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CCD measurements of double and multiple stars in Belgrade*Table1, 2 also available in electronic form at CDS via anonymous ftp 130.79.128.5

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Abstract. The CCD measurements for 123 double stars with ST-6 camera attached to the Zeiss 65/1055 cm Refractor of the Belgrade Observatory are communicated.

Key words: astrometry – binaries: visual

1. Introduction

Between October 1994 and July 1995 we took images of double and multiple stars with a CCD camera of ST-6 type at the Belgrade Observatory. The camera was attached to the Zeiss 65/1055 cm Refractor. Images of 84 systems, i. e. 123 pairs, were obtained successfully. On the average each pair was taken 4.5 times and every image was measured by the authors. The camera pixel has a rectangular form with dimensions along the axes (x, y) as following:

$$m_x = (0.4525 \pm 0.0021)''/\text{pixel}$$
$$m_y = (0.5312 \pm 0.0025)''/\text{pixel}$$

Before the pixel dimensions were derived, the focal length of the instrument had been established. It was obtained from the ephemeris values of the components separations for four orbital pairs and five ones with rectilinear trajectory (Pavlović et al. 1996). For all nine pairs we found new orbital elements.

The focal length is found to be

$$F = (1048.5 \pm 4.5)\text{cm}$$

In another paper (Popović et al. 1996) was analyzed the accuracy of the measurements for the pairs communicated here. In the position angle the residual are approximately $\pm1\overset{\circ}{.}0$ and for the separations about $\pm0\overset{''}{.}10$ in the case of the pairs with $\rho > 2$". We find that the internal agreement of the measurements concerning the same material is high for all the three authors by whom the measurements were performed.

This series is the 49th contribution of the Belgrade Observatory to the measurements of double and multiple systems. All earlier series have been realized by using the filar micrometer attached to the Zeiss 65/1055 cm Refractor of the Belgrade Observatory. Contribution No 48 was communicated in 1994 (Popović & Pavlović 1994).

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2. Explanations for the table

The results of the measuring are given in Table 1. The columns contain the following data respectively

Column 1:	WDS number.
Column 2:	Designation of the pair discoverer.
Column 3:	Multiplicity.
Column 4:	Observation date.
Column 5:	Position angle in degrees.
Column 6:	Separation of the components in arcsecs.
Column 7:	Author performing the measurement.
Column 8:	Number of measurements.
Column 9:	Designation of the author having obtained the image.
Column 10:	Number in ADS Catalogue.
Column 11:	Designation of the notes communicated in Table 2.

The designations from Columns 7 and 9 mean: POP = Popović G.M., PAV = Pavlović R., TRA = Trajkovska V.

The pairs denoted as POP217 = ADS48 AP, POP218 = BD+34°2947 ($9\overset{m}{.}0$), POP216 = BD +41°2896 ($9\overset{m}{.}3$), TRA1 = BD +34°3267 ($8\overset{m}{.}5$) and PAV1 = BD +72°901 ($9\overset{m}{.}5$), have not been registered as yet so that here their first measurements are communicated. The pair PAV1 was registered in IAU Circ., Commmission 26, No 127.

Reference

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Popović G.M., Pavlović R. 1994, Bull. Obs. Astron. Belgrade, 150, 109

