	CICann			107	120	x2
62	COMP			↑	6	x2
63	07273p 2435			60	300	x3 obs E
64	COMP			↑	6	
65	07269p 4002			60	600	em!
66	COMP			↑		
67	07263p 6250			60	300	E
68	COMP			↑		
69	07281p 1312			60	300	E
70	COMP			↑		
71	07570p 2334			60	240	E+A
72	COMP			↑		
73	07560p 5530			60	240	faint em?
74	COMP			↑		
75	07562p 5630			60	180	E
76	COMP			↑		
77	07548p 5915			60	180	E?
78	COMP			↑	6	
79	08476p 0340			60	600	em, faint?

60 inch Telescope Log

Observer: E. FalcoPI: E. FalcoSpectrograph: FASTGrating: 300Page: 7144Date: 20-21 Mar 99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
80	COMP			↑	6	x3
81	N2698			60	180	E! overbill
82	COMP			↑	6	
83	08532m0206			60	240	E
84	COMP			↑	6	
85	N2709			60	180	abs? faint
86	COMP			↑		
87	08538m0127			60	300	em! Cost dome, restart
88	COMP			↑		
89	08538m0015			60	240	E1A
90	COMP			↑		
91	08552m0001			60	240	em
92	COMP			↑		
93	08553p1311			60	240	E
94	COMP			↑	6	
95	08533p5133			60	180	E!
96	COMP			↑	6	
97	10049p5206			60	600	LSB em
98	COMP			↑	6	
99	10050m0217			60	240	E
100	COMP			↑	6	
101	10074m0235			60	240	E
102	COMP			↑	6	
103	10081m0211			60	300	em
104	COMP			↑	6	
105	10102m0244			60	240	E weak abs
106	COMP			↑	6	
107	10103m0227			60	240	E nice H $\alpha$ K
108	COMP			↑	6	
109	10403p7038			60	300	E

60 inch Telescope Log				Spectrograph: <u>EAST</u>		
Observer: <u>E. Falco</u>				Grating: <u>300</u>		Page: <u>7145</u>
PI: <u>E. Falco</u>				Date: <u>20-21 Mar 99</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
110	COMP			↑	6	x3
111	10405p7040			60	240	strong em!
112	COMP			↑		
113	10434p7234			60	240	E
114	COMP			↑	6	
115	10452p6637			60	180	Em, weak
116	COMP			↑	6	
117	10466p5654			60	240	E strong H+K!
118	COMP			↑		
119	11096m0204			60	300	em
120	COMP			↑		
121	11115m0028			60	300	em
122	COMP			↑		
123	11168m0249			60	300	em
124	COMP			↑		
125	11182m0300			60	600	LSB em
126	COMP			↑		
127	11186p0328			60	180	E
128	COMP			↑	6	
129	11203m0238			60	300	em
130	COMP			↑	6	
131	11204m0240			60	300	em
132	COMP			↑	6	
133	12217p0933			60	180	E
134	COMP			↑	6	
135	12240p0918			60	180	E!
136	COMP			↑	6	
137	I 3345			60	300	em
138	COMP			↑	6	
139	12234p4533			60	300	maybe too faint redo?

60 inch Telescope Log

Spectrograph: FASTObserver: E. FalcoGrating: 300Page: 7146PI: E. FalcoDate: 20-21 Mar 99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
140	COMP			↑	6	x3
141	I 3779			60	600	E, faint
142	COMP			↑	6	
143	I 3881			60	300	E? faint
144	COMP			↑		
145	12529 p 5903			60	600	em, abs?
146	COMP			↑		
147	12450 p 8342			60	300	em
148	COMP			↑		
149	13412 p 0408			60	300	em!
150	COMP			↑		
151	13438 m 0311			60	240	em!
152	COMP			↑		
153	13466 p 1729			60	600	em
154	COMP			↑		
155	13495 m 0153			60	600	em
156	COMP			↑	6	
157	I 950 E			60	240	E
158	COMP			↑	6	
159	13500 p 2150			60	240	E!
160	COMP			↑	6	
161	14076 m 0220			60	600	em, weak
162	COMP			↑		
163	14095 p 1037			60	600	faint? E
164	COMP			↑	6	
165	14108 p 1917			60	240	E!
166	COMP			↑	6	
167	15123 p 7534			60	240	E!
168	COMP			↑	6	
169	15144 p 4043			60	240	em

