Divinus Lux Observatory Bulletin: Report # 25

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Abstract: This report contains theta/rho measurements from 127 different double star systems. The time period spans from 2011.729 to 2011.964. Measurements were obtained using a 20-cm Schmidt-Cassegrain telescope and an illuminated reticle micrometer. This report represents a portion of the work that is currently being conducted in double star astronomy at Divinus Lux Observatory in Flagstaff, Arizona.

This article contains a listing of double star measurements that are part of a series, which have been continuously reported at Divinus Lux Observatory, since the spring of 2001. Beginning with this article, the selected double star systems, which appear in the table below, have been taken exclusively from the 2006.5 version of the Washington Double Star Catalog, with published measurements that are no more recent than ten years ago. There are also some noteworthy items that are discussed, which pertain to a few of the measured systems.

Proper motion by the primary component, in seven different double star systems, has caused noteworthy shifts in the rho values during the past decade. Specifically, for ENG 9 AB, such a shift has resulted in a 5% decrease in the rho value, while for STF 125, a 3.5% increase in the rho value has occurred. Additionally, a 5% increase has occurred in the rho value for STF 197 AB, while a 4% rho value increase has been measured for STF 476 AB. Next, a rho value decrease of 3.2% is being reported for STF 719 AC, while a rho value increase of 4% has occurred for LAL 194 AB. Finally, a rho value increase of 3.8% is noted for S 478. Except for STF 719 AC, the other six listings appear to be optical pairs.

Proper motion by the primary component is also responsible for a shift in theta value for HJ 3524, which is worthy of mention. Since 1991, this value has increased by approximately 3.4 degrees.

There are a couple of theta value listings, which appear in the WDS catalog, that might be questionable. First, the theta value for HJ 2224, in 2002, shows no shift since 1912, but an 8 degrees shift is recorded from 1831 to 1912. This report confirms that a theta value decrease should have continued occurring, since a 6 degrees decrease was measured from 1912 to the present. Secondly, in a diametrically opposed sense, a theta value decrease of 3 degrees is listed in the WDS catalog for STT84 from 1843 to 2002, but the common proper motion vectors display virtually the same values. The theta value measurement, contained in this report, confirms that almost no theta value shift should have occurred since 1843.

This report also contains measurements for two double stars, sharing a common proper motion, that appear to not have been previously cataloged. The first one, a double star near ARG 5 labeled as ARN 112 (01323+4559) in Andromeda, is listed as such pair in the table below. A second like entry, identified as ARN 113 (03459+2433), is located in the Pleiades.