Table 1. Double–Star Measurements with ST–6 Camera

WDS	Name	Mult.	Date	θ	ρ	Auth.	m	Obs.	ADS	Notes
00054N4549	STT 547	AB	1994.796	180.48	6.16	Pop	5	Pop-Pav	48	*
00054N4549	STT 547	AB	1994.796	179.02	6.17	Pav	5	Pop-Pav	48	
00054N4549	POP 217	AP	1994.796	46.41	12.77	Pop	2	Pop-Pav	48	*
00054N4549	POP 217	AP	1994.796	45.64	12.48	Pav	2	Pop-Pav	48	
00054N4549	STT 547	AC	1994.796	2.21	53.14	Pop	1	Pop-Pav	48	
00054N4549	STT 547	AC	1994.796	1.30	53.60	Pav	1	Pop-Pav	48	
00057N1750	STF 3061		1994.784	148.55	7.61	Pop	5	Pop-Pav	56	*
00057N1750	STF 3061		1994.785	148.25	7.78	Pav	4	Pop-Pav	56	
00059N1765	STF 3060	AB	1994.784	130.66	3.54	Pop	3	Pop-Pav	60	
00059N1765	STF 3060	AB	1994.786	132.39	3.47	Pav	4	Pop-Pav	60	
00059N1765	STF 3060	AC	1994.786	269.02	68.71	Pop	4	Pop-Pav	60	
00059N1765	STF 3060	AC	1994.786	269.38	68.74	Pav	1	Pop-Pav	60	
00422N4025	POP 124		1994.796	29.26	3.91	Pop	2	Pop-Pav		
00422N4025	POP 124		1994.796	21.94	3.62	Pav	2	Pop-Pav		
00423N3975	A 1507	AC	1994.796	44.61	17.82	Pop	1	Pop-Pav	585	
00423N3975	A 1507	AC	1994.796	44.51	18.54	Pav	1	Pop-Pav	585	
01198S0029	STF 113	A-BC	1994.796	7.96	1.16	Pop	1	Pop-Pav	1081	
01198S0029	STF 113	A-BC	1994.796	5.56	1.21	Pav	1	Pop-Pav	1081	
01620N0246	STF 202		1994.738	279.48	1.84	Pop	4	Pop-Pav	1615	*
01620N0246	STF 202		1994.726	277.73	1.87	Pav	5	Pop-Pav	1615	
13165N3433	POP 72		1995.453	312.62	1.59	Pop	2	Pop-Pav-Tra		
13165N3433	POP 72		1995.453	320.63	1.40	Pav	2	Pop-Pav-Tra		
13625N4620	SWI -		1995.552	23.89	3.70	Pop	7	Pop-Pav	9090	
13625N4620	SWI -		1995.552	23.28	3.68	Pav	9	Pop-Pav	9090	
14362N1925	STF 3087		1995.434	42.15	2.58	Pop	2	Pop-Pav	9321	
14362N1925	STF 3087		1995.434	41.32	2.48	Pav	3	Pop-Pav	9321	
14407N1626	STF 1864	AB	1995.434	109.03	5.55	Pop	6	Pop-Pav	9338	
14407N1626	STF 1864	AB	1995.434	109.71	5.56	Pav	7	Pop-Pav	9338	
14407N1626	STF 1864	AC	1995.434	162.94	128.76	Pop	2	Pop-Pav	9338	
14407N1626	STF 1864	AC	1995.434	162.68	128.27	Pav	2	Pop-Pav	9338	
15075N0914	STF 1910		1995.434	210.06	4.04	Pop	3	Pop-Pav	9507	
15075N0914	STF 1910		1995.434	209.07	4.11	Pav	3	Pop-Pav	9507	
15154N4152	POP 118		1995.454	341.58	2.66	Pop	3	Pop-Pav-Tra		
15154N4152	POP 118		1995.454	334.44	2.50	Pav	3	Pop-Pav-Tra		
15122N3420	POP 209		1995.452	166.83	4.01	Pop	5	Pop-Pav-Tra		
15122N3420	POP 209		1995.452	168.58	4.08	Pav	6	Pop-Pav-Tra		
15207N3500	HO 62		1995.434	277.93	1.14	Pop	4	Pop-Pav	9599	
15207N3500	HO 62		1995.434	277.97	1.09	Pav	5	Pop-Pav	9599	
15300N2531	STF 1950		1995.508	89.66	3.01	Pop	6	Pop	9675	
15300N2531	STF 1950		1995.508	89.99	3.11	Pav	6	Pop	9675	
16147N3352	STF 2032		1995.549	235.36	6.93	Pop	2	Pop-Pav-Tra	9979	*
16138N2844	STF 2029		1995.549	235.52	7.06	Pav	2	Pop-Pav-Tra	9979	
16140N3510	POP 103		1995.522	50.36	3.90	Pop	6	Pop-Pav		
16140N3510	POP 103		1995.522	52.85	3.77	Pav	6	Pop-Pav		
16273N3418	POP 1	AB	1995.464	178.62	2.41	Pop	5	Pop-Pav-Tra		
16273N3418	POP 1	AB	1995.464	178.09	2.20	Pav	7	Pop-Pav-Tra		
16273N3418	POP 1	AC	1995.464	201.70	39.75	Pop	2	Pop-Pav-Tra		
16273N3418	POP 1	AC	1995.464	202.56	39.68	Pav	2	Pop-Pav-Tra		
16333N3536	POP 89		1995.470	170.47	3.34	Pop	7	Pop-Pav-Tra		
16333N3536	POP 89		1995.470	176.25	3.33	Pav	10	Pop-Pav-Tra		

