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A FIRST AND 11 RECALCULATED ORBITS OF DOUBLE STARS

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SUMMARY: We present the first orbit for the pair CHARA 130 as well as recalculated orbits for the following double stars: ADS 161, ADS 207, ADS 293, ADS 1393, ADS 2531, ADS 5707, ADS 6126, ADS 6532, ADS 6623, ADS 11247 and ADS 16914. Also, the comparison of obtained dynamical with the Hipparcos parallaxes is made.

1. INTRODUCTION

Orbital elements of the eleven pairs chosen from *Fifth Catalog of Orbits of Visual Binary Stars* (Hartkopf *et al.*, 2000) have been calculated from the short arcs, 20 - 50 years ago. The recent observations of the pairs ADS 2531 and ADS 5707 considerably deviate from the orbits given in the above catalogue. For the remaining 9 pairs, the residuals relative to the new observations are systematically increasing. For this reason new orbits were calculated.

The preliminary orbit of CHARA 130 was calculated from the nine observations published in *CHARA 3* catalogue.

2. RESULTS

The basic data, elliptical and vectorial orbital elements, dynamical parallaxes and masses (Ange-0lov, 1993, 1996) of the analyzed pairs are presented in Table 1, along with the Hipparcos parallaxes of eight pairs. Table 2. contains the observations and corresponding residuals (O-C). In this Table the quadrant changes are indicated by $\star$. The ephemeris for the next ten years are given in Table 3. The graphical presentations of the observations and orbits are given in Figs. 1 - 12.

The obtained dynamical parallaxes of the pairs in H-R main sequence diagram are in good accordance with the corresponding Hipparcos parallaxes. According to our results, CHARA 130 has a significant inclination and small semiaxes, and can but briefly be observed during its 17-year period. The recalculated periods of ADS 1393, ADS 6126, ADS 6532, ADS 6623, ADS 11247 and ADS 16914 are significantly shorter (2-3 times) than their old periods (see the list below). The shortening of the periods is due to decrease of the curvature radii of the observed arcs which are better defined by the new observations.

Analysis of the pair ADS 2531 observations between 1973.93 and 1984.95 indicates that quadrant of these observations are to be changed.

The above results show that the long-period orbits are to be tested from time to time, even in the case when the deviations of the last observations are not significant, because even the small, but systematic, deviations could involve significant period changes.

List of period comparison

Name	Author	P_{old}	P_{new}	Name	Author	P_{old}	P_{new}
ADS 1393	Erc1981b	610.17	280.0	ADS 6623	Hop1964c	4390.	1385.156
ADS 6126	Hop1969	1090.9	543.588	ADS 11247	Zul1977a	249.83	143.769
ADS 6532	Hop1964b	1590.	717.923	ADS 16914	Zul1969c	343.31	173.196

Table 1. Orbital elements, masses and parallaxes

WDS	00134+2659	00162+7657	00214+6700	01462+3343
ADS	161	207	293	1393
Name	STT 2 AB	STF 13	STT 6 AB	Hu 804
Hipp	1076	1296	1700	8252
m	6.24–7.14	6.35–6.60	7.50–8.50	8.54–9.30
Sp.	F8V	B8Vnn	B8.5V	F2
$P(y)$	383.074	971.444	335.385	280.646
$n(^o/y)$	0.93977	0.37058	1.07339	1.28275
T	1969.655	2770.589	1928.76	2155.493
$a('')$	0.5798	0.9873	0.3935	0.4483
e	0.6981	0.4095	0.9424	0.6782
$i(^o)$	126.6	135.8	128.3	62.8
$\Omega(^o)$	14.2	89.4	149.0	123.0
$\omega(^o)$	109.4	285.2	182.7	111.3
$A('')$	-0.106346	-0.680500	0.331006	-0.071344
$B('')$	-0.363589	0.265636	-0.212373	-0.240651
$F('')$	-0.558380	0.195242	-0.141400	0.289670
$G('')$	-0.022999	0.950907	-0.199370	-0.309819
$C('')$	0.438900	-0.664225	-0.014471	0.371413
$H('')$	-0.154348	0.180259	-0.308438	-0.145100
M_A	0.29	0.11	1.05	2.89
M_B	1.19	0.36	2.05	3.65
$\mathcal{M}_A\odot$	2.81	2.97	2.27	1.50
$\mathcal{M}_B\odot$	2.19	2.75	1.78	1.31
π''_{dyn}	0.0064	0.0056	0.0051	0.0074
π''_H	0.0081	0.0053	0.0049	0.0076