60 inch Telescope Log			Spectrograph: <u>FAST</u>			
Observer: <u>E. Falco</u>			Grating: <u>300</u>		Page: <u>7147</u>	
PI: <u>E. Falco</u>			Date: <u>20-21 Mar 99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
170	COMP			↑	6	x3
171	15134 p1224			60	600	em
172	COMP			↑	6	
173	15147 p0704			60	240	E!
174	COMP			↑	6	
175	N6033			60	240	E
176	COMP			↑	6	
177	<del>16150 p8126</del>	16101 p 5235		60	240	E!
178	COMP			↑	6	
179	16162 p7420			60	300	em
180	COMP			↑	6	
181	16160 p6829			60	300	em
182	COMP			↑	6	
183	16254 p7326			60	240	em
184	COMP			↑	6	
185	16223 p0717			60	300	em?
186	COMP			↑	6	
187	16353 m 0116			60	180	* y fast ... * in slit
188	COMP			↑		
189	16368 m 0220			60	180	E
190	COMP			↑		
191	16453 p6801			60	180	? * in slit
192	COMP			↑	6	
193	16454 p6802			60	180	E
194	COMP			↑	6	
195	16456 p6219			60	180	E!
196	COMP			↑	6	
197	16478 p6304			60	180	em!
198	COMP			↑	6	
199	16480 p5331			60	180	E

60 inch Telescope Log  
Observer: E. Falco  
PI: E. Falco

Spectrograph: FAST  
Grating: 300 Page: 3148  
Date: 20-21 Mar 99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
200	COMP			↑		x3
201	16496 p 5345			60	240	em
202	COMP			↑	6	
203	16560 p 3630			60	240	em
204	COMP			↑	6	
205-214	BIAS				0	
215-224	FLAT				8	

60 inch Telescope Log  
 Observer: P Berlin  
 PI: Huchra  
 Spectrograph: FAST  
 Grating: 300L  
 Date: 3/21/99  
 Page: 7148(a)

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	BEAS				0s	
11-20	FLAT				7s	
21-30	BEAS				0s	
31-40	FLAT				14s	
41-45	sky	zenith		57	2s	clear skies!
46	COMP			↑		
47-48	Hiltner 600	06:42	+02	56	1m	
49	COMP			↑		
50-51	Hiltner 600	06:42	+02	56	1m	
52	COMP			↑		
53-55	CC Cam	04:49	+56:59	107	20-90s	
56	COMP			↑		
57	B G Green	06:03	+27:41	100	6m	
58	COMP			↑		
59	ZMOS 0191.7	05:07	+19	68	5m	
60	COMP			↑		
61	ZMOS 3507.6	05:35	+20:23	68	6m	
62	COMP			↑		
63	ZMOS 519.5	05:45	+17:46	68	6m	sup + to SE
64	COMP			↑		
65	ZMOS 61230.7	06:12	+13:51	68	12m	stars by 2; 3 objects also enter faint gal
66	COMP			↑		
67	ZMOS 6346.1	06:41	+17:12	68	10m	
68	COMP			↑		
69	ZMOS 65571.8	06:28	+16:59	68	12m	
70	COMP			↑		
71	ZMOS 7076.9	06:26	+29:47	68	15m	
72	COMP			↑		
73	ZMOS 7072.0	06:30	+28:24	68	7m	redo from 11/11/98 #105
74	COMP			↑		#105, gal to E P1083 good for CE.

60 inch Telescope Log		Spectrograph: <u>FAST</u>		Page: <u>7149</u>		
Observer: <u>PB</u>		Grating: <u>3008</u>		Date: <u>3/21/99</u>		
PI: <u>Falco</u>						
Number	Object	R. A.	Dec.	L/R	Exp	Comments
75	06548p0159	07:01	+01:59	60	5m	
76	WMP			↑		
77	06588p1412	07:04	+14:08	60	4m	
78	WMP			↑		
79	07881m0128	07:20	-01:34	60	6m	
80	WMP			↑		
81	07206p0252	07:23	+02:45	60	3m	
82	WMP			↑		
83	07372m0231	07:37	-02:34	60	12m	faint LSB good em!
84	WMP			↑		
85	07378m0126	07:40	-01:34	60	15m	
86	WMP			↑		
87	07308m0021	07:50	+00:21	60	9m	
88	WMP			↑		
89	07550m0125	07:57	-01:33	60	10m	
90	WMP			↑		
91	07588p0687	07:58	+06:08	60	5m	
92	WMP			↑		
93	08000p1106	08:03	+09:57	60	4m	
94	WMP			↑		
95	08115m0068	08:14	-00:22	60	3m	star
96	08115m0068	"	"	60	7m	galaxy <del>star</del>
97	WMP			↑		
98	SN1999aa	08:29	+27:11	2	20m	PA=64
99	WMP			↑		
100	Faye 34	10:3	-54	56	2m	PA=90
101	WMP			↑		
102	Faye 34	10:36	+43:21	56	2m	PA=163
103	WMP			↑		