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Name	RA+DEC	Mags	PA	Sep	Date	Notes
STT 549AB	00066+2901	6.1 10.2	258.8	187.63	2011.729	1
STF 91	01072-0144	7.4 8.6	315.8	4.44	2011.729	2
BU 235Aa-B	01106+5101	7.5 10.7	281.8	42.46	2011.729	3
STT 12Aa-C	01106+5101	7.5 10.2	69.2	59.25	2011.729	3
STF 125	01270-0009	7.9 10.4	330.2	88.88	2011.729	4
ARN 112	01323+4559	10.2 10.6	230.9	85.42	2011.729	5
ENG 9AB	01591+3313	7.1 9.6	135.9	87.89	2011.729	6
STU 15AC	02004-0831	5.5 6.9	60.9	384.14	2011.767	7
ARN 29AD #	02004-0831	5.5 10.1	26.3	369.33	2011.767	7
STF 192AC	02007+5832	8.1 9.3	148.7	72.09	2011.767	8
STF 197AB	02011+3518	8.2 9.1	233.2	37.53	2011.825	9
STF 227	02124+3018	5.2 6.6	68.8	3.95	2011.825	10
STF 230	02149+5829	7.8 9.4	258.8	24.19	2011.926	11
ARN 30AC	02163-0949	6.9 9.6	220.8	254.78	2011.825	12
S 409AD	02181+5731	6.0 9.6	136.4	123.44	2011.767	13
STF 246	02187+3429	7.7 9.2	122.9	9.88	2011.767	14
STT 26AB	02197+6002	6.9 7.7	200.4	63.20	2011.767	15
BUP 30AC	02228+4124	5.8 7.4	8.6	305.14	2011.767	16
STF 274	02315+0106	7.5 7.6	219.8	13.55	2011.767	17
STT 42AB-D	02333+5219	6.6 9.9	83.2	128.38	2011.767	18
HJ 2143AB	02335+5732	8.0 9.5	19.2	23.70	2011.767	19
BUP 33AC	02360-0750	5.5 9.7	186.8	140.23	2011.767	20
STF 289	02407+2704	5.3 10.7	1.9	28.64	2011.825	21
HJ 1123	02420+4248	8.4 8.5	248.6	20.24	2011.786	22
STT 44AC	02422+4242	8.5 8.3*	289.8	86.41	2011.786	23
STF 292	02425+4016	7.6 8.2	211.5	22.71	2011.786	24
HJ 3524	02430-2017	7.6 9.0	164.4	19.75	2011.926	25
STF 297Aa-B	02454+5634	8.5 8.9	278.6	15.80	2011.786	26
STF 301	02476+5357	7.7 8.7	17.3	8.24	2011.786	27
STF 311AB	02493+1728	5.3 7.9	119.6	3.46	2011.786	28
ARN 31AD	02493+1728	5.3 10.4	134.1	220.21	2011.786	28
HJ 3533	02498-2015	7.4 8.1	266.9	38.02	2011.786	29
H 5Aa-D	02500+2716	3.6 8.7	237.1	122.45	2011.786	30
STF 307AB	02507+5554	3.7 8.5	301.8	28.64	2011.786	31
STF 306AG	02511+6025	7.4 8.3	157.3	123.44	2011.786	32

Not in the WDS CATALOG.
* Companion star is the brighter component.

Table continues on next page.

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Name	RA+DEC	Mags	PA	Sep	Date	Notes
BLL 8AB	02518+5819	6.4 9.9	146.9	195.53	2011.786	33
ARN 56AC	02518+5819	6.4 9.3	188.4	350.56	2011.786	33
STF 331	03009+5221	5.2 6.2	84.8	11.85	2011.827	34
STF 336	03015+3225	6.8 8.2	7.9	8.39	2011.827	35
STF 337AB	03023+4124	7.9 9.3	162.6	17.28	2011.827	36
WAL 20AC	03023+4124	7.9 8.8	209.3	97.76	2011.827	36
BUP 37AB	03036+3627	7.7 9.9	268.4	98.75	2011.827	37
STF 6	03092+0728	7.6 7.8	163.1	80.98	2011.827	38
GLP 1	03108+1508	10.3 10.6	88.4	4.44	2011.827	39
ENG 12AB	03109-1108	7.2 8.6	50.4	144.18	2011.827	40
STF 366AB	03143+2257	6.8 10.4	34.2	42.96	2011.827	41
ENG 13AB-C	03151+1618	8.8 8.4*	186.1	173.80	2011.827	42
STF 557AB	03194+0322	4.8 8.8	164.0	266.63	2011.926	43
WEB 1	03219+4904	5.9 9.6	325.4	216.26	2011.827	44
STT 56AB	03316+4752	6.8 10.6	352.1	32.09	2011.827	45
STT 57AC	03334+2322	7.2 7.5	33.5	69.62	2011.827	46
STF 414	03345+1948	8.1 8.3	186.4	7.41	2011.926	47
BUP 45AC	03356+4253	7.4 7.8	90.4	178.74	2011.847	48
STF 430AB	03405+0508	6.6 9.6	55.0	25.68	2011.847	49
STF 430AC	03405+0508	6.6 10.5	300.2	35.05	2011.847	49
WEB 2AD	03427+5958	5.7 8.4	35.9	54.81	2011.847	50
GIC 44AB	03439+1640	9.9 10.7	260.8	106.65	2011.847	51
HJ 3588	03447-1047	7.9 10.1	235.8	44.94	2011.847	52
ARN 113 #	03459+2433	5.8 6.4	129.8	149.61	2011.847	53
S 436	03493+5707	6.4 7.2	76.0	58.26	2011.847	54
STF 446AB	03495+5239	6.8 9.9	254.2	8.89	2011.847	55
ENG 15	03521-0109	6.7 10.1	153.3	97.27	2011.847	56
HJ 3253	03522+2614	8.1 9.7	73.5	32.09	2011.847	57
STT 41A-BC	03545+0510	7.4 8.9	358.1	59.74	2011.847	58
STF 469	03573+4153	6.9 9.8	146.5	8.89	2011.847	59
STF 476AB	04016+3840	7.7 9.1	289.4	25.68	2011.945	60
A 1709AC	04035+4211	8.0 9.4	339.9	51.35	2011.940	61
KU 83AB	04050+3705	8.0 9.5	279.0	47.40	2011.940	62
ARN 35AC	04050+3705	8.0 10.3	99.5	144.18	2011.940	62
STT 531AC	04076+3804	7.2 8.6	217.0	225.15	2011.940	63

