


| 60 inch Telescope Log | | | Spectrograph: <u>FAST</u> | | | |
|---|-------------|----------|--|-----|-------------------|----------|
| Observer: <u>P. Berlin</u> | | | Grating: <u>300L; 3" slit, binog 4</u> | | Page: <u>4982</u> | |
| PI: <u>Kenyon & Wilkes & Huchra</u> | | | Date: <u>11/8/96</u> | | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments |
| 1-10 | BIAS | | | 0 | 0s | |
| 11-20 | FLAT | | | 0 | 6s | |
| 21-25 | SKY | | | 0 | 2s | |
| 26 | COMP | | | ↑ | 5s | |
| 27-29 | HD 188947 | 19:56 | +35:05 | 0 | 1s | |
| 30 | COMP | | | ↑ | | |
| 31-33 | HD 192713 | 20:15 | +27:30 | 0 | 2s | |
| 34 | COMP | | | ↑ | | |
| 35-37 | HD 193092 | 20:16 | +10:21 | 0 | 2s | |
| 38 | COMP | | | ↑ | | |
| 39-41 | HD 197237 | 20:17 | +58:01 | 0 | 1s | |
| 42 | COMP | | | ↑ | | |
| 43-45 | HD 190864 | 20:05 | +35:36 | 0 | 5s | |
| 46 | COMP | | | ↑ | | |
| 47-49 | HD 186980 | 19:46 | +72:06 | 0 | 5s | |
| 50 | COMP | | | ↑ | | |
| 51-53 | HD 192281 | 20:10 | +40 | 0 | 5s | |
| 54 | COMP | | | ↑ | | |
| 55-57 | CEC 24 | 19:50 | +35:41 | 12 | 2, 20, 120s | |
| 58 | COMP | | | ↑ | | |
| 59, 60 | Z And | 23:33 | +48:49 | 12 | 3, 60 | |
| 61 | COMP | | | ↑ | | |
| 62 | MRK 335 | 00:19 | +20:12 | 6 | 2m | |
| 63 | COMP | | | ↑ | | |
| 64 | M 7469 | 23:03 | +55:52 | 6 | 2m | |
| 65 | COMP | | | ↑ | | |
| 66 | BDp 284211 | 21:48 | +25:57 | 0 | 45s | |
| 67 | COMP | 21:48 14 | 26:51 15 | ↑ | | |
| 68 | 20578 p1879 | 20:57 | +18:39 | 98 | 5m | |
| 69 | COMP | | | ↑ | | |

| 60 inch Telescope Log | | | Spectrograph: <u>FAST</u> | | Page: <u>4983</u> | |
|-------------------------------|----------------|-----------|---------------------------|-----|-------------------|--|
| Observer: <u>PB</u> | | | Grating: <u>X02</u> | | | |
| PI: <u>Geller & Grosz</u> | | | Date: <u>11/8/96</u> | | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments |
| 70 | Z0558 p0514 | 20:55 | +08:14 | 98 | 5m | |
| 71 | COMP | | | ↑ | | |
| 72 | Z0579 p0515 | 20:57 | +09:15 | 99 | 5m | em |
| 73 | COMP | | | ↑ | | |
| 74 | Z013836 m15.5 | 18:34 | +72:31 | 3 | 7m | wk em Emiko's Stragglers ↓ |
| 75 | COMP | | | ↑ | | |
| 76 | Z013839 m15.5 | 18:40 | +72:36 | 3 | 8m | wk em |
| 77 | COMP | | | ↑ | | |
| 78 | Z010758 m15.30 | 20:36 | +19:11 | 3 | 8m | bin by 2  lots of structure |
| 79 | COMP | | | ↑ | 10s | Low bright (off slit) |
| 80 | Z012353 m15.4 | 20:50 | +00:19 | 3 | 8m | bin by 2 sup to South |
| 81 | COMP | | | ↑ | | em |
| 82 | Z010557 m15.3 | 21:29 | +00:47 | 3 | 5m | |
| 83 | COMP | | | ↑ | | |
| 84 | A3061 | 21:16 | +15:32 | 42 | 7m | |
| 85 | COMP | | | ↑ | | |
| 86 | 0833F15E | 21:31 | +08:33 | 42 | 7m | em++ |
| 87 | 0833F1ND | 21:31 | +08:33 | 42 | 10m | em |
| 88 | COMP | | | ↑ | | |
| 89 | 134061 | 21:40 | +13:39 | 42 | 8m | |
| 90 | COMP | | | ↑ | | |
| 91 | BDp284211 | 21:48 | +28:37 | 0 | 45s | z02=1.05 |
| 92 | COMP | 21 5 14 | 28 3 7 18 | ↑ | | |
| 93 | 523.00101 | 23:34 | +09:42 | 55 | 7m | em |
| 94 | COMP | | | ↑ | | |
| 95 | 523.002112 | 23:45 | +09:47 | 55 | 7m | |
| 96 | COMP | | | ↑ | | |
| 97 | 523.002988 | 23:31 | +09:49 | 55 | 5m | |
| 98 | COMP | | | ↑ | | |
| 99 | 523.004172 | 23:36 | +09:54 | 55 | 8m | |