WDS	03261+1229	07015-0942	07294-1500	08024+0409
ADS	2531	5707	6126	6532
Name	A 829	A 3042 AB	STF 1104 AB	STF 1175
Hipp	16008	–	36395	39325
m	8.46–10.01	8.40–8.90	6.05–7.32	7.61–8.98
Sp.	G0	F2	F7V	G5
$P(y)$	105.627	146.893	543.588	717.923
$n(^o/y)$	3.40823	2.45077	0.66227	0.50145
T	1988.87	2058.063	2082.378	2297.796
$a('')$	0.3349	0.2616	2.2455	3.0147
e	0.6804	0.4702	0.1068	0.4932
$i(^o)$	130.9	40.4	37.3	72.4
$\Omega(^o)$	65.7	106.5	171.8	1.3
$\omega(^o)$	251.6	273.8	285.0	80.8

Table 1. (continued)

$A(″)$	-0.233174	0.185617	-0.330247	0.459548
$B(″)$	-0.010479	0.072931	1.790475	0.910474
$F(″)$	0.067876	-0.086758	-2.212592	-2.978747
$G(″)$	0.318052	0.246560	-0.149257	0.078736
$C(″)$	-0.240109	-0.169321	-1.314279	2.836912
$H(″)$	-0.079797	0.011092	0.352636	0.457255
M_A	3.73	2.44	2.98	5.00
M_B	5.28	2.94	4.25	6.37
$\mathcal{M}_A\odot$	1.30	1.64	1.48	1.07
$\mathcal{M}_B\odot$	1.03	1.49	1.19	0.88
π''_{dyn}	0.0113	0.0064	0.0243	0.0301
π''_H	0.0137	–	0.0293	0.0238

WDS	08095+3213	08402+1921	18178+4351	23401+1258
ADS	6623	–	11247	16914
Name	STF 1187 Aa-B	CHARA 130	A 578 AB	Hu 1325
Hipp	39948	–	–	116787
m	6.68–7.39	–	9.20–9.90	9.10–10.65
Sp.	F5V	–	F8	G5
$P(y)$	1385.156	17.079	143.769	173.196
$n(^o/y)$	0.25990	21.07904	2.50402	2.07857
T	3132.316	1995.24	2032.36	1952.042
$a(″)$	3.0464	0.1117	0.2859	0.6560
e	0.2414	0.2520	0.6032	0.0773
$i(^o)$	127.8	84.4	121.1	40.6
$\Omega(^o)$	17.6	156.3	27.0	1.6
$\omega(^o)$	258.1	226.2	262.7	268.3
$A(″)$	-1.150424	0.074003	-0.098910	-0.004923
$B(″)$	1.553943	-0.023836	0.113994	-0.498451
$F(″)$	2.725455	-0.070737	0.244075	0.655916
$G(″)$	1.268007	0.039337	0.145621	0.004184
$C(″)$	-2.354276	-0.080193	-0.242826	-0.426522
$H(″)$	-0.494852	-0.076970	-0.031058	-0.012461
M_A	2.87	–	3.63	5.28
M_B	3.58	–	4.33	6.83
$\mathcal{M}_A\odot$	1.51	–	1.32	1.03
$\mathcal{M}_B\odot$	1.33	–	1.18	0.83
π''_{dyn}	0.0173	–	0.0077	0.0172
π''_H	0.0148	–	–	0.0154