Not in the WDS CATALOG.
* Companion star is the brighter component.

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Name	RA+DEC	Mags	PA	Sep	Date	Notes
ALC 1AE	04076+3804	7.2 5.5*	99.6	745.86^	2011.940	63
AG 308	04080+4311	7.0 6.6*	70.4	130.35	2011.940	64
ENG 17AB	04095-1729	8.0 8.2	134.8	118.50	2011.940	65
HJ 2224	04119-0850	6.4 9.6	306.1	56.78	2011.945	66
STT 44	04173+4613	7.1 8.0	322.6	58.26	2011.940	67
STF 523AB	04198+2344	7.6 9.8	162.9	10.37	2011.940	68
STF 523AC	04198+2344	7.6 8.9	49.8	108.63	2011.940	68
S 445AB	04210+5015	7.1 8.1	328.0	71.59	2011.940	69
S 445AC	04210+5015	7.1 9.3	261.7	150.10	2011.940	69
ARG 100AB-C	04230+5937	6.2 9.2	58.1	32.59	2011.940	70
STF 534AB	04240+2418	6.3 7.9	290.9	29.13	2011.940	71
STF 533AB	04244+3419	7.3 8.5	61.1	19.75	2011.942	72
STF 541AB	04254+2218	4.2 5.3	173.3	340.69	2011.945	73
STF 546	04270+1907	7.9 9.1	180.7	6.91	2011.942	74
STF 10	04287+1552	3.4 5.8	347.0	336.74	2011.942	75
BGH 2	04295+1752	6.9 9.0	9.4	109.61	2011.942	76
LDS2246	04306+1612	4.8 6.5	130.7	249.84	2011.942	77
BUP 62AB	04306+1542	5.4 8.8	339.1	161.95	2011.942	78
ARN 36AC	04306+1542	5.4 5.7	246.0	478.94	2011.942	78
ARN 36AD	04306+1542	5.4 9.7	36.3	393.03	2011.942	78
STT 84	04311+0647	7.1 8.0	255.8	9.38	2011.945	79
ES 2607AB	04333+5248	7.2 9.3	130.5	46.91	2011.942	80
STT 53	04374+0034	7.5 7.5	353.0	78.01	2011.942	81
STF 57AB	04380-1302	7.3 7.8	172.2	12.34	2011.942	82
BUP 67AB	04391+0752	5.4 10.7	251.6	78.51	2011.942	83
BUP 67AC	04391+0752	5.4 9.3	314.9	295.26	2011.942	83
STF 11	04393+1555	4.7 5.1	193.9	438.45	2011.942	84
H 83	04503+0657	7.2 10.1	4.8	95.29	2011.942	85
S 457	04531-0117	7.9 8.1	354.6	40.98	2011.945	86
ENG 19AB	04549+1009	4.6 8.9	253.5	171.83	2011.945	87
SHJ 49AB	04590+1433	6.1 7.4	305.4	39.50	2011.945	88
SHJ 49AC	04590+1433	6.1 9.6	88.9	54.31	2011.945	88
S 463	05018+1123	7.2 10.1	29.3	32.59	2011.959	89
BU 554AE	05020+4349	3.0 9.5	48.1	207.38	2011.959	90
J 307AB	05037-0232	6.7 9.1	319.9	53.33	2011.959	91

* Companion star is the brighter component.
^ Guide 8 star chart measurements because rho value exceeds telescopic scale.