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Table 1. continued

WDS	Name	Mult.	Date	θ	ρ	Auth.	m	Obs.	ADS	Notes
16371N3351	POP 2		1995.464	138.50	3.67	Pop	1	Pop-Pav-Tra		
16371N3351	POP 2		1995.464	136.44	3.97	Pav	1	Pop-Pav-Tra		
17034N5934	STF 2128		1995.552	44.18	12.27	Pop	8	Pop-Pav-Tra	10329	*
17034N5934	STF 2128		1995.552	44.22	12.30	Pav	8	Pop-Pav-Tra	10329	
17096N4040	POP 166	AB	1955.514	283.26	6.50	Pop	4	Pop-Pav		
17096N4040	POP 166	AB	1955.514	281.68	6.77	Pav	6	Pop-Pav		
17097N4039	POP 166	AC	1995.514	310.30	71.30	Pop	3	Pop-Pav		
17097N4039	POP 166	AC	1995.514	309.74	71.37	Pav	5	Pop-Pav		
17147N3448	POP 76		1995.520	107.64	1.94	Pop	7	Pop-Pav		
17147N3448	POP 76		1995.520	135.51	1.76	Pav	5	Pop-Pav		
17150N2450	STF 3127	AB	1995.541	276.93	10.58	Pop	5	Pop-Pav	10424	*
17150N2450	STF 3127	AB	1995.541	276.46	10.93	Pav	5	Pop-Pav	10424	
17152N4440	POP 131	AB	1995.517	136.40	3.76	Pop	11	Pop-Pav		
17152N4440	POP 131	AB	1995.517	137.56	3.70	Pav	13	Pop-Pav		
17152N4440	POP 131	AC	1995.517	322.02	27.95	Pop	9	Pop-Pav		
17152N4440	POP 131	AC	1995.517	322.13	27.92	Pav	12	Pop-Pav		
17152N4440	POP 131	AP	1995.517	103.04	20.57	Pop	8	Pop-Pav		
17152N4440	POP 131	AP	1995.517	102.57	20.92	Pav	4	Pop-Pav		
17180S2417	H 25		1995.549	354.65	10.14	Pop	5	Pop-Pav-Tra	10442	
17180S2417	H 25		1995.549	354.73	10.15	Pav	5	Pop-Pav-Tra	10426	
17180N4919	STF 2153		1995.549	248.40	1.55	Pop	4	Pop-Pav-Tra	10460	
17180N4919	STF 2153		1995.549	249.10	1.48	Pav	4	Pop-Pav-Tra	10460	
17205N3440	POP 218		1995.522	89.07	30.91	Pop	3	Pop-Pav		*
17205N3439	POP 218		1995.522	89.27	30.80	Pav	3	Pop-Pav		
17202N3439	POP 203		1995.522	211.28	3.62	Pop	4	Pop-Pav		
17202N3438	POP 203		1995.522	208.54	3.75	Pav	4	Pop-Pav		
17294N3456	STF 2178		1995.522	126.68	10.81	Pop	6	Pop-Pav	10594	
17294N3456	STF 2178		1995.522	126.86	10.86	Pav	6	Pop-Pav	10594	
17386N5546	STF 2199		1995.549	56.50	1.93	Pop	5	Pop-Pav-Tra	10699	*
17386N5546	STF 2199		1995.549	59.25	1.86	Pav	5	Pop-Pav-Tra	10699	
17146N1423	STF 2140	AB	1995.541	103.60	4.61	Pop	12	Pop-Pav	10418	
17146N1423	STF 2140	AB	1995.541	104.74	4.73	Pav	14	Pop-Pav	10418	
17146N1423	AGC	AC	1995.541	304.45	20.03	Pop	3	Pop-Pav	10418	
17146N1423	AGC	AC	1995.541	297.46	19.91	Pav	3	Pop-Pav	10418	
17146N1423	STF 2140	AD	1995.541	39.07	80.13	Pop	4	Pop-Pav	10418	
17146N1423	STF 2140	AD	1995.541	38.97	80.99	Pav	5	Pop-Pav	10418	
17165N3448	POP 77	AB	1995.519	320.67	5.52	Pop	8	Pop-Pav		
17165N3448	POP 77	AB	1995.519	321.78	5.77	Pav	10	Pop-Pav		
17165N3448	POP 77	AC	1995.519	342.23	63.93	Pop	9	Pop-Pav		
17165N3448	POP 77	AC	1995.519	342.30	63.90	Pav	10	Pop-Pav		
17165N3448	POP 77	CD	1995.519	76.38	10.35	Pop	4	Pop-Pav		
17165N3448	POP 77	CD	1995.519	75.54	10.91	Pav	2	Pop-Pav		
17297N4447	POP 132		1995.525	153.60	15.74	Pop	3	Pop-Pav-Tra		
17297N4447	POP 132		1995.525	154.27	15.68	Pav	4	Pop-Pav-Tra		
17316N3533	POP 175		1995.522	30.38	7.61	Pop	4	Pop-Pav		
17316N3533	POP 175		1995.522	30.87	7.61	Pav	6	Pop-Pav		
17413N4127	A 696	AB	1995.552	176.38	8.51	Pop	2	Pop-Pav-Tra	10725	
17413N4127	A 696	AB	1995.552	174.21	8.23	Pav	5	Pop-Pav-Tra	10725	
17413N4127	A 696	BC	1995.552	304.33	1.94	Pop	4	Pop-Pav		
17413N4127	A 696	BC	1995.552	308.99	2.05	Pav	4	Pop-Pav		

