Divinus Lux Observatory Bulletin: Report # 26

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Abstract: This report contains theta/rho measurements from 116 different double star systems. The time period spans from 2011.978 to 2012.150. 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. The selected double star systems, which appear in the table below, have been taken exclusively from the 2006.5 version of the Washingtion Double Star (WDS) 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.

As is regularly reported, proper motion by one or both components of a double star is responsible for significant shifts from the theta/rho values listed in the WDS Catalog from a decade ago. In this regard, proper motion by the primary component, for STF 853, has caused a rho shift increase of 2.8% since 2002. When considering theta values, a decrease of 2.2 degrees is being noted, during the past decade, for H72 Aa-B because of proper motion by the B component.

Also appearing in the following table is one possible common proper motion double star that doesn't appear to have been previously cataloged. This pair, listed as ARN 115 (06457+5544), is located in Lynx.

Finally, there are some potential corrections that are being suggested for the WDS CATALOG listings. First, a possible typographical error is being noted for STF 1102 AD (07304+1352). The catalog gives a rho value of 1.0" for this double star, but a measured value of 111.59" may be more accurate because the catalog theta value matches the theta value that was measured for this report. In addition, the magnitude of this measured companion has a similar value to the catalog listing. Secondly, the measured theta/rho values for STF 1201(08129+0935) more closely match the values for 1831, rather than for 2002. Since the proper motion vector values for this double star are almost identical, there could be some question as to whether the 2002 listings are accurate. Lastly, the listed theta value for ARN 2 AC (08102+2551) appears to be in error, since the measured value for this report is 21.6 degrees instead of 33 degrees.

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Name	RA+Dec	Mags	PA	Sep	Date	Note
STF 838	06051+0053	7.0 10.4	328.5	40.49	2011.978	1
AG 321	06055+1435	7.7 8.8	188.7	36.04	2011.978	2
STF 848AD	06085+1358	7.3 8.3	121.7	27.65	2011.978	3
STF 848AE	06085+1358	7.3 9.0	184.4	43.45	2011.978	3
ABH 38AB-H	06085+1358	7.3 9.7	114.1	81.96	2011.978	3
ABH 38AB-I	06085+1358	7.3 10.6	208.6	100.23	2011.978	3
ABH 38AB-J	06085+1358	7.3 10.4	226.2	126.40	2011.978	3
JRN 23EN	06085+1358	9.0 8.7*	202.1	109.61	2011.978	3
JRN 23JI	06085+1358	10.4 10.6	90.0	43.45	2011.978	3
JRN 23SU	06085+1358	8.1 10.3	8.4	61.72	2011.978	3
STF 853	06092+1139	8.4 8.9	7.3	37.53	2011.978	4
WEB 5	06097+4308	7.1 9.2	216.1	43.94	2011.978	5
A 54AC	06097+2914	7.9 10.0	130.8	53.33	2011.978	6
H 114	06103+1554	7.1 10.3	105.1	54.81	2011.978	7
H 72Aa-B	06120+1947	5.8 9.3	202.8	91.34	2011.986	8
S 509AB	06143+1430	7.3 8.0	198.0	170.84	2011.978	9
STF 880	06155+1035	8.3 8.6	54.5	5.43	2011.978	10
BU 193AC	06155+0357	7.0 10.0	231.5	57.77	2011.978	11
LAU 1AC	06164+1216	5.0 9.0	94.0	195.53	2011.978	12
BUP 96Aa-C	06171+0957	5.4 10.0	348.5	114.55	2011.978	13
ENG 26AB	06173+0506	5.7 10.0	239.5	178.74	2011.978	14
H 55AC	06194+2316	7.0 10.3	59.3	62.21	2011.986	15
ARN 41AC	06210+0944	8.0 8.0	19.2	124.43	2011.981	16
BU 1020AC	06234+2845	8.4 9.5	63.1	84.43	2011.981	17
S 518	06244-1613	6.9 8.4	87.2	16.29	2011.981	18
STF 901	06250+1031	7.8 9.8	247.5	19.26	2011.981	19
STF 910A-BC	06267+0027	6.9 8.1	151.7	66.66	2011.981	20
S 514AC	06268+5825	5.2 7.8	271.9	95.29	2011.981	21
STT 77Aa-BC	06290+2013	4.1 8.0	329.9	112.58	2011.981	22
HJ 3864	06305-1457	6.8 10.4	43.4	21.23	2011.981	23
SLE 293AI	06319+0457	6.8 9.4	234.8	64.19	2011.981	24
SLE 293AK	06319+0457	6.8 10.7	136.6	75.05	2011.981	24
STF 924AB	06323+1747	6.2 6.8	211.0	19.75	2011.981	25
STT 146	06324+1140	6.0 9.8	137.0	30.12	2011.981	26
S 524AB	06341+2207	7.1 7.4	244.1	53.33	2011.981	27