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Name	RA+DEC	Mags	PA	Sep	Date	Notes
STF 13AB	05061+5858	5.2 6.1	9.2	178.74	2011.959	92
STF 13BC	05061+5858	6.1 10.1	19.3	177.75	2011.959	92
S 466	05079+2142	5.8 9.3	249.6	110.60	2011.959	93
BGH 21	05101+2733	7.0 9.2	352.7	315.01	2011.959	94
STF 646AB	05110+3917	8.3 9.5	75.2	15.80	2011.959	95
CTT 4AC	05175+3312	7.7 10.3	282.7	111.59	2011.959	96
CTT 4AD	05175+3312	7.7 10.7	270.8	44.80	2011.959	96
S 473	05176-1513	7.0 8.5	306.4	20.74	2011.959	97
STF 680	05192+2008	6.1 9.6	202.9	8.89	2011.959	98
STF 688	05193-1045	7.5 7.5	95.3	10.54	2011.959	99
S 476AB	05193-1831	6.3 6.5	18.5	39.50	2011.959	100
STU 20AC	05193-1831	6.3 9.5	20.9	166.89	2011.959	100
STF 692AB-C	05204-0802	7.6 8.5	4.5	35.06	2011.959	101
KU 87AB	05217+1854	7.7 9.9	103.7	36.04	2011.962	102
AG 314	05219+4203	7.9 9.3	84.1	105.66	2011.962	103
STF 700	05231+0103	7.7 7.9	6.0	4.94	2011.962	104
STF 697AB	05235+1602	7.3 8.1	285.6	26.17	2011.962	105
WAL 38AC	05235+1602	7.3 10.7	284.4	97.76	2011.962	105
ES 57AC	05244+4237	8.1 8.9	236.8	42.46	2011.962	106
S 478	05244+1723	5.0 8.7	270.9	106.65	2011.964	107
S 479AB	05246+0149	8.3 8.9	220.3	46.41	2011.962	108
S 479AC	05246+0149	8.3 4.9*	36.0	158.00	2011.962	108
HJ 3579	05260-1942	5.8 7.2	317.9	26.66	2011.962	109
HJ 2268	05287-0823	6.7 10.2	301.2	25.68	2011.962	110
STF 721A-BC	05296+0309	7.1 9.1	148.9	25.18	2011.962	111
HJ 3275AC	05298+1825	7.6 8.2	21.2	56.29	2011.962	112
S 719AC	05301+2933	7.4 9.3	353.9	14.32	2011.962	113
ENG 21	05324-0624	8.2 9.3	252.0	44.93	2011.962	114
STF 745AC	05348-0600	8.3 10.4	304.3	96.78	2011.964	115
STF 762AB-D	05387-0236	3.8 6.6	84.0	12.84	2011.964	116
STF 762AB-E	05387-0236	3.8 6.4	61.6	41.48	2011.964	116
HJ 3780AC	05393-1751	6.4 8.9	136.9	89.37	2011.962	117
HJ 3780AE	05393-1751	6.4 7.7	8.2	75.54	2011.962	117
HJ 3780AF	05393-1751	6.4 8.2	299.3	134.30	2011.962	117
LAL 194AB	05397-2026	6.9 7.9	124.0	11.36	2011.962	118

* Companion star is the brighter component.

Table concludes on next page.