Table 1. continued

WDS	Name	Mult.	Date	θ	ρ	Auth.	m	Obs.	ADS	Notes
17457N4132	POP 216		1995.552	88.13	8.15	Pop	2	Pop-Pav		*
17457N4132	POP 216		1995.552	88.46	8.14	Pav	2	Pop-Pav		
17573N3540	STF 2257		1995.434	152.44	22.79	Pop	2	Pop-Pav	10932	
17573N3540	STF 2257		1995.434	152.28	22.79	Pav	2	Pop-Pav	10932	
17572N3542	POP 10	AB	1995.434	217.63	1.81	Pop	5	Pop-Pav		
17572N3542	POP 10	AB	1995.434	213.09	1.85	Pav	6	Pop-Pav		
17572N3542	POP 10	AC	1995.434	345.59	8.56	Pop	5	Pop-Pav		
17572N3542	POP 10	AC	1995.434	344.71	8.72	Pav	4	Pop-Pav		
17586N4231	POP 123		1995.555	230.04	3.43	Pop	8	Pop-Pav		
17586N4231	POP 123		1995.555	231.98	3.59	Pav	8	Pop-Pav		
18011N3558	POP 210	AB	1995.555	266.95	79.74	Pop	1	Pop-Pav-Tra		*
18010N3558	POP 210	AB	1995.555	266.42	79.32	Pav	1	Pop-Pav-Tra		
18010N3558	POP 210	BC	1995.555	131.36	2.41	Pop	1	Pop-Pav-Tra		
18010N3558	POP 210	BC	1995.555	129.38	2.40	Pav	2	Pop-Pav-Tra		
18065N4021	STF 2282		1995.552	84.64	2.73	Pop	4	Pop-Pav-Tra	11074	
18065N4021	STF 2282		1995.552	86.17	2.73	Pav	6	Pop-Pav-Tra	11074	
18273N4354	POP 134	AB	1995.555	59.52	7.44	Pop	3	Pop-Pav-Tra		
18273N4354	POP 134	AB	1995.555	58.23	7.84	Pav	4	Pop-Pav-Tra		
18273N4354	POP 134	AC	1995.555	285.54	66.44	Pop	2	Pop-Pav-Tra		
18273N4354	POP 134	AC	1995.555	285.50	67.03	Pav	3	Pop-Pav-Tra		
18273N4354	POP 134	CD	1995.555	248.98	5.87	Pop	2	Pop-Pav-Tra		
18273N4354	POP 134	CD	1995.555	247.09	5.70	Pav	3	Pop-Pav-Tra		
18310N0123	STF 2324		1995.541	146.36	2.35	Pop	4	Pop-Pav-Tra	11410	
18310N0123	STF 2324		1995.541	144.14	2.21	Pav	3	Pop-Pav-Tra	11410	
18359N1654	STT 358	AB	1995.590	157.51	1.78	Pop	4	Pav	11483	*