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Name	RA+Dec	Mags	PA	Sep	Date	Note
S 524AC	06341+2207	7.1 9.9	148.3	102.21	2011.981	27
STF 930AB	06342+0759	8.3 9.8	276.9	26.19	2011.981	28
STF 930AC	06342+0759	8.3 9.5	106.2	43.45	2011.981	28
STF 939AB	06359+0519	8.4 9.2	106.6	30.61	2011.981	29
STF 939AC	06359+0519	8.4 9.4	51.2	39.50	2011.981	29
SHJ 73	06364-1840	5.7 7.3	63.8	17.78	2011.984	30
ARN 38AD	06383+2427	6.7 9.6	162.0	384.14	2011.984	31
STF 947	06404+1925	8.7 10.7	174.2	18.27	2011.984	32
STF 944A-Ca	06408+4815	8.4 9.5	182.3	191.58	2011.984	33
STF 950Aa-E	06410+0954	5.0 8.9	140.1	74.06	2011.986	34
STF 950Aa-F	06410+0954	5.0 9.0	222.3	156.03	2011.986	34
STF 950Aa-H	06410+0954	5.0 9.8	166.7	88.88	2011.986	34
STF 950Aa-K	06410+0954	5.0 10.1	55.9	105.66	2011.986	34
STF 950Aa-M	06410+0954	5.0 9.7	103.9	178.74	2011.986	34
STF 950FG	06410+0954	9.0 10.0	262.8	39.99	2011.986	34
STF 952MN	06410+0954	9.7 10.1	115.6	13.83	2011.986	34
ARN 40AD	06412+0928	7.2 9.1	251.1	104.68	2011.986	35
STF 956AC	06427+0143	8.0 8.9	157.9	36.04	2011.984	36
S 533	06439+2508	3.0 9.6	94.4	110.11	2011.984	37
ARN 115#	06457+5544	9.1 10.4	110.4	80.98	2011.986	38
STF 968AB	06529+5241	8.2 9.1	289.1	20.74	2011.984	39
ES 2620Aa-B	06535+5139	8.2 9.5	230.5	58.76	2011.984	40
STF 985	06539-0424	7.6 8.2	323.2	32.59	2011.984	41
H 65AB	06550-2024	5.8 8.5	147.4	42.96	2011.984	42
H 65AC	06550-2024	5.8 9.2	186.6	48.88	2011.984	42
H 65AD	06550-2024	5.8 9.7	187.0	128.38	2011.984	42
STT 80AB	06581+1414	7.3 7.4	53.5	124.43	2011.984	43
STT 80AC	06581+1414	7.3 8.3	111.8	80.98	2011.984	43
ARN 1AD	06581+1414	7.3 10.3	285.8	85.91	2011.984	43
STF1000AB-C	06594+2514	8.0 8.9	67.5	21.73	2011.984	44
HJ 3288	07023+1235	7.3 8.6	246.8	38.51	2011.989	45
SKI 3	07026-1747	9.3 10.0	275.9	5.43	2011.989	46
ENG 28AB	07080+1532	7.7 7.8	279.4	171.83	2011.989	47
HJ 2362	07082+0323	9.0 9.5	188.7	28.64	2011.989	48
STF1027	07088+1655	8.3 8.6	356.8	6.91	2011.989	49