| 60 inch Telescope Log | | | Spectrograph: <u>FAST</u> | | Page: <u>4984</u> | |
|----------------------------------|------------|-------|---------------------------|-----|-------------------|---------------------------|
| Observer: <u>PB</u> | | | Grating: <u>300R</u> | | | |
| PI: <u>Geller & Kirshner</u> | | | Date: <u>11/8/96</u> | | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments |
| 100 | COMP | | | ↑ | | |
| 101 | 523.00684 | 23:44 | +10:03 | SS | 12m | |
| 102 | COMP | | | ↑ | | Jupiter setting in clouds |
| 103 | 523.006790 | 23:34 | +10:03 | SS | 6m | Clear here |
| 104 | COMP | | | ↑ | | Seeing 1-2" |
| 105 | 523.076761 | 23:45 | +13:33 | SS | 8m | |
| 106 | COMP | | | ↑ | | |
| 107 | 523.074962 | 23:36 | +13:40 | SS | 8m | |
| 108 | COMP | | | ↑ | | |
| 109 | 523.077675 | 23:30 | +13:48 | SS | 10m | |
| 110 | COMP | | | ↑ | | |
| 111 | 523.078918 | 23:52 | +13:53 | SS | 10m | em++ |
| 112 | COMP | | | ↑ | | |
| 113 | 523.079883 | 23:46 | +13:56 | SS | 8m | |
| 114 | COMP | | | ↑ | | |
| 115-116 | BDp284211 | 21:48 | +28:42 | 0 | 45s | 1.3 |
| 117 | COMP | | | ↑ | | |
| 118 | 523.062857 | 23:40 | +14:06 | SS | 8m | |
| 119 | COMP | | | ↑ | | |
| 120 | 523.082944 | 23:48 | +14:06 | SS | 10m | |
| 121 | COMP | | | ↑ | | |
| 122 | 523.083833 | 23:38 | +14:09 | SS | 8m | |
| 123 | COMP | | | ↑ | | |
| 124 | 523.085944 | 23:40 | +14:15 | SS | 6m | |
| 125 | COMP | | | ↑ | | |
| 126 | 523.086558 | 23:34 | +14:17 | SS | 6m | am |
| 127 | COMP | | | ↑ | | |
| 128 | 523.086796 | 23:40 | +14:18 | SS | 6m | |
| 129 | COMP | | | ↑ | | |
| 130 | SN1996bo | 01:48 | +1:31 | 2 | 15m | bin by 2 |