18359N1654	STT 358	AB	1995.590	163.09	1.72	Pav	3	Pav	11483	
18379N3506	TRA 1		1995.469	164.01	9.79	Pop	9	Pop-Pav-Tra		*
18379N3506	TRA 1		1995.468	164.95	9.54	Pav	15	Pop-Pav-Tra		
18379N3505	POP 16	AB	1995.469	309.07	8.90	Pop	10	Pop-Pav-Tra		
18379N3505	POP 16	AB	1995.469	311.13	9.79	Pav	11	Pop-Pav-Tra		
18379N3505	POP 16	AC	1995.470	278.84	53.79	Pop	11	Pop-Pav-Tra		
18379N3505	POP 16	AC	1995.469	278.89	53.70	Pav	11	Pop-Pav-Tra		
18388N3503	POP 17		1995.470	16.65	8.92	Pop	1	Pop-Pav-Tra		
18388N3503	POP 17		1995.470	14.66	8.82	Pav	1	Pop-Pav-Tra		
18425N3432	POP 45		1995.525	275.27	6.78	Pop	8	Pop-Pav-Tra		
18425N3432	POP 45		1995.525	276.26	6.95	Pav	10	Pop-Pav-Tra		
18484N3432	POP 43		1995.525	269.28	2.95	Pop	2	Pop-Pav-Tra		
18484N3432	POP 43		1995.525	267.93	2.94	Pop	2	Pop-Pav-Tra		
18495N3512	POP 44		1995.525	227.44	9.59	Pop	6	Pop-Pav		
18495N3511	POP 44		1995.525	229.33	9.72	Pav	9	Pop-Pav		
18535N3303	POP 192		1995.465	57.14	2.47	Pop	1	Pop-Pav-Tra		*
18535N3303	POP 192		1995.465	63.98	2.50	Pav	1	Pop-Pav-Tra		
18538N3653	ES 2028	AB	1995.552	349.53	88.76	Pop	3	Pop-Pav-Tra	11825	
18538N3653	ES 2028	AB	1995.552	349.34	88.34	Pav	6	Pop-Pav-Tra	11825	
18538N3653	ES 2028	BC	1995.552	139.86	2.10	Pop	2	Pop-Pav-Tra	11825	
18538N3653	ES 2028	BC	1995.552	141.80	2.00	Pav	3	Pop-Pav-Tra	11825	
19155N1961	STF 2488		1995.549	349.38	1.68	Pop	6	Pop-Pav-Tra	12228	
19155N1961	STF 2488		1995.549	345.59	1.66	Pav	6	Pop-Pav-Tra	12228	
19269N7322	STF 2550	AB	1995.550	250.84	1.65	Pop	10	Pop-Pav-Tra	12524	
19269N7322	STF 2550	AB	1995.550	253.87	1.93	Pav	11	Pop-Pav-Tra	12524	