60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>7150</u>	
Observer: <u>PS</u>			Grating: <u>3002</u>			
PI: <u>Combo</u>			Date: <u>3/21/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
104	SN 1988bu	10:46	+11:50	2	20m	PA=18 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">M*</span>
105	COMP			↑		
106	101954p6911	10:19	+69:11	70	15m	PA=90
107	COMP			↑		
108	N 3227	10:20	+22:07	6	3m	
109	COMP			↑		
110	MRK 421	11:38	+37:28	6	4m	3
111	COMP			↑		
112	N 4051	12:00	+44:48	6	2m	4
113	COMP			↑		
114	N 4151	12:08	+38:41	6	30s	5
115	COMP			↑		
116	numl-50	09:58	+19:29	35	20m	redo from 12/25/98 por
117	COMP			↑		
118,120,122	SN 1988S	11:46	+47:28	2	20m	
119,121,123	COMP			↑		
124-5	H 244	13:26	+26	56	90s	
126	COMP			↑		
127	g1644DS022	12:51	-17:30	81	15m	
128	COMP			↑		
129	g1644DS030	12:51	-17:22	81	15m	
130	COMP			↑		
131	g1644DS034	12:52	-17:38	81	12m	
132	COMP			↑		
133	g1644DS 031	12:51	-17:21	81	12m	
134	COMP			↑		
135	g1644DS128	12:52	-16:43	81	12m	
136	COMP			↑		
137	g1644DS127	12:53	-16:45	81	9m	
138	COMP			↑		

60 inch Telescope Log  
 Observer: PB  
 PI: Huchra

Spectrograph: FIST  
 Grating: 3000  
 Date: 3/21/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
139	ZM10141.9	12:01	+20:24	68	7m	
140	COMP			↑		
141	ZM120857.7	12:01	+20:29	68	6m	
142	COMP			↑		
143	ZM120219.0	12:02	+21:00	68	6m	
144	COMP			↑		
145	ZM120139.8	12:01	+22:39	68	5m	
146	COMP			↑		
147	ZM120025.2	12:00	+21:33	68	6m	
148	COMP			↑		
149	ZM130656.7	13:06	+18:53	68	5m	
150	COMP			↑		
151	ZM131938.2	13:19	+28:14	68	4m	
152	COMP			↑		
153	ZM133332.9	13:33	+26:16	68	5m	
154	COMP			↑		
155	ZM133257.7	13:32	+27:43	68	4m	
156	COMP			↑		
157	ZM142929.3	14:29	+23:18	68	4m	
158	COMP			↑		
159	ZM142631.9	14:26	+21:33	68	3m	
160	COMP			↑		
161	ZM142650	14:26	+22:32	68	4m	
162	COMP			↑		
163	ZM143018.0	14:30	+21:44	68	4m	
164	COMP			↑		
165	SN1999cc	16:07	+07:58	2	15m	PA=15
166	COMP			↑		
167	1NS86	15:03	+01:47	57	3m	
168	COMP			↑		

60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>7152</u>	
Observer: <u>PB</u>			Grating: <u>3002</u>			
PI: <u>ALL</u>			Date: <u>3/26/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
169	N5548	14:15	+25:22	6	3m	
170	COMP			↑		
171	MRK279	13:51	+69:37	6	3m	
172	COMP			↑		
173	BPP332642	15:33	+73	56	1m	
174	COMP			↑		
175	PG1108p62	17:08	+60:13	56	6m	corrupted file
176-178	HD 142926	15:35	+88:33	57	3s	
179	COMP			↑		
180-182	HD 154791	17:06	+27:58	57	6s	
183	COMP			↑		
184-186	HD 147550	16:22	+52:04	57	8s	
187	COMP			↑		clear skies
188-190	HD 148184	16:27	+18:27	57	6s	
191	COMP			↑		
192-194	HD 157857	17:26	+11:0	57	6s	
195	COMP			↑		
196-198	HD 157857	17:26	+11:0	57	6s	
199	COMP			↑		
200-201	BIAS				0s	
202-203	FLAT				7s	
204-205	BIAS				0s	
206-207	FLAT				14s	
208-209	DARK				15m	

188 saturated

60 inch Telescope Log

Observer: P. Berlin

PI: Al

Spectrograph: FAST

Grating: 300L

Date: 3/27/99

Page: 7153

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-20	BIAS				03	
21-30	FLAT				7s	
31-40	BIAS				03	litrus ground
41-50	FLAT				14s	nike sunset
51-55	sky	Zenith		57	2s	
56	COMP			↑		
57-59	HD 53847	07:06	+08:52	57	2s	
60	COMP			↑		
61-63	HD 50868	06:55	+05:26	57	2s	
64	COMP			↑		
65-67	HD 50169	07:01	-01:07	57	5s	
68	COMP			↑		
69-71	HD 50896	06:52	-02:58	57	5s	
72	COMP			↑		
73-75	HD 57062	07:18	-24:33	57	2s	
76	COMP			↑		
77-78	Hiltner 60	06:42	+02:11	56	1m	PA=2
79	COMP			↑		
80-82	CICam	04:19	+55	107	30-100s	
83	COMP			↑		
84	OS 068p6831	05:12	+68:26	60	5m	
85	COMP			↑		
86	OS 062p6625	05:13	+66:27	60	4m	
87	COMP			↑		
88	OS 157p7217	05:21	+72:19	60	2m	
89	COMP			↑		
90	OS 167p7255	05:16	+72:57	60	2m	
91	COMP			↑		