| 60 inch Telescope Log | | | Spectrograph: <u>FA8</u> | | Page: <u>4985</u> | |
|--------------------------------|--------------|----------|--------------------------|-----|----------------------|--|
| Observer: <u>PB</u> | | | Grating: <u>300</u> | | Date: <u>11/8/96</u> | |
| PI: <u>Huchra & Geller</u> | | | | | | |
| Number | Object | R. A. | Dec. | L/R | Exp | Comments |
| 131 | COMP | | | ↑ | 10s | |
| 132 | 0142100439.5 | 01:42:06 | +04:39 | SS | 20m | Southern Knot; em + LSB |
| 133 | COMP | | | ↑ | | |
| 134 | 467.006673 | 01:25 | +10:13 | SS | 5m | |
| 135 | COMP | | | ↑ | | |
| 136 | 467.059785 | 01:31 | +13:34 | SS | 10m | |
| 137 | COMP | | | ↑ | | |
| 138 | 467.061271 | 01:12 | +13:42 | SS | 10m | em |
| 139 | COMP | | | ↑ | | |
| 140 | 467.063887 | 01:16 | +13:54 | SS | 7m | em |
| 141 | COMP | | | ↑ | | |
| 142 | 467.064773 | 01:07 | +13:57 | SS | 7m | object @ row 35 = em gal on skt to E em |
| 143 | COMP | | | ↑ | | faint * @ row 43 |
| 144 | 467.067785 | 01:09 | +14:10 | SS | 7m | |
| 145 | COMP | | | ↑ | | |
| 146 | 467.070016 | 01:09 | +14:19 | SS | 4m | em |
| 147 | COMP | | | ↑ | | |
| 148 | 467.066257 | 01:27 | +14:03 | SS | 3m | |
| 149 | COMP | | | ↑ | | |
| 150 | 467.064433 | 01:30 | +13:55 | SS | 10m | em |
| 151 | COMP | | | ↑ | | |
| 152 | 467.071744 | 01:30 | +14:26 | SS | 7m | thin cloud to the N |
| 153 | COMP | | | ↑ | | |
| 154 | 467.074714 | 01:30 | +14:39 | SS | 7m | em |
| 155 | COMP | | | ↑ | | |
| 156 | 467.075630 | 01:07 | +14:44 | SS | 5m | |
| 157 | COMP | | | ↑ | | |
| 158 | 467.078992 | 01:11 | +14:58 | SS | 5m | |
| 159 | COMP | | | ↑ | | |
| 160 | 467.079419 | 01:11 | +15:01 | SS | 7m | em |

| 60 inch Telescope Log | | | | Spectrograph: <u>FAST</u> | | |
|--------------------------------------|----------------|----------|-----------|---------------------------|---------|---------------------------|
| Observer: <u>PB</u> | | | | Grating: <u>3000</u> | | Page: <u>4986</u> |
| PI: <u>Geller / Kenyon / Pantaja</u> | | | | Date: <u>11/8/86</u> | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments |
| 161 | COMP | | | ↑ | | |
| 162 | 467.060550 | 01:23 | +15:04 | SS | 7m | em |
| 163 | COMP | | | ↑ | | |
| 164 | 467.077478 | 01:25 | +14:51 | SS | 2m | |
| 165 | COMP | | | ↑ | | |
| 166 | 467.075990 | 01:31 | +14:44 | SS | 6m | |
| 167 | COMP | | | ↑ | | |
| 168 | 467.077055 | 01:25 | +14:50 | SS | 2m | |
| 169 | COMP | | | ↑ | | |
| 170 | 467.075550 | 01:28 | +14:43 | SS | 6m | em |
| 171 | COMP | | | ↑ | | |
| 172-173 | AKB | 01:36 | +54:15 | 12 | 10, 90s | |
| 174 | COMP | | | ↑ | | |
| 175 | A001073 m15.50 | 02:04 | +47:56 | 3 | 3m | EF strepslers ↓ * to W |
| 176 | COMP | | | ↑ | | |
| 177 | N003359 m15.50 | 02:26 | +50:02 | 3 | 3m | |
| 178 | COMP | | | ↑ | | |
| 179 | Z001577 m13.90 | 02:18 | +57:05 | 3 | 5m | LSB em |
| 180 | COMP | | | ↑ | | |
| 181 | Z015016 m15.50 | 02:36 | +54:35 | 3 | 6m | WK em * to W |
| 182 | COMP | | | ↑ | | seeing worse |
| 183-184 | DLT em | 04:33 | +25:20 | 12 | 20, 3m | |
| 185 | COMP | | | ↑ | | |
| 186-187 | DRT em | 04:47 | +16:58 | 3 | 10, 2m | |
| 188 | COMP | | | ↑ | | |
| 189 | 028 | 05:38 | +17:24 | 43 | 15m | WK em |
| 190 | COMP | | | ↑ | | |
| 191 | 029 | 05:42:21 | +22:36:46 | 43 | 30s | ZAMS * w/ jets + shock! |
| 192 | 029N | 05:42:21 | +22:36:46 | 43 | 6m | nebulae - jets |
| 193 | COMP | | | ↑ | | WK em |