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Name	RA+Dec	Mags	PA	Sep	Date	Note
STT 83AC	07096+2544	7.1 7.8	78.6	122.45	2011.989	50
STF1032AC	07139+4830	7.3 9.4	319.2	131.34	2011.989	51
BAL1783	07161+0202	10. 10.4*	29.8	20.24	2011.992	52
AG 138	07201+0146	9.5 10.6	320.9	24.69	2011.992	53
STF1088AB	07260+1406	7.4 9.4	196.2	10.86	2011.992	54
STF1088AC	07260+1406	7.4 8.7	238.0	112.58	2011.992	54
STF1102AB	07304+1352	7.3 9.1	46.4	7.90	2011.992	55
STF1102AD	07304+1352	7.3 8.0	131.3	111.59	2011.992	55
STT 175AB-C	07351+3058	5.3 10.3	193.3	82.46	2011.992	56
S 557	07376-1426	6.5 8.7	338.1	66.16	2011.992	57
KNT 4AB	07478-1601	6.3 6.4	131.7	128.38	2011.992	58
S 560	07485+2846	6.8 9.6	358.2	88.38	2011.992	59
S 563AB	08085-1952	7.0 7.5	57.1	134.30	2012.036	60
STF1190AC	08086-0259	4.3 9.7	246.0	64.68	2012.036	61
BUP 111AB	08102+2551	6.4 9.3	48.3	80.48	2012.036	62
ARN 2AC	08102+2551	6.4 8.8	21.6	188.61	2012.036	62
STF1201	08129+0935	8.0 9.5	180.8	6.42	2012.036	63
H 78AC	08142+1741	6.5 10.7	300.3	63.20	2012.036	64
STU 22AB-D	08142+1741	6.5 8.8	323.1	230.09	2012.036	64
STF1210AB	08158+0248	7.2 9.4	112.0	15.80	2012.036	65
STT 565AB	08170+5911	6.6 9.6	9.3	98.26	2012.036	66
STT 565AC	08170+5911	6.6 8.3	308.2	226.14	2012.036	66
STT 565AD	08170+5911	6.6 9.6	64.3	237.99	2012.036	66
ENG 35AC	08246-0109	7.1 10.1	38.1	162.94	2012.036	67
STF1230	08284+1651	9.2 10.5	186.2	34.07	2012.036	68
HJ 93	08285+1212	10.5 10.6	99.0	19.26	2012.036	69
S 570AB	08391+1941	7.4 9.3	84.4	58.26	2012.036	70
S 570AC	08391+1941	7.4 9.3	345.0	178.74	2012.036	70
S 571AC	08399+1933	7.3 7.4	156.5	45.43	2012.036	71
S 571AD	08399+1933	7.3 6.6*	241.8	92.83	2012.036	71
ENG 37A-Bb	08401+2000	6.4 6.6	151.7	150.10	2012.038	72
ENG 37AC	08401+2000	6.4 9.0	309.4	134.30	2012.038	72
ENG 37AD	08401+2000	6.4 8.7	111.1	135.29	2012.038	72
STF1254AC	08404+1940	6.4 7.6	342.6	63.20	2012.038	73
STF1254AD	08404+1940	6.4 9.2	43.8	82.46	2012.038	73

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Name	RA+Dec	Mags	PA	Sep	Date	Note
S 574	08405+1933	6.3 7.5	249.9	134.30	2012.038	74
STF1260	08407-1210	7.8 8.0	302.4	4.94	2012.038	75
STF1258	08435+4852	7.7 7.8	330.0	9.88	2012.038	76
S 579AB	08437-0714	4.6 8.2	309.8	78.51	2012.038	77
STF1283	08499+1450	7.6 8.4	122.8	16.29	2012.038	78
S 585	08552-1814	5.7 7.1	150.9	64.19	2012.038	79
S 584	08553-1122	6.9 8.7	217.0	63.69	2012.038	80
SHJ 100	08595+3225	5.2 8.9	296.7	88.38	2012.038	81
ES 2631	09056+5018	7.7 8.3	258.6	79.49	2012.055	82
STT 568AB	09119+1803	6.9 9.4	252.5	128.38	2012.055	83
BUP 124BC	09119+1803	9.4 10.7	317.3	148.13	2012.055	83
STF1327AC	09155+2755	8.7 10.4	16.9	28.64	2012.055	84
SHJ 105AB	09205-0933	4.8 7.0	211.1	229.10	2012.055	85
STF1347	09233+0330	7.3 8.2	311.9	21.23	2012.055	86
HJ 1167	09291-0246	5.0 7.2	4.8	65.67	2012.055	87
STF1358	09309+4441	7.7 9.2	175.6	23.70	2012.055	88
BU 910AC	09329-1400	7.1 9.9	279.5	170.84	2012.055	89
S 604	09356-1935	6.3 9.4	90.0	51.84	2012.055	90
KU 98	09404+1936	10.2 10.4	341.1	56.78	2012.055	91
HJ 820	09434+0858	10.0 10.2	253.3	12.84	2012.055	92
HJ 4262AC	09545-1255	8.7* 6.9	135.2	152.08	2012.055	93
DOO 51	10023+5808	10.4 10.7	107.2	30.12	2012.093	94
STF 18	10167+2325	3.4 6.0	337.5	334.76	2012.093	95
HJ 2530AC	10242+0222	6.3 6.6	63.2	201.45	2012.093	96
STT 104	10244+3411	7.0 7.1	286.9	209.35	2012.093	97
BU 1280AB	10262+0356	6.7 9.4	190.6	116.53	2012.093	98
LDS2863AB	10306+5559	4.8 8.7	303.0	122.45	2012.093	99
BIG 1	10361+1137	7.3 9.6	330.9	60.24	2012.093	100
SMA 75AB	10435+4612	5.2 7.3	88.0	288.35	2012.093	101
SMA 75AD	10435+4612	5.2 9.1	45.1	382.16	2012.093	101
S 612AB	10459+3041	5.3 7.6	173.5	196.51	2012.093	102
ARN 3AC	10459+3041	5.3 8.3	93.6	424.63	2012.093	102
STF1474AC	10476-1516	6.7 7.5	26.3	72.58	2012.093	103
STF1473AB	10476-1538	7.7 8.8	9.6	30.61	2012.093	104
BU 1429AB	10535-2008	5.2 9.6	221.3	119.49	2012.093	105