Table 2. Measurements and (O - C)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 00134+2659 = STT 2AB						
1851.42	59.9	0.80	5	STT	7.4	0.119
1866.64	47.4	0.5	3	Demb	-0.5	-0.169
1880.59	42.3	0.65	3	Bu	-1.2	0.000
1898.74	37.8	0.70	3	Hu	-1.8	-0.013
1889.62	38.7	0.62	11	Sp	0.5	0.090
1901.64	32.0	0.61	6	Doo, KgsO	-4.2	0.009
1908.34	35.7	0.71	6	Frm, Prc, Wz, Dob	2.1	0.132
1911.88	32.7	0.58	17	Doo, Gro, Wz, Neuj	0.6	0.015
1915.05	29.8	0.52	18	Lv, Doo, J, Rabe, Fox	-0.9	-0.032
1921.70	25.8	0.53	13	Prz, GrO, Lv, Lbz, Chan	-1.8	0.009
1928.55	26.4	0.57	4	Lv, GrO, Berm	2.5	0.088
1934.47	20.2	0.39	5	Bz	0.1	-0.053
1937.85	18.4	0.4	1	Dur	0.8	-0.018
1938.58	18.4	0.38	2	Bz	1.4	-0.032
1944.84	10.0	0.36	2	VBs	-1.3	0.003
1948.66	9.1	0.35	3	VBs	2.3	0.032
1949.885	2.4	0.36	3	Mz	-3.6	0.055
1950.805	1.9	0.35	1	Mz	-1.8	0.056
1951.05	7.3	0.33	3	VBs	4.0	0.039
1951.96	6.4	0.25	2	Bz	4.6	-0.031
1954.09	349.9	0.23	4/3	Bz	-7.8	-0.025
1957.81	345.8	0.17	2	VBs	-2.4	-0.036
1961.743	327.1	0.14	3	Cou	-4.2	-0.013
1964.845	Too	close	1	Wor	–	–
1972.86	233.3	0.13	3	Cou	5.9	-0.016
1974.616	217.8	0.14	3	Hol	0.1	-0.027
1975.68	217.0	0.16	3	hz	4.2	-0.019
1976.482	210.7	0.22	4	Wor	1.1	0.031
1976.81	202.2	0.17	1	Cou	-6.2	-0.022
1977.81	194.5	0.17	2	Cou	-10.5	-0.033
1978.75	205.3	0.20	4	hz	3.3	-0.013
1980.61	197.3	0.24	3	hz	0.4	0.009
1981.897	201.8	0.28	1	Wor	7.9	0.037
1984.76	189.6	0.24	3	hz	1.7	-0.026
1986.8966	184.5	0.286	1	McA	0.5	0.005
1988.8080	175.	0.30	1	Iso	-5.8	0.008
1992.6939	177.	0.32	1	Min	1.9	0.007
1996.88	165.5	0.30	4	Alz	-4.1	-0.031
WDS 00162+7657 = STF 13						
1831.50	124.0	0.53	4	STF	-0.1	-0.001
1836.69	119.8	0.43	3	STF	-0.1	-0.121
1858.5	105.9	0.70	10	STT	0.6	0.064
1870.16	100.1	0.52	5	Demb	1.2	-0.158
1880.63	96.4	0.75	3	Bu	2.6	0.038