| 60 inch Telescope Log | | | | Spectrograph: <u>FAST</u> | | Page: <u>4957</u> | |
|-----------------------|-----------------|----------------------|--------|---------------------------|-----|---------------------|--|
| Observer: <u>PB</u> | | Grating: <u>300L</u> | | Date: <u>11/8/96</u> | | | |
| PI: <u>Pintoja</u> | | | | | | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments | |
| 194 | 030 | 05:39 | R9-08 | 43 | 15m | | |
| 195 | COMP | | | ↑ | | | |
| 196 | 035 | 05:45 | H7:35 | 43 | 15m | 2 objects; wk no em | |
| 197 | COMP | | | ↑ | | | |
| 198 | 036 | 05:45 | H4:47 | 43 | 15m | wk | |
| 199 | COMP | | | ↑ | | Seeing worse | |
| 200 | 059 | 06:02 | +09:11 | 43 | 12m | | |
| 201 | COMP | | | ↑ | | | |
| 202 | Hiltner 60 | 06:42 | +02 | 0 | 45s | | |
| 203 | COMP | | | ↑ | | | |
| 204 | 060 | 06:02 | +28:08 | 43 | 10m | * to W bin by 2 | |
| 205 | COMP | | | ↑ | | | |
| 206 | 061 | 06:04 | +32:25 | 43 | 10m | | |
| 207 | COMP | | | ↑ | | | |
| 208 | 065 | 06:12 | +38:42 | 43 | 10m | | |
| 209 | COMP | | | ↑ | | | |
| 210 | 053 | 06:58 | +38:14 | 43 | 12m | | |
| 211 | COMP | | | ↑ | | Seeing > 2-3" | |
| 212 | 054 | 06:58 | +28:52 | 43 | 15m | | |
| 213 | COMP | | | ↑ | | Seeing >> 5" | |
| 214 | 073 | 06:16 | +03:11 | 43 | 5m | wk em | |
| 215 | COMP | | | ↑ | | | |
| 216 | Z009625, m15.30 | 08:18 | H1:37 | 3 | 10m | | |
| 217 | COMP | | | ↑ | | | |
| 218 | Z009778, m15.30 | 09:09 | H9:24 | 3 | 7m | | |
| 219 | COMP | | | ↑ | | | |
| 220-222 | N315 | 10:02 | -07:28 | 0 | 3m | | |
| 223 | COMP | | | ↑ | | | |
| 224-228 | HDS2971 | 06:57 | +27:13 | 0 | 6s | | |
| 229 | COMP | | | ↑ | | | |

| 60 inch Telescope Log | | | Spectrograph: <u>FAST</u> | | Page: <u>4788</u> | |
|-----------------------|-----------|-------|---------------------------|-----|-------------------|----------------|
| Observer: <u>PB</u> | | | Grating: <u>300</u> | | | |
| PI: <u>AA</u> | | | Date: <u>11/8/96</u> | | | |
| Number | Object | R.A. | Dec. | L/R | Exp | Comments |
| 230-232 | HD 256036 | 06-22 | 172-52 | 0 | 6s | |
| 233 | COMP | | | ↑ | | u. for changes |
| 238-240 | HD 45087 | 06-26 | 171-04 | 0 | 6s | down |
| 241 | COMP | | | ↑ | | |
| 242-244 | HD 45714 | 06-27 | 174-53 | 0 | 4s | |
| 245 | COMP | | | ↑ | | |
| 246-248 | HD 46223 | 06-29 | 104-49 | 0 | 6s | |
| 249 | COMP | | | ↑ | | |
| 250-252 | HD 46150 | 06-31 | 104-55 | 0 | 6s | |
| 253 | COMP | | | ↑ | | |
| 254-256 | HD 47129 | 06-37 | 06-07 | 0 | 4s | |
| 257 | COMP | | | ↑ | | |
| 258-267 | BIAS | | | 0 | 0s | |
| 268-277 | FLAT | | | 0 | 6s | |
| 278-287 | BIAS | | | 0 | 0s | bin by 2 |
| 288-297 | FLAT | | | 0 | 12s | bin by 2 |