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Name	RA+DEC	Mags	PA	Sep	Date	Notes
ENG 22AB	05413+5329	6.2 9.7	68.7	99.74	2011.964	119
STF 798	05482-0823	7.3 9.4	181.8	20.74	2011.964	120
STT 67AB-C	05484+2052	6.0 8.3	161.9	75.54	2011.964	121
STF 809AC	05506-0126	8.0 9.1	91.5	24.19	2011.964	122
STF 805	05518+2827	8.4 8.8	49.9	11.85	2011.964	123
STF 819	05551-0056	8.1 9.9	98.2	25.68	2011.964	124
BU 1189AB-C	05575+0024	8.0 8.3	194.5	56.29	2011.964	125
A 322AC	05584-0439	7.0 9.3	303.4	197.16	2011.964	126
STT 545AD	05597+3713	2.6 10.1	349.1	137.76	2011.964	127

Table Notes

1. In Andromeda. Sep. & p.a. increasing. Spect. K0.
2. In Cetus. Sep. inc; p.a. dec. Common proper motion. Spect. F5, F5+.
3. In Cassiopeia. Aa-B = sep. & p.a. dec. Aa-C= sep. dec.; p.a. inc. Spect. F5, A0.
4. In Cetus. Sep. inc.; p.a. dec. Spect. G5, G.
5. In Andromeda. Possible relatively fixed. Common proper motion. Near ARG 5.
6. In Triangulum. Sep. & p.a. decreasing. Spect. G5.
7. In Cetus. AC = sep. decreasing. AD = p.a. & sep. decreasing. Spect. M3, G5.
8. In Cassiopeia. Sep. decreasing; p.a. increasing. Spect. F0, B8.
9. In Triangulum. Separation increasing. Spect. F3V, K0.
10. 6 Trianguli. Common proper motion; p.a. decreasing. Spect. G0III, G5III.
11. In Perseus. Relatively fixed. Spect. B8III, A0.
12. In Cetus. Sep. & p.a. slightly increasing. Spect. G0, K0.
13. In Perseus. Position angle decreasing. Spect. G7III.
14. In Triangulum. Sep. & p.a. decreasing. Common proper motion. Spect. G0, G0.
15. In Cassiopeia. Relatively fixed. Common proper motion. Spect. A2V, G5.
16. In Andromeda. Separation increasing. Spect. F0III, B2.
17. In Cetus. Sep. dec.; p.a. inc. Common proper motion. Spect. A2, A2.
18. In Perseus. Separation increasing. Spect. A2IV, K0.
19. In Perseus (O.C. NGC 957). Position angle decreasing. Spect. B3I, B1V.
20. 80 Ceti. Sep. & p.a. decreasing. Spect. M0III.
21. 33 Arietis. Separation increasing. Spect. A3V.
22. In M 34 cluster. Sep. inc.; p.a. dec. Common proper motion. Spect. B8III, A0.
23. In M 34 cluster. Relatively fixed. Spect. B9V, B8.
24. In Perseus. Relatively fixed. Common proper motion. Spect. B9, A0.
25. In Cetus. Position angle increasing. Spect. G0.
26. In Perseus. Relatively fixed. Spect. A0V, A0.
27. In Perseus. Relatively fixed. Common proper motion. Spect. A0, A0.
28. Pi or 42 Arietis. AB = sep. dec.; cpm. AC = sep. inc. Spect. AB = B6V, B6V.
29. In Eridanus. Sep. & p.a. decreasing. Spect. K5, G5.
30. 41 Arietis. Sep. & p.a. decreasing. Spect. B8V, K0.
31. Eta or 15 Persei. Sep. & p.a. increasing. Spect. M3I, A0.
32. In Cassiopeia. Relatively fixed. Spect. O6, B2.
33. In Cassiopeia. AB = sep. inc. AC = relatively fixed. Spect. A0, A0, K0.
34. In Perseus. Common proper motion; sep. dec.; p.a. inc. Spect. B7V, B9V.
35. In Perseus. Relatively fixed. Common proper motion. Spect. G5IV, A7IV.
36. In Perseus. AB = relfix; c.p.m. AC = sep. inc.; p.a. dec. Spect. AC = F5, K0.
37. In Perseus. Sep. & p.a. increasing. Spect. F8, F0.
38. In Cetus. Relatively fixed. Spect. G0, G0.
39. In Aries. Relatively fixed. Common proper motion. Spect. F8.
40. In Eridanus. Decreasing p.a. Spect. G5, A3.
41. In Aries. Sep. & p.a. decreasing. Spect. K0, G.
42. In Aries. Increasing p.a. Spect. G0, G0.
43. Kappa or 96 Ceti. Position angle increasing. Spect. G5V, G0.
44. In Perseus. Sep. increasing; p.a. decreasing. Spect. F6V, F2.
45. In Perseus. Separation increasing. Spect. B8V.
46. In Taurus. Sep. & p.a. decreasing. Spect. A3, G5.
47. In Taurus. Relatively fixed. Common proper motion. Spect. A0, A0.
48. In Perseus. Sep. & p.a. decreasing. Spect. F8, K0.
49. In Taurus. AB = sep. & p.a. dec. AC = sep. inc. Spect.