Table 1. continued

WDS	Name	Mult.	Date	θ	ρ	Auth.	m	Obs.	ADS	Notes
19269N7322	STF 2550	AC	1995.552	166.71	79.09	Pop	4	Pop-Pav-Tra	12524	
19269N7322	STF 2550	AC	1995.550	165.64	79.09	Pav	3	Pop-Pav-Tra	12524	
19296N7311	PAV 1	AB	1995.552	71.56	4.55	Pop	11	Pop-Pav-Tra		*
19295N7211	PAV 1	AB	1995.551	72.18	4.52	Pav	11	Pop-Pav-Tra		
19296N7311	PAV 1	AC	1995.551	9.33	76.90	Pop	5	Pop-Pav-Tra		
19295N7211	PAV 1	AC	1995.551	9.47	76.78	Pav	5	Pop-Pav-Tra		
19297N3342	POP 154		1995.514	226.10	4.38	Pop	7	Pop-Pav		
19297N3342	POP 154		1995.514	226.57	4.30	Pav	9	Pop-Pav		
19289N3515	POP 34	AB	1995.454	20.52	4.57	Pop	3	Pop-Pav-Tra		
19289N3515	POP 34	AB	1995.454	19.66	4.55	Pav	4	Pop-Pav-Tra		
19289N3515	POP 34	AC	1995.454	1.02	36.13	Pop	4	Pop-Pav-Tra		*
19289N3515	POP 34	AC	1995.454	1.33	36.14	Pav	4	Pop-Pav-Tra		
19384N2541	ES 492		1995.549	206.51	4.76	Pop	13	Pop-Pav-Tra	12727	*
19384N2541	ES 492		1995.549	206.83	4.80	Pav	13	Pop-Pav-Tra	12727	
19454N3656	POP 121		1995.517	324.80	1.51	Pop	7	Pop-Pav		
19454N3656	POP 121		1995.517	324.80	1.50	Pav	10	Pop-Pav		
19455N3708	POP 122	AB	1995.517	284.27	49.04	Pop	6	Pop-Pav		
19455N3708	POP 122	AB	1995.517	283.89	48.30	Pav	8	Pop-Pav		
19455N3708	POP 122	BC	1995.517	89.17	2.41	Pop	3	Pop-Pav		
19455N3708	POP 122	BC	1995.517	86.02	2.38	Pav	4	Pop-Pav		
19478N3738	POP 127	AB	1995.517	154.66	33.28	Pop	4	Pop-Pav		*
19476N3738	POP 127	AB	1995.517	155.18	33.18	Pav	5	Pop-Pav		
19478N3738	POP 127	AC	1995.517	285.32	44.39	Pop	4	Pop-Pav		
19476N3738	POP 127	AC	1995.517	285.95	44.57	Pav	5	Pop-Pav		
19478N3738	POP 127	AD	1995.517	296.56	42.41	Pop	4	Pop-Pav		
19476N3738	POP 127	AD	1995.517	297.45	42.30	Pav	5	Pop-Pav		
19476N3738	POP 127	AE	1995.517	295.69	57.71	Pav	5	Pop-Pav		
19478N3738	POP 127	AE	1995.517	295.81	57.45	Pop	4	Pop-Pav		
19478N3738	POP 127	EF	1995.517	4.10	2.94	Pop	3	Pop-Pav		
19476N3738	POP 127	EF	1995.517	5.77	3.10	Pav	5	Pop-Pav		
19496N3545	POP 101		1995.520	138.36	6.30	Pop	4	Pop-Pav		
19496N3545	POP 101		1995.520	131.11	6.22	Pav	4	Pop-Pav		
19497N3546	POP 102	AB	1995.520	144.79	4.54	Pop	3	Pop-Pav		
19497N3546	POP 102	AB	1995.520	136.42	4.92	Pav	2	Pop-Pav		
19497N3546	POP 102	AC	1995.520	80.47	14.45	Pop	3	Pop-Pav		
19497N3546	POP 102	AC	1995.520	79.90	14.45	Pav	2	Pop-Pav		
19498N3558	POP 104		1995.520	57.70	4.20	Pop	2	Pop-Pav		
19498N3558	POP 104		1995.520	58.98	3.41	Pav	1	Pop-Pav		
20057N3822	POP 185	AB	1995.522	124.46	43.84	Pop	5	Pop-Pav		*
20057N3822	POP 185	AB	1995.522	124.22	43.86	Pav	5	Pop-Pav		
20057N3822	POP 185	AC	1995.552	184.60	65.63	Pop	2	Pop-Pav		
20057N3822	POP 185	AC	1995.522	185.12	65.97	Pav	2	Pop-Pav		
20057N3822	POP 185	AD	1995.522	61.75	130.23	Pop	4	Pop-Pav		
20057N3822	POP 185	AD	1995.522	61.43	130.07	Pav	5	Pop-Pav		
20057N3822	POP 185	AE	1995.522	100.54	121.31	Pop	4	Pop-Pav		
20057N3822	POP 185	AE	1995.522	100.70	120.68	Pav	5	Pop-Pav		
20057N3822	POP 185	AP	1995.522	293.53	19.00	Pop	5	Pop-Pav		
20057N3822	POP 185	AP	1995.522	292.57	19.63	Pav	4	Pop-Pav		
20057N3822	POP 185	EF	1995.522	274.50	1.93	Pop	3	Pop-Pav		
20057N3822	POP 185	EF	1995.522	272.17	2.34	Pav	5	Pop-Pav		