60 inch Telescope Log

Observer: PB  
 PI: Falco

Spectrograph: FAST  
 Grating: 300L  
 Date: 3/22/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
92	05231p6412	05:23	+64:12	60	2m	
93	WMP			↑		
94	05261p6741	05:31	+67:43	60	2m	
95	WMP			↑		48"
96	05265p6734	05:31	+67:36	60	3m	
97	WMP			↑		
98	05310p6726	05:31	+67:26	60	6m	
99	WMP			↑		
100	05381p6855	05:43	+68:56	60	2m	
101	WMP			↑		
102	05407p6740	05:45	+67:01	60	2m	
103	WMP			↑		
104	05437p6651	05:43	+66:51	60	3m	
105	WMP			↑		
106	05513p6843	05:51	+68:43	60	3m	
107	WMP			↑		
108	05510p6825	05:55	+68:25	60	4m	barbyz gal E+W gals
109	WMP			↑		gal compact gal
110	06050p6829	06:05	+68:29	60	8m	NW gal
111	WMP			↑		
112	06060p6828	06:06	+68:28	60	6m	SE gal
113	WMP			↑		
114	06022p6444	06:07	+64:10	60	4m	ok
115	WMP			↑		
116	06036p6444	06:08	+64:43	60	2m	
117	WMP			↑		
118	06082p6435	06:13	+64:33	60	2m	
119	WMP			↑		
120	06091p6443	06:14	+64:42	60	2m	
121	WMP			↑		

60 inch Telescope Log

Observer: PB

PI: Andi Huchra

Spectrograph: FAST

Grating: 302

Date: 2/22/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
122	06117pb631	06:16	+66:30	60	3m	
123	COMP			↑		
124	SN1999aa	08:27	+71:29	2	20m	PA=21
125	COMP			↑		
126	ngc 5076.296	10:08	+13:37	59	7m	
127	COMP			↑		
128	.297	10:09	+14:43	59	7m	
129	COMP			↑		
130	.302	10:09	+14:08	59	8m	
131	COMP			↑		
132	.301	10:09	+14:51	59	8m	
133	COMP			↑		
134	.303	10:09	+14:43	59	8m	
135	COMP			↑		
136	N3227	10:20	+20:07	6	3m	
137	COMP			↑		
138-139	Fesp34	10:36	+43:21	56	90s	
140	COMP			↑		
141	MRK421	11:01	+38:28	6	4m	
142	COMP			↑		
143	ZM12059.5	12:01	+27:09	68	5m	
144	COMP			↑		
145	ZM12000.2	12:02	+18:34	68	5m	
146	COMP			↑		
147	ZM120017.0	12:06	+14:38	68	6m	1016
148	COMP			↑		
149	ZM121015.3	12:10	+14:06	68	8m	
150	COMP			↑		
151	N481	12:10	+38	6	30s	
152	COMP			↑		

60 inch Telescope Log

Observer: PB  
 PI: Geller

Spectrograph: FAST  
 Grating: 300  
 Date: 3/22/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
153	12388p2808	12:38	+28:28	64	7m	10:50
154	WMP			↑		
155	12402p2774	12:40	+27:74	64	6m	
156	WMP			↑		clouds moving in
157	12413p2708	12:43	+26:51	64	33m	
158	WMP			↑		
159	12416p2910	12:44	+29:10	64	35m	
160	WMP			↑		
161	12422p2810	12:44	+27:53	64	12m	
162	WMP			↑		
163	12462p2642	12:46	+26:42	64	6m	
164	WMP			↑		
165	12501p2721	12:52	+26:45	64	7m	
166	WMP			↑		
167	12514p2915	12:51	+29:15	64	6m	
168	WMP			↑		11:50
169	12525p2841	12:51	+28:25	64	4m	
170	WMP			↑		
171	12530p2844	12:55	+28:28	64	4m	
172	WMP			↑		
173	12541p2802	12:56	+27:09	64	23m	
174	WMP			↑		
175	12549p2722	12:56	+27:05	64	5m	
176	WMP			↑		
177	12546p2919	12:57	+29:03	64	23m	
178	WMP			↑		clearing.
179	321.055861	12:45	+29:25	64	12m	
180	WMP			↑		
181	12568p2820	12:59	+28:09	64	5m	
182	WMP			↑		12:30