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 00162+7657 = STF 13						
1888.97	91.0	0.60	4	Sp	0.9	-0.137
1889.41	91.7	0.81	4	Bu	1.8	0.072
1892.79	87.3	0.97	2	Gla	-1.1	0.223
1895.68	84.1	0.78	3	A	-3.1	0.025
1903.06	84.0	0.72	7	Hu, Frm, KgsO	-0.2	-0.053
1908.81	83.6	0.61	10	Lau, L-J, Dob, Sto	1.6	-0.177
1924.79	77.5	0.75	4	B	1.3	-0.069
1933.87	73.1	0.80	4	Bz	0.0	-0.034
1937.22	70.4	0.777	6	Dau	-1.5	-0.062
1941.10	67.5	0.85	4	Bz	-3.2	0.005
1948.884	68.1	0.82	2	Fok	-0.0	-0.035
1949.765	68.4	0.86	4	Fok	0.6	0.004
1951.90	70.9	0.95	3	Pre	3.7	0.091
1953.08	63.5	0.88	5	Bz	-3.3	0.020
1953.916	64.1	0.90	3	Dju	-2.4	0.039
1957.06	61.7	0.96	2	Mlr	-3.8	0.095
1959.00	65.4	0.97	5	Hog	0.5	0.103
1959.11	63.5	0.90	5	hz	-1.4	0.033
1959.80	64.3	0.94	3	Wor	-0.4	0.072
1962.76	62.5	0.92	4	hz	-1.2	0.049
1965.04	61.4	0.85	4	hz	-1.6	-0.023
1973.84	60.6	0.83	3	hz	0.2	-0.052
1978.6180	58.5	0.908	1	McA	-0.4	0.022
1980.7203	58.4	0.913	1	McA	0.1	0.026
1980.820	60.0	0.88	3	Zul	1.7	-0.007
1980.8816	57.8	0.887	1	McA	-0.4	0.000
1981.698	56.5	0.908	1	McA	-1.5	0.020
1982.5088	58.4	0.890	1	McA	0.6	0.001
1982.740	58.9	0.87	1	Zul	1.2	-0.019
1982.7600	57.7	0.903	1	McA	0.0	0.014
1983.0688	58.4	0.895	1	McA	0.8	0.006
1984.0547	57.4	0.904	1	McA	0.1	0.014
1984.103	58.6	0.88	3	Zul	1.3	-0.010
1985.72	56.42	1.04	2	hz	-0.4	0.149
1985.8429	56.9	0.912	1	McA	0.1	0.021
1986.869	58.6	0.87	3	Zul	2.1	-0.022
1987.7596	56.5	0.913	1	McA	0.3	0.021
1988.6580	56.5	0.920	1	McA	0.6	0.027
1990.7747	55	0.936	1	Bal	-0.3	0.042
1996.81	53.4	1.00	3	Alz	-0.2	0.102
WDS 00214+6700 = STT 6AB						
1849.64	144.0	0.77	4	STT	2.9	0.159
1870.14	141.3	0.62	5	Dem	2.4	0.095
1880.63	138.8	0.46	1	Bu	1.4	-0.009