Table 1. continued

WDS	Name	Mult.	Date	θ	ρ	Auth.	m	Obs.	ADS	Notes
20064N3455	POP 66	AB	1995.522	1.31	6.92	Pop	5	Pop-Pav		
20064N3455	POP 66	AB	1995.522	3.64	6.92	Pav	6	Pop-Pav		
20064N3455	POP 66	AC	1995.522	114.56	25.80	Pop	5	Pop-Pav		
20064N3455	POP 66	AC	1995.522	115.09	25.39	Pav	5	Pop-Pav		
20064N3455	POP 66	AD	1995.522	347.84	44.94	Pop	3	Pop-Pav		
20064N3455	POP 66	AD	1995.522	347.41	45.00	Pav	4	Pop-Pav		
20063N3454	POP 219		1995.522	312.74	6.91	Pop	2	Pop-Pav		*
20063N3454	POP 219		1995.522	304.22	7.21	Pav	3	Pop-Pav		
21057N3432			1994.726	88.80	24.15	Pop	2	Pop-Pav	BD+33°4154	*
21057N3432			1994.726	88.20	23.81	Pav	2	Pop-Pav	BD+33°4154	*
21059N3500	POP 24	AB	1994.727	246.60	8.17	Pop	2	Pop-Pav		
21059N3500	POP 24	AB	1994.727	246.34	8.07	Pav	2	Pop-Pav		
21061N3500	POP 25		1994.727	301.86	5.39	Pop	2	Pop-Pav		
21061N3500	POP 25		1994.727	301.65	5.46	Pav	3	Pop-Pav		
21066N3436	POP 22	AB	1994.743	100.74	6.59	Pop	10	Pop-Pav		
21066N3436	POP 22	AB	1994.740	100.44	6.62	Pav	12	Pop-Pav		
21066N3436	POP 22	AC	1994.743	16.26	31.33	Pop	10	Pop-Pav		
21066N3436	POP 22	AC	1994.740	15.91	31.42	Pav	12	Pop-Pav		
21092N3532	POP 26		1994.725	241.6	4.87	Pop	3	Pop-Pav		
21092N3532	POP 26		1994.725	242.70	4.95	Pav	3	Pop-Pav		
21313N4454	POP 137	AP	1995.555	21.71	14.68	Pop	3	Pop-Pav-Tra		*
21313N4454	POP 137	AP	1995.555	21.32	14.84	Pav	3	Pop-Pav-Tra		
21313N4454	POP 137	AC	1995.555	347.20	67.36	Pop	3	Pop-Pav-Tra		
21313N4454	POP 137	AC	1995.555	346.94	67.39	Pav	3	Pop-Pav-Tra		
21313N4454	POP 137	BC	1995.555	112.22	1.72	Pop	2	Pop-Pav-Tra		
21313N4454	POP 137	BC	1995.555	104.52	1.56	Pav	3	Pop-Pav-Tra		
21318N4519	POP 150	AB	1995.555	225.63	3.80	Pop	2	Pop-Pav-Tra		
21318N4519	POP 150	AB	1995.555	221.45	4.26	Pav	1	Pop-Pav-Tra		
21318N4519	POP 150	AC	1995.555	263.07	90.51	Pop	2	Pop-Pav-Tra		
21318N4519	POP 150	AC	1995.555	263.32	90.85	Pav	2	Pop-Pav-Tra		
21369N8255	STF 2837		1995.552	272.26	3.15	Pop	8	Pop-Pav-Tra	15229	*
21369N8255	STF 2837		1995.552	272.75	3.14	Pav	11	Pop-Pav-Tra	15229	
21580N0556	STF 2848		1995.525	55.23	10.68	Pop	3	Pop-Pav	15493	
21580N0556	STF 2848		1995.525	55.84	10.85	Pav	3	Pop-Pav	15493	
23165S0136	STF 2995		1994.747	31.99	5.42	Pop	4	Pop-Pav	16642	
23165S0136	STF 2995		1994.747	31.62	5.40	Pav	4	Pop-Pav	16642	
23176S0131	BU 79	AB	1994.747	15.06	1.81	Pop	2	Pop-Pav	16649	*
23176S0131	BU 79	AB	1994.747	24.65	1.67	Pav	1	Pop-Pav	16649	
23213N3486	STF 3006	AB	1995.550	153.06	6.99	Pop	10	Pop-Pav	16693	*
23213N3486	STF 3006	AB	1995.550	152.71	6.96	Pav	10	Pop-Pav	16693	
23260N3651	HJ 1876		1994.780	212.64	9.83	Pop	2	Pop-Pav	16747	
23260N3651	HJ 1876		1994.780	213.58	9.98	Pav	2	Pop-Pav	16747	
23486N6453	STT 507	AB	1994.726	317.11	0.70	Pop	3	Pop-Pav	17020	*
23486N6453	STT 507	AB	1994.726	317.43	0.70	Pav	3	Pop-Pav	17020	
23486N6453	STT 507	AC	1994.726	349.88	50.91	Pop	2	Pop-Pav	17020	
23486N6453	STT 507	AC	1994.726	349.98	51.44	Pav	2	Pop-Pav	17020	