60 inch Telescope Log

Observer: PB  
 PI: Geller & Kirshner

Spectrograph: F10T  
 Grating: 3000  
 Date: 3/22/99

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
183	101954p2811	10:19	+19:12	70	15m	PA=90
184	COMP			↑		
185	12573p2807	12:59	+29:51	64	2m	
186	COMP			↑		
187	12576p2804	12:57	+29:04	64	4m	
188	COMP			↑		
189	12571p2806	12:57	+29:06	64	5m	
190	COMP			↑		
191	12577p2811	12:59	+29:33	64	3m	
192	COMP			↑		
193	12581p2824	12:58	+28:24	64	4m	
194	COMP			↑		
195	12583p2836	12:58	+28:36	64	3m	
196	COMP			↑		
197	12585p2810	12:58	+28:10	64	3m	
198	COMP			↑		
199, 201	SN1999E	13:17	-18:37	2	20m	PA=77
202, 202	COMP			↑		
203	A1644D5135	12:57	-16:36	81	15m	
204	COMP			↑		
205	664	12:58	+17:26	81	8m	
206	COMP			↑		
207	658	12:53	+17:16	81	8m	
208	COMP			↑		
209	077	12:53	+17:04	81	7m	
210	COMP			↑		
211	12585p2810	13:00	+27:54	64	4m	
212	COMP			↑		
213	12587p2805	13:01	+27:49	64	6m	
214	COMP			↑		



60 inch Telescope Log

Observer: PB  
 PI: Greller

Spectrograph: FAST  
 Grating: 3000  
 Date: 3/22/99

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
215	12558 p2501	12:58	+28:04	64	4m	
216	COMP			↑		
217	12066 p2518	13:08	+28:03	64	4m	
218	COMP			↑		
219	13106 p2725	13:12	+27:08	64	6m	
220	COMP			↑		
221	13123 p3015	13:14	+29:59	64	9m	
222	COMP			↑		
223	321.016752	12:49	+27:22	64	3m	
224	COMP			↑		
225	321.012181	12:45	+28:45	64	4m	
226	COMP			↑		
227	321.016007	12:51	+28:55	64	5m	
228	COMP			↑		
229	N4853	12:58	+27:35	59	5m	
230	COMP			↑		
231-2	H244	13:27	+26:08	56	2m	PA=90
233	COMP			↑		nice distance
234	K001	12:58	+27:50	64	6m	PA=75°; along major axis
235	COMP			↑		
236	K002	12:59	+28:13	64	3m	PA=90
237	COMP			↑		
238	K003	12:59	+28:07	64	2m	
239	COMP			↑		
240	K004	12:59	+27:51	64	3m	
241	COMP			↑		
242	K005	12:59	+27:47	64	3m	
243	COMP			↑		
244	K006	12:59	+27:58	64	2m	
245	COMP			↑		

60 inch Telescope Log  
 Observer: PB  
 PI: Geller

Spectrograph: FAST  
 Grating: 300R  
 Date: 3/22/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
246	KU07	12:59	+27:59	64	2m	
247	COMP			↑		
248	KU08	12:59	+27:51	64	2m	
249	COMP			↑		
250	K009	12:59	+27:59	64	3m	
251	COMP			↑		
252	K010	12:59	+27:57	64	4m	Coma CD!
253	COMP			↑		
254	K 013	13:00	+27:58	64	3m	
255	COMP			↑		
256	SN1999ac	16:07	+07:58	2	15m	PA=14
257	COMP			↑		
258	N5846	15:03	+01:47	57	3m	
259	COMP			↑		
260	N5866	15:05	+55:57	57	3m	
261	COMP			↑		
262	N5548	14:25	+25:22	6	3m	
263	COMP			↑		
264	Z002073	13:01	+29:18	69	2m	
265	COMP			↑		
266	Z004005	12:56	+30:42	69	3m	
267	COMP			↑		
268	Z004006	13:01	+27:50	64	3m	
269	COMP			↑		
270-74	HD15121	16:44	+23:48	57	10s	
275	COMP			↑		
276-79	HD166802	18:12	+66:51	57	10s	
280	COMP			↑		clear @ dawn
281-290	T57AS				0s	
291-300	FLAT				7s	
301-310	BIAS				0s	
311-320	FLAT				14s	
321-330	DARK				20m	

60 inch Telescope log		Spectrograph: <u>FAST</u>		Page: <u>7160</u>		
Observer: <u>PBerlin</u>		Grating: <u>3002</u>		Date: <u>3/23/99</u>		
PI: <u>Feko</u>						
Number	Object	R. A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-20	BIDS				0s	
21-30	FLAT				7s	hazy, windy
31-40	BIDS				0s	
41-50	FLAT				14s	bright sky
51-55	sky			57	2s	w/ moon
56	COMP			↑	5s	
57-59	HDS 2971	06:57	+1243	57	5s	
60	COMP			↑		
61-63	AGK 2p14783	07:17	+11:59	57	6s	
64	COMP			↑		
65-66	Hiltner 60	06:42	+0241	56	1m	-PA=5
67	COMP			↑		
68-70	CXCam	04:19	+5549	107	30-100s	
71	COMP			↑		
72	06126p6637	06:17	+6636	60	3m	
73	COMP			↑		
74	06123p6633	06:12	+6633	60	3m	
75	COMP			↑		
76	06146ps055	06:18	+9053	60	5m	
77	COMP			↑		
78	06171p5908	06:21	+5907	60	4m	bmbg 2, PA=100 gal to E
79	COMP			↑		* tow
80	06172p5908	06:21	+5907	60	2m	
81	COMP			↑		
82	06184p6437	06:23	+6437	60	2m	
83	COMP			↑		
84	0620p6436	06:25	+6433	60	2m	
85	COMP			↑		