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Name	RA+Dec	Mags	PA	Sep	Date	Note
STF1494AB	10584+3702	8.8 10.5	330.2	10.86	2012.093	106
STT 572AC	11050+0720	4.6 10.6	309.8	254.78	2012.150	107
ENG 45AB	11118+4250	7.2 8.2	247.2	134.79	2012.150	108
KU 36	11133+3811	10.7 10.7	136.6	8.89	2012.150	109
SHJ 121	11167-0339	4.4 9.7	291.1	87.39	2012.150	110
BU 600AC	11170-0708	6.1 8.2	99.0	53.82	2012.150	111
STF1563	11394+5211	8.5 10.5	157.7	13.83	2012.150	112
STF1572	11470+5317	9.4 10.7	290.2	10.37	2012.150	113
STF 7AB	11480+2013	4.5 9.0	355.4	74.56	2012.150	114
H 115AB	11484-1019	6.2 9.1	65.1	91.34	2012.150	115
STT 576AC	11507+0146	4.0 9.5	79.0	415.74	2012.150	116

* Companion star is the brighter component.

Not in the WDS CATALOG.

Table Notes

1. In Orion. Relatively fixed. Spect. G3II, A0.
2. In Orion. Sep. decreasing; p.a. increasing. Spect. F0.
3. In Orion. NGC 2169 O.C. AD = relfix, cpm. AE=p.a. inc. Spect. AD = B1V, B8.
4. In Orion. Sep. & p.a. increasing. Spect. G5, G5.
5. In Auriga. Relatively fixed. Common proper motion. Spect. A0, A2.
6. In Auriga. Position angle slightly decreasing. Spect. F5.
7. In Orion. Position angle decreasing. Spect. G5.
8. 68 Orionis. Sep. increasing; p.a. decreasing. Spect. B9.5V, G0.
9. In Orion. Relatively fixed. Spect. A1V, F0.
10. In Orion. Relatively fixed. Common proper motion. Spect. G5.
11. In Orion. Relatively fixed. Spect. B5V, F.
12. 74 Orionis. Sep. decreasing; p.a. increasing. Spect. F5IV, A3.
13. 75 Orionis. Separation increasing. Spect. A2.
14. In Orion. Sep. & p.a. decreasing. Spect. F9V.
15. In Gemini. Relatively fixed. Spect. B1III.
16. In Orion. Relatively fixed. Spect. K2, B8.
17. In Auriga. Separation decreasing. Spect. B8.
18. In Canis Major. Relatively fixed. Common proper motion. Spect. A6V, A.
19. In Orion. Relatively fixed. Spect. B9IV.
20. In Monoceros. Relatively fixed. Common proper motion. Spect. G5, G5.
21. 5 Lyncis. Relatively fixed. Spect. K4III, G5.
22. Nu or 18 Geminorum. Relfixed. Common proper motion. Spect. B6III, A0.
23. In Canis Major. Relatively fixed. Spect. B8V.
24. In Monoceros. AI & AK = relatively fixed. Spect. AI = O6, B.
25. 20 Geminorum. Relatively fixed. Common proper motion. Spect. F8III, F8.
26. In Monoceros. Sep. & p.a. decreasing. Spect. K0III.
27. In Gemini. AB=relfixed, cpm. AC=p.a. slightly decreasing. Spect. A3, A3, G0.
28. In Monoceros. AB=relfix.; cpm. AC=relfix. Spect. F8II, A0, B8.
29. In Monoceros. AB=sep. slightly inc.; AC=p.a. slightly inc. Spect. B1III, B8, B5.
30. Nu or 6 Canis Majoris. Relatively fixed. Common proper motion. Spect. G5, F3.
31. In Gemini. Relatively fixed. Common proper motion. Spect. A5.
32. In Gemini. Position angle decreasing. Spect. A2.
33. In Auriga. Separation decreasing. Spect. F8.
34. 15 Monocerotis. All components relfixed. Spect. Aa & F = O7, A0.
35. In Monoceros. Relatively fixed. Spect. B2III, B9.
36. In Monoceros. Sep. & p.a. increasing. Spect. O8
37. Epsilon or 27 Geminorum. Relatively fixed. Spect.