Table 2. Notes

48 AB	:	Popović, Pavlović, 1996: $+0^\circ\!.6$, $+0''\!.17$ (Pop); $-0^\circ\!.8$, $+0''\!.18$ (Pav).
48 AP	:	P component not registered as yet.
56	:	Popović, Pavlović, 1996: $+1^\circ\!.0$, $-0''\!.13$ (Pop); $+0^\circ\!.7$, $+0''\!.04$ (Pav)
1615	:	Popović, Pavlović, 1996: (was measured: 1994.738 $279^\circ\!.5$, $1''\!.84$).
9979	:	Rabe, 1958: $-0^\circ\!.2$, $-0''\!.10$ (Pop); $-0^\circ\!.0$, $+0''\!.03$ (Pav).
10329	:	Popović, Pavlović, 1996: $+0^\circ\!.1$, $0''\!.00$ (Pop); $-0^\circ\!.1$, $0''\!.03$ (Pav)–(rect.trajectory)
10424	:	Popović, Pavlović, 1996: $+0^\circ\!.6$, $+0''\!.04$ (Pop); $-1^\circ\!.1$, $+0''\!.31$ (Pav)–(rect.trajectory)
POP 218	:	POP 218 = BD $+34^\circ$ 2947 ($9^{m}\!.0$) not measured as yet.
10699	:	Popović, Pavlović, 1996: $-1^\circ\!.6$, $+0''\!.04$ (Pop); $+1^\circ\!.2$, $-0''\!.03$ (Pav)
POP 216	:	POP 216 = BD $+41^\circ$ 2896 ($9^{m}\!.3$) not measured as yet.
POP 210 BC	:	In ser. No 47 (Bull.Astron.Belgrade, No.147,45-62) erroneiusly denoted as POP 110.
11483	:	Heintz, 1954: $+6^\circ\!.9$, $+0''\!.40$ (Pop); $-1^\circ\!.3$, $+0''\!.34$ (Pav)
TRA 1	:	TRA 1 = BD$+34^\circ$ 3267 ($8^{m}\!.5$); newly registered pair.
POP 192	:	Direct motion. Pair position with respect to NGC 6720 is: -16^{s}, +1'.
PAV 1	:	PAV 1 = BD$+72^\circ$ 901 ($9^{m}\!.5$); new pair.
POP 34 AB	:	Popović, Trajkovska,1988: $-7^\circ\!.0$, $+0''\!.67$ (Pop); $-7^\circ\!.9$, $+0''\!.65$ (Pav)–(rect. trajectory).
12727	:	Popović, Pavlović, 1996: $-1^\circ\!.2$, $-0''\!.01$ (Pop); $-0^\circ\!.9$, $+0''\!.03$ (Pav)–(rect.trajectory)
POP 127	:	POP 127 A = BD$+37^\circ$ 3610 ($9^{m}\!.5$). Earlier as POP 127 measured only the pair denoted here as EF.
POP 185	:	POP 185 A = BD $+37^\circ$ 3762($9^{m}\!.5$). Earlier as POP 185 measured only the pair denoted here as EF.
21057N3432	:	21057N3432 = BD$+33^\circ$ 4154.
POP 219	:	With respect to ADS 13361=BD$+34^\circ$ 3874($8^{m}\!.5$) the pair is at -22^{s}, -0.5'.
POP 137	:	POP 137A = BD$+44^\circ$ 3848 ($9^{m}\!.4$). Earlier as POP 137 measured only the pair denoted here as BC.
15229	:	Popović, Pavlović, 1996: $+0^\circ\!.7$, $0''\!.00$ (Pop); $-0^\circ\!.2$, $-0''\!.01$ (Pav)–(rect.trajectory).
16649	:	Heintz, 1962: $-2^\circ\!.7$, $+0''\!.28$ (Pop); $+6^\circ\!.9$, $+0''\!.14$ (Pav)
16693	:	Popović, Pavlović, 1996: $-0^\circ\!.6$, $-0''\!.04$ (Pop); $+0^\circ\!.2$, $-0''\!.07$ (Pav)–(rect.trajectory).
17020	:	Zulević, 1977: $+7^\circ\!.4$, $-0''\!.04$ (Pop); $+7^\circ\!.7$, $-0''\!.04$ (Pav).