60 inch Telescope Log  
 Observer: PB  
 PI: Falco & Huebra

Spectrograph: FAST  
 Grating: 300  
 Date: 3/23/99

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
86	06206p4522	06:25	+57:20	60	6m	LSB
87	WMP			↑		
88	06210p446	06:25	+54:44	60	6m	
89	WMP			↑		
90	06410p8402	06:55	+84:02	60	10m	LSB SW gal
91	WMP			↑		
92	06420p8408	06:56	+84:04	60	4m	NE gal
93	WMP			↑		
94	06488p6002	06:53	+98:57	60	6m	
95	WMP			↑		
96	06460p5102	06:54	+80:58	60	21m	
97	WMP			↑		
98	SN1999aa	06	+21	Z	20m	PA=57
99	WMP			↑		
100	ZM100059.6	10:00	+11:56	68	6m	wk NOT LONG ENOUGH
101	WMP			↑		
102	ZM100132.4	10:01	+14:20	68	7m	
103	WMP			↑		
104	ZM100216.2	10:02	+19:12	68	5m	
105	WMP			↑		
106	ZM100346.3	10:03	+23:21	68	5m	underexposed poor measurement
107	WMP			↑		
108	ZM100358.7	10:03	+22:15	68	8m	
109	WMP			↑		
110	ZM100557.0	10:05	+18:20	68	6m	
111	WMP			↑		
112	ZM100929.8	10:09	+13:49	68	4m	superposed star; sat & wk em
113	WMP			↑		
114	ZM101007.7 EW	10:11	+16:04	68	12m	PA=85 E+V comps
115	WMP			↑		

60 inch Telescope Log		Spectrograph: <u>FAST</u>				
Observer: <u>PB</u>		Grating: <u>3000</u>			Page: <u>7162</u>	
PI: <u>Huchra</u>		Date: <u>3/23/99</u>				
Number	Object	R.A.	Dec.	L/R	Exp	Comments
116	N3227	10:20	+20	6	3m	
117	COMP			↑		
118-119	Fairysy	10:26	+43	56	90s	PA=356
120	COMP			↑		
121	MRK421	11:01	+38	6	4m	
122	COMP			↑		
123	ZM1011218	10:11	+1748	68	6m	
124	COMP			↑		
125	ZM101553	10:11	+19:32	68	6m	
126	COMP			↑		
127	ZM101228.1	10:12	+16:54	69	6m	→ to E ; gal to W
128	COMP			↑		
129	ZM101252.1	10:12	+20:00	68	6m	
130	COMP			↑		
131	ZM1014050	10:14	+20:52	68	7m	
132	COMP			↑		
133	N4651	12:00	+44:48	6	2m	
134	COMP			↑		
135	N4651	12:08	+39:41	6	30s	
136	COMP			↑		
137	N4486B	12:30	+12:29	57	4m	
138	COMP			↑		
139	N4653	12:38	+27:35	57	4m	
140	COMP			↑		
141	A1249p2814	12:51	+27:57	64	4m	11:15 + → p
142	COMP			↑		
143	322.050793	13:02	+32:05	64	4m	
144	COMP			↑		
145	I 3943	12:58	+28:06	64	4m	
146	COMP			↑		

60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>7163</u>	
Observer: <u>PB</u>			Grating: <u>300L</u>			
PI: <u>Geller</u>			Date: <u>3/23/99</u>			
Number	Object	R.A.	Dec.	L/R	Exp	Comments
147	I3955	1259	+27.59	64	4m	
148	WMP			↑		
149	I3959	12:59	+27.46	64	4m	
150	WMP			↑		
151	I4011	13:00	+28.10	64	4m	
152	WMP			↑		
153	I4012	13:00	+28.04	64	4m	
154	WMP			↑		
155	I4021	13:00	+28.02	64	4m	
156	WMP			↑		
157	I4111	13:02	+28.04	64	8m	
158	WMP			↑		
159	N4778	12:50	+27.76	64	3m	
160	WMP			↑		
161	N4875	12:59	+27.51	64	4m	
162	WMP			↑		
163	N4895A	13:00	+28.10	64	4m	
164	WMP			↑		
165	N4943	13:03	+28.05	64	3m	
166	WMP			↑		
167	Z00187B	13:06	+29.05	64	2m	
168	WMP			↑		
169	Z001857	13:07	+28.54	64	3m	
170	WMP			↑		nice emission along tail
171	Z001873N	12:46	+28.43	64	8m	PA = 5° along axis + tail
172	WMP			↑		
173	Z001873S	12:46	+28.43	64	6m	PA = 37° along axis
174	WMP			↑		
175	Z001808.E	12:54	+29.76	64	5m	PA = 67° along axis
176	WMP			↑		