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G8I, K2.

38. In Lynx. Possible common proper motion. Spect. K0.
39. In Lynx. Relatively fixed. Common proper motion. Spect. A3, A2.
40. In Lynx. Relatively fixed. Common proper motion. Spect. F5, F2.
41. In Monoceros. Relatively fixed. Common proper motion. Spect. K5, K5.
42. 17 Canis Majoris. AB=sep. & p.a. dec. AC=sep. dec; p.a. inc. Spect. A3IV , K5.
43. In Monoceros. AB & AC = relfix, cpm. AD = p.a. slightly inc. Spect. B9, A5, G5.
44. In Gemini. Relatively fixed. Common proper motion. Spect. F8V, G0.
45. In Gemini. Sep. & p.a. decreasing. Spect. A2, K0.
46. In Canis Major. Relatively fixed. Common proper motion. Spect. K0III.
47. In Gemini. Relatively fixed. Common proper motion. Spect. G0V, F8.
48. In Canis Minor. Separation slightly increasing. Spect. A.
49. In Gemini. Relatively fixed. Spect. K3III, K3III.
50. In Gemini. Sep. increasing; p.a. decreasing. Spect. G5V, F0.
51. In Lynx. Sep. & p.a. slightly decreasing. Spect. A2V, F5.
52. In Canis Minor. Separation slightly increasing. Spect. B8.
53. In Canis Minor. Separation decreasing. Spect. G5.
54. In Gemini. AB=relfixed; cpm. AC=relfixed. Spect. A0V, G5, A2.
55. In Gemini. AB=cpm; p.a. decreasing. AD=cpm. Spect. F5, F5, F8.
56. In Gemini. Sep. increasing; p.a. decreasing. Spect. K0III.
57. In Puppis. Relatively fixed. Common proper motion. Spect. B9III, B9.
58. In Puppis. Relatively fixed. Spect. M2II, K2.
59. In Gemini. Sep. & p.a. decreasing. Spect. K0III.
60. In Puppis. Relatively fixed. Spect. B8V, K0III.
61. Zeta or 29 Monocerotis. Separation decreasing. Spect. G2I, K5.
62. In Cancer. AB=sep. & p.a. dec. AC=sep. slightly inc. Spect. AC=K0, F2.
63. In Cancer. Relatively fixed. Common proper motion. Spect. A8V, A5.
64. In Cancer. AC & AD = p.a. decreasing. Spect. AD = A0V, K0.
65. In Hydra. Position angle slightly decreasing. Spect. B9.5V.
66. In Lynx. AB, AC, AD = separation increasing. Spect. K0, K, G5, G0.
67. In Hydra. Sep. increasing; p.a. decreasing. Spect. G0, A0.
68. In Cancer. Sep. increasing; p.a. decreasing. Spect. G5, G5.
69. In Cancer. Sep. increasing; p.a. decreasing.
70. In Cancer (M44). AB=Sep. inc. AC=relfixed; cpm. Spect. AC = A8V, F5.
71. In Cancer (M44). AC & AD = relfixed; cpm. Spect. A0, A0, K0.
72. In Cancer (M44). A-Bb, AC, AD = relfixed.; cpm. Spect. K0III, A0, A, F0.
73. In Cancer (M44). AC & AD = relfixed; cpm. Spect. K0III, A0, F2.
74. In Cancer (M44). Relatively fixed. Common proper motion. Spect. A5, A0.
75. In Hydra. Relatively fixed. Common proper motion. Spect. A2, A2.
76. In Ursa Major. Relatively fixed. Common proper motion. Spect. F0, F0.
77. In Hydra. Position angle increasing. Spect. G1I, A0.
78. In Cancer. Relatively fixed. Common proper motion. Spect. F0, F.
79. In Hydra. Sep. decreasing; p.a. increasing. Spect. K2III, K2.
80. In Hydra. Sep. decreasing; p.a. increasing. Spect. A0, K0.
81. Sigma or 64 Cancri. Sep. decreasing; p.a. increasing. Spect. G8III, F8.
82. In Ursa Major. Separation slightly increasing. Spect. G5, G5.
83. In Cancer. AB = sep. decreasing. BC = relatively fixed. Spect. A0, A0, G0.
84. In Cancer. Sep. increasing; p.a. decreasing. Spect. F8
85. 27 Hydrae. Common proper motion; sep. increasing. Spect. G8III, F4V.
86. In Hydra. Common proper motion; p.a. slightly increasing. Spect. F0, F0.
87. Tau or 31 Hydrae. Common proper motion; sep. & p.a. increasing. Spect. F6V.
88. In Ursa Major. Position angle increasing. Spect. M4.