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K2III, G0, F8.

50. In Camelopardus. Relatively fixed. Spect. K4II, B8.
51. In Taurus. Relatively fixed. Common proper motion. Spect. M2, M1.
52. In Eridanus. Sep. decreasing; p.a. increasing. Spect. G0.
53. 21 Tauri. In the Pleiades. Common proper motion. Spect. B8, B9.
54. In Camelopardus. Relatively fixed. Common proper motion. Spect. A0V, A0.
55. In Perseus. Relatively fixed. Common proper motion. Spect. B.5III, B.5III.
56. In Eridanus. Sep. increasing; p.a. decreasing. Spect. B9.
57. In Taurus. Relatively fixed. Common proper motion. Spect. A2, F0.
58. In Taurus. Relatively fixed. Common proper motion. Spect. F3II.
59. In Perseus. Common proper motion; p.a. decreasing. Spect. A2, A2.
60. In Perseus. Sep. & p.a. increasing. Spect. K2, K2.
61. In Perseus. Sep. & p.a. decreasing. Spect. A2, A2.
62. In Perseus. AB = sep. dec. AC = p.a. dec. Spect. A0, K2, G5.
63. In Perseus. AC = sep. dec.; p.a. inc. AE = relfix, cpm. Spect. G5, K0, F8.
64. In Perseus. Sep. & p.a. decreasing. Spect. K0, B8.
65. In Eridanus. Sep. & p.a. decreasing. Spect. G8IV, F0.
66. In Eridanus. Sep. increasing; p.a. decreasing. Spect. G5.
67. In Perseus. Relatively fixed. Spect. A2, B0.
68. In Taurus. AB = p.a. dec. AC = p.a. inc. Spect. AC = B9.5V, F2.
69. In Perseus. AB = sep. dec. AC = relatively fixed. Spect. K2, F8, B8.
70. In Camelopardus. Position angle decreasing. Spect. A4V.
71. In Taurus. Relatively fixed. Common proper motion. Spect. B3V, A1V.
72. In Perseus. Relatively fixed. Common proper motion. Spect. B8V, F8.
73. Kappa or 65 Tauri. Relatively fixed. Common proper motion. Spect. A7IV, A7V.
74. In Taurus. Common proper motion; p.a. decreasing. Spect. G0, F5V.
75. Theta or 25 Tauri. Relatively fixed. Common proper motion. Spect. A7III, K0.
76. In Taurus. Relatively fixed. Common proper motion. Spect. F8, G5.
77. In Taurus. Relatively fixed. Common proper motion. Spect. A6IV, F2.
78. 81 Tauri. AB & AC = Relfix., cpm. AD = p.a. dec. Spect. A5, K0, F0, G5.
79. In Taurus. Relatively fixed. Common proper motion. Spect. K0IV, G5.
80. In Camelopardus. Relatively fixed. Spect. K5, G5.
81. In Taurus. Relatively fixed. Spect. G5, G5.
82. In Eridanus. Relatively fixed. Common proper motion. Spect. B9.5IV, A0.
83. In Taurus. AB= sep. & p.a. inc. AC = sep. & p.a. dec. Spect. A5, F8, K0.
84. Sigma or 92 Tauri. Separation increasing. Spect. A5V, A4.
85. In Orion. Separation slightly decreasing. Spect. A2.
86. In Orion. Relatively fixed. Common proper motion. Spect. A, A.
87. Pi or 7 Orionis. Position angle increasing. Spect. A0V, A.
88. In Orion. AB = sep. dec., p.a. inc.; cpm. AC = sep. dec. Spect. B7V, B9, A0.
89. In Orion. Relatively fixed. Spect. B8, A.
90. Epsilon or 7 Aurigae. Relatively fixed. Spect. F0I, B0.
91. In Orion. Sep. increasing; p.a. decreasing. Spect. G9III, K0.
92. 11 Camelopardi. AB = sep. dec. BC = sep. inc. Spect. AB = B2V, K0III.
93. 105 Tauri. Relatively fixed. Spect. B2V, K0.
94. In Taurus. Relatively fixed. Common proper motion. Spect. F5, G5.
95. In Auriga. Common proper motion; p.a. slightly increasing. Spect. G5, G5.
96. In Auriga. AC = p.a. slightly inc. AD = sep. slightly inc. Spect. A2.
97. In Lepus. Relatively fixed. Spect. B9.5V, A1.
98. In Taurus. Relatively fixed. Common proper motion. Spect. K0III, G8III.
99. In Orion. Relatively fixed. Common proper motion. Spect. F0, F0.
100. In Lepus. AB= relfix.; c.p.m. AC= sep. dec. Spect. AB= B3V, B8.
101. In Orion. Common proper motion; sep.inc.; p.a. dec. Spect.F2.
102. In Taurus. Position angle decreasing. Spect. G0, A5.
103. In Auriga. Sep. slightly decreasing; p.a. increasing. Spect. K0, A0.
104. In Orion. Separation increasing. Spect. B9V, B9.5V.
105. In Orion. AB = relatively fixed. AC = sep. decreasing. Spect. AB = B7V, A.
106. In Auriga. Relatively fixed. Common proper motion. Spect. A2, A0.
107. 111 Tauri. Separation increasing. Spect. F8V, K0.
108. In Orion. C component = Psi or 25. All components