60 inch Telescope Log

Observer: PB  
 PI: Geller

Spectrograph: FAST  
 Grating: 3000  
 Date: 3/23/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
177	Z00165	13:01	+29:07	64	2m	PA=90
178	COMP			↑		
179	Z005356	13:06	+25:27	64	4m	
180	COMP			↑		
181	Z005403	13:00	+27:21	64	2m	
182	COMP			↑		
183	Z005406	13:02	+28:02	64	3m	
184	COMP			↑		
185	Z006255-N	12:58	+29:07	64	3m	
186	COMP			↑		
187	infall.a.24	12:59	+26:01	64	15m	*to W
188	COMP			↑		
189	Z006256	12:58	+27:00	64	2m	
190	COMP			↑		
191	SN1999an	12:01	+14:06	Z	15m	PA=45
192	COMP			↑		
193-194	H-244	13:21	+32:23	56	2m	
195	COMP			↑		
196	Z010756	13:02	+28:12	64	4m	em
197	COMP			↑		
198	infall.a.42	13:03	+25:28	64	8m	
199	COMP			↑		
200	infall.a.47	13:04	+26:20	64	10m	
201	COMP			↑		
202	infall.b.21	12:48	+26:06	64	10m	
203	COMP			↑		
204	infall.b.29	12:52	+26:09	64	8m	comp to W
205	COMP			↑		
206	infall.c.06	13:05	+25:27	64	7m	
207	COMP			↑		

60 inch Telescope Log  
 Observer: PS  
 PI: Geller & Huchra  
 Spectrograph: F18  
 Grating: 300R  
 Date: 3/23/99  
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Number	Object	R. A.	Dec.	L/R	Exp	Comments
208	infall.c11	1706	+25:25	64	10m	
209	WMP			↑		
210	K010	1259	+27:57	64	3m	Coma cD again
211	WMP			↑		
212	K011	1259	+27:54	64	2m	
213	WMP			↑		
214	K012	1259	+28:02	64	3m	
215	WMP			↑		
216	K014	1260	+27:57	64	2m	<del>K014</del> K014
217	K014b	1360	+27:57	64	3m	
218	WMP			↑		
219	K015	1360	+28:12	64	2m	
220	WMP			↑		
221	MRK279	1351	+69:33	6	3m	
222	WMP			↑		
223	SBSM25606	1426	+60:29	6	11m	
224	WMP			↑		
225	ZMP35172.2	13:51	+27:46	68	4m	
226	WMP			↑		
227	ZMP35256.0	13:52	+27:21	64	3m	
228	WMP			↑		
229	ZMP35310.4	13:53	+27:48	68	5m	
230	WMP			↑		
231	ZMP35355.8	13:53	+27:18	64	3m	
232	WMP			↑		
233	ZMP35367	13:53	+27:16	68	5m	
234	WMP			↑		
235	ZMP35615.7	13:51	+27:54	68	4m	
236	WMP			↑		



60 inch Telescope Log

Observer: PB

PI: Huchra

Spectrograph: FAST

Grating: 300

Date: 3/23/99

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
237	ZM134501	1345	+15:01	68	4m	
238	WMP			↑		
239	ZM1345129	1345	+15:10	68	4m	
240	WMP			↑		
241	ZM134523	1349	+15:35	68	3m	
242	WMP			↑		
243	ZM1345201148	1346	+11:48	68	11m	em
244	WMP			↑		
245	SN1999ac	1627	+07:58	2	15m	PA=15
246	WMP			↑		
247	N5848	14:15	+75:22	6	3m	
248	WMP			↑		
249	MRK 501	16:50	+39:45	6	5m	
250	WMP			↑		clear & down
251	N5866	15:05	+55:57	57	5m	
252	WMP			↑		
253-262	BIAS				0s	
263-272	FLAT				7s	
273-282	BIAS				0s	
283-292	FLAT				14s	
293-302	DARK				20m	

60 inch Telescope Log

Observer: CALKINS

PI: Ally, Kitchner, Mazerolle, Falco

Spectrograph: FACT

Grating: 300L

Date: 3/24/99

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-20	BIAS				0s	
21-30	FLAT				6s	
31-40	BIAS				0s	
41-50	FLAT				12s	
51-55	sky			#57	2s	
56	comp			↑		
57	Hiltner 600	6 45	2 08	#56	90s	
58	comp			↑		
59	HDS 2921	7 00	27 09	#57	5s	
60	comp			↑		
61	Akn 120	5 16	-00 08	#6	5m	star west
62	comp			↑		
63	sn1999aa	8 27	21 29	#2	15m	PA = 54.0°
64	comp			↑		
65	KG 0934p554	9 33	55 05	#56	1m	PA = 53.0°
66	comp			↑		
67	MS 2384	6 41	9 33	#82	202m	star east
68	comp			↑		
69	Pra 4478	8 41	19 16	#82	12m	
70	comp			↑		
71	Pra 267	8 39	19 11	#82	15m	
72	comp			↑		
73	07412p7505-155	7 47	74 55	#60	20m	
74	comp			↑		
75	07320p8541	2 48	85 33	#60	1m	correct I.D.?
76	comp			↑		
77	07446p6311	7 49	63 04	#60	7m	
78	comp			↑		
79	07453p6134	7 49	61 26	#60	4m	