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89. In Hydra. Sep. & p.a. increasing. Spect. G5.
90. In Hydra. Sep. increasing; p.a. decreasing. Spect. A2V.
91. In Leo. Separation increasing. Spect. G5, G5.
92. In Leo. Relatively fixed. Common proper motion. Spect. F2, F2.
93. In Hydra. Separation increasing. Spect. A0V, F8.
94. In Ursa Major. Common proper motion; p.a. slightly increasing.
95. Zeta or 36 & 35 Leonis. Sep. increasing; p.a. decreasing. Spect. F0III, G0.
96. In Sextans. Separation decreasing. Spect. G9V, K0.
97. 97. In Leo Minor. Separation slightly increasing. Spect. M4, M0.
98. 98. In Sextans. Position angle slightly decreasing. Spect. A3V, G5.
99. 99. 36 Ursa Majoris. Relatively fixed. Common proper motion. Spect. F6V, M0.
100. 100. In Leo. Sep. increasing; p.a. decreasing. Spect. K2, K.
101. 101. In Ursa Major. AB=relfix, cpm. AD=sep. & p.a. inc. Spect. F5III, F8, G0.
102. 102. 42 Leo Minoris. AB & AC = separation decreasing. Spect. A1V, K2III, F0.
103. 103. In Hydra. Sep. decreasing; p.a. increasing. Spect. B9IV, F5.
104. 104. In Hydra. Relatively fixed. Common proper motion. Spect. F7II.
105. 105. In Hydra. Sep. decreasing; p.a. increasing. Spect. F6V.
106. 106. In Ursa Major. Relatively fixed. Common proper motion. Spect. G5.
107. 107. Chi or 63 Leonis. Sep. decreasing; p.a. increasing. Spect. F2III.
108. 108. In Ursa Major. Relatively fixed. Common proper motion. Spect.F8, G5.
109. 109. In Ursa Major. Relatively fixed. Common proper motion. Spect. G0, G0.
110. 110. Phi or 74 Leonis. Sep. decreasing; p.a. increasing. Spect. A7IV, K5.
111. 111. In Crater. Separation decreasing. Spect. A8IV.
112. 112. In Ursa Major. Relatively fixed. Common proper motion. Spect. G0.
113. 113. In Ursa Major. Relatively fixed. Common proper motion. Spect. G0.
114. 114. 93 Leonis. Relatively fixed. Common proper motion. Spect. A7V.
115. 115. In Crater. Sep. increasing; p.a. decreasing. Spect. F7V, F8.
116. 116. Beta or 5 Virginis. Sep. & p.a. decreasing. Spect. F9V, F8.