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relfixed. Spect. A, A0, B3.

109. In Lepus. Relatively fixed. Spect. F5IV, F5.
110. In Orion. Position angle increasing. Spect. G5.
111. In Orion. Relatively fixed. Spect. B5V, F8.
112. In Taurus. Separation increasing. Spect. A0, F.
113. In Auriga. Sep. decreasing, p.a. increasing. Spect. G5, G5.
114. In Orion. Relatively fixed. Common proper motion. Spect. A0, A0.
115. In Orion. Relatively fixed. Spect. A, G0.
116. Sigma or 48 Orionis. AB-D = relfix, cpm. AB-E= sep.dec. Spect. B9.5V, B0, B3.
117. In Lepus. AC, AE, AF= relfixed, p.a. inc., sep. inc. Spect. AEF = B7V, K5, F0.
118. In Lepus. Separation increasing. Spect. B8.
119. In Auriga. Common proper motion; p.a. dec., sep. inc. Spect. K1V, M1.
120. In Orion. Relatively fixed. Spect. B9.
121. In Taurus. Common proper motion; sep. decreasing. Spect. B9V, A0.
122. In Orion. Position angle decreasing. Spect. G5, F0.
123. In Taurus. Relatively fixed. Common proper motion. Spect. A2, F0.
124. In Orion. Relatively fixed. Common proper motion. Spect. G5III, A0.
125. In Orion. Sep. & p.a. decreasing. Spect. A, A.
126. In Monoceros. Sep. & P.a. increasing. Spect. G0.
127. Theta or 37 Aurigae. Sep. increasing; p.a. decreasing. Spect. A0.