60 inch Telescope Log

Observer: CALKINS

PI: Falco, Ali, Koranyi

Spectrograph: FAST

Grating: 100L

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Date: 3/24/99

Number	Object	R.A.	Dec.	L/R	Exp	Comments
80	comp			↑		
81	10108m0217	10 13	-2 31	<sup>11</sup> 60	8m	(weak spectra) PA=105
82	comp			↑		
83	10112m0040	10 13	-00 54	<sup>11</sup> 60	15m	
84	comp			↑		
85	10152m0208	10 17	-2 22	<sup>11</sup> 60	12m	
86	comp			↑		
87	N5187-13.8	10 17	21 52	<sup>11</sup> 60	20m	
88	comp			↑		
89	10169m0305	10 19	-3 20	<sup>11</sup> 60	5m	
90	comp			↑		
91	10158m0018	10 21	-00 33	<sup>11</sup> 60	4m	
92	comp			↑		
93	10198p7851	10 23	78 34	<sup>11</sup> 60	17m	
94	comp			↑		
95	10210m0036	10 24	-00 52	<sup>11</sup> 60	10m	
96	comp			↑		
97	10221m0204	10 24	-2 19	<sup>11</sup> 60	12m	
98	comp			↑		
99	10221p0640	10 24	06 25	<sup>11</sup> 60	6m	
100	comp			↑		
101	10223m0038	10 24	-00 53	<sup>11</sup> 60	6m	circus overhead
102	comp			↑		
103	N3227	10 20	20 07	<sup>11</sup> 60	3m	
104	comp			↑		
105	M76 421	11 04	38 12	<sup>11</sup> 60	4m	
106	comp			↑		
107	N4258	12 18	47 18	<sup>11</sup> 60	2m	
108	comp			↑		
109	M42-i.045	12 06	2 32	<sup>11</sup> 35	20m	

## 60 inch Telescope Log

Observer: CALKINSPI: Kotanyi, GellerSpectrograph: FASTGrating: 200LPage: 7169Date: 3/24/99

Number	Object	R. A.	Dec.	L/R	Exp	Comments
110	comp			↑		
111	mkw4-i.018	12 08	27 40	↑ F35	15m	
112	comp			↑		
113	mkw4-i.050	12 04	27 29	↑ F35	17m	POOR
114	comp			↑		
115	mkw4-i.053	12 04	27 53	↑ F35	16m	weak spectra
116	comp			↑		
117	322.015072	12 57	27 01	↑ F64	5m	
118	comp			↑		
119	322.015498	12 56	27 02	↑ F64	4m	
120	comp			↑		
121	322.020087	12 58	27 21	↑ F64	7m	(redo?)
122	comp			↑		
123	322.020827	12 57	27 24	↑ F64	10m	
124	comp			↑		
125	322.021511	12 58	27 27	↑ F64	10m	very weak, clouds do 2 <sup>nd</sup> exp.
126	comp			↑		
127	322.021511	12 58	27 27	↑ F64	10m	
128	comp			↑		
129	322.022071	12 58	27 29	↑ F64	20m	in/out of cirrus
130	comp			↑		
131	322.022344	12 57	27 29	↑ F64	15m	
132	comp			↑		
133	322.022912	12 58	27 32	↑ F64	12m	
134	comp			↑		
135	322.022992	12 56	27 32	↑ F64	5m	
136	comp			↑		
137	322.025856	12 56	27 43	↑ F64	15m	BEAUTIFUL!
138	comp			↑		
139	322.027022	13 01	27 48	↑ F64	4m	

60 inch Telescope Log

Observer: CALVIN

PI: Geller, Kirshner, Kaszany

Spectrograph: FAST

Grating: 300L

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
140	comp			↑		
141	322.027184	12 57	22 48	#64	15m	
144	comp			↑		
145	sum 3-i.031	14 24	26 37	#35	8m	
146	comp			↑		
147	sum 3-i.034	14 25	26 04	#35	15m	
148	comp			↑		
149	sum 2-i.038	14 23	26 22	#35	17m	more clouds - reds? 11500
150	comp			↑		
151	BDP 332642	15 51	32 56	#56	4m	almost clouded out!
152	comp			↑		
153-162	BIAS				0s	
163-172	FLAT				60s	
173-182	BIAS				0s	
183-192	FLAT				120s	
193-202	DARK				1500s	

no 202 on sparky or on archive tape