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 00214+6700 = STT 6AB						
1898.72	134.3	0.38	3	Hu	0.6	0.030
1934.43	ronde		3	Bz	–	–
1934.747		< 0.15	1	VBs	–	–
1935.678	178.1:	0.15	1	VBs	1.1	0.030
1936.717	167.6	0.19	1	VBs	-7.2	0.055
1943.76	162.3	0.32	3	VBs	-4.5	0.099
1948.64	159.3	0.35	3	VBs	-4.7	0.079
1951.06	157.2	0.30	3	VBs	-5.8	0.007
1951.80	161.7	0.27	4	VBs	-1.0	-0.030
1953.70	156.3	0.32	3	Mlr	-5.7	0.004
1954.06	153.0	0.32	4	Bz	-8.9	0.001
1954.35	160.3	0.35	4	VBs	-1.5	0.029
1955.80	161.3	0.33	4	VBs	-0.0	-0.003
1959.80	162.1	0.35	3	Wor	1.9	-0.015
1961.729	156.7	0.39	3	Wor	-3.0	0.011
1963.63	151.7	0.48	5	VBs	-7.6	0.087
1966.871	157.8	0.37	2	Walk	-0.8	-0.045
1967.878	158.8	0.46	4	Wor	0.4	0.039
1968.93	157.4	0.44	4	hz	-0.8	0.012
1972.86	157.8	0.45	3	hz	0.3	-0.003
1972.878	157.7	0.45	3	Wor	0.2	-0.003
1973.863	158.0	0.59	1	Ole	0.7	0.131
1976.77	152.9	0.57	1	Zul	-4.0	0.094
1976.84	154.3	0.49	3	hz	-2.6	0.014
1979.79	157.7	0.46	3	hz	1.3	-0.032
1980.167	158.7	0.47	3	Wor	2.3	-0.024
1980.892	151.3	0.48	1	?	-5.0	-0.018
1982.68	158.6	0.49	3	hz	2.6	-0.018
1984.81	155.8	0.44	3	hz	0.0	-0.079
1987.7596	154.8	0.561	1	McA	-0.6	0.028
1987.76	158.1	0.67	4	Mlr	2.7	0.137
1988.732	157.0	0.76	2	Cou	1.7	0.222
1988.6552	155.1	0.567	1	McA	-0.2	0.029
1994.94	151.6	0.52	2	hz	-3.0	-0.046
1996.82	158.4	0.67	1	Alz	4.0	0.096
1997.82	154.8	0.58	2	Alz	0.5	0.002
WDS 01462+3343 = Hu 804						
1903.620	337.6	0.27	1	Hu	4.6	0.006
1921.67	360.2	0.30	2	A	5.5	0.029
1923.696	362.4	0.28	2	VBs	5.3	0.009
1928.83	362.1	0.28	1	VBs	-1.0	0.007
1930.69	363.2	0.24	1	VBs	-2.0	-0.034
1937.67	373.2	0.30	1	VBs	0.1	0.022
1946.00	380.9	0.26	1	VBs	-1.3	-0.026

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	*Obs.*	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 01462+3343 = Hu 804						
1946.81	380.4	0.30	1	VBs	-2.6	0.013
1951.81	384.1	0.23	1	VBs	-4.0	-0.063
1958.66	394.2	0.32	3	Bos	-0.6	0.017
1961.91	396.4	0.29	3	Bos	-1.4	-0.019
1964.549	395.0	0.31	3	Wor	-5.2	-0.003
1967.85	395.3	0.30	2	Cou	-7.7	-0.019
1971.83	397.7	0.36	1	Mlr	-8.6	0.033
1976.90	411.6	0.34	3	Hei	1.4	0.003
1982.82	409.4	0.38	3	hz	-5.2	0.030
1990.841	417.1	0.32	1	Pri	-2.8	-0.048
1995	437	0.4	1	WDS	14.5	0.023
WDS 03261+1229 = A 829						
1904.85	40.5	0.33	2	A	2.2	-0.037
1914.75	29.6	0.44	2	A	3.4	0.039
1922.05	18.2	0.42	2	A	-7.9	0.012
1932.88	12.4	0.38	1	?	6.4	-0.018
1936.751	2.8	0.42	1	?	1.3	0.029
1942.64	348.3	0.41	3	Vout	-5.8	0.034
1949.98	348.3	0.35	4	VBS	4.3	-0.002
1959.07	322.6	0.35	3	Cou	-6.6	0.032
1961.848	322.9	0.30	4	Bos	-1.1	-0.007
1964.00	322.4	0.32	1	?	2.7	0.022
1965.437	318.1	0.22	4	Wor	1.4	-0.072
1968.54	300.5	0.25	1	?	-9.2	-0.028
1973.93⋆	111.8	0.30	3	hz	-3.7	0.049
1976.88⋆	100.5	0.19	3	hz	-5.8	-0.043
1978.94⋆	98.3	0.19	3	hz	-0.6	-0.029
1980.90⋆	99.4	0.21	3	hz	8.6	0.008
1984.95⋆	84.8	0.14	2	hz	17.4	-0.012
1996.05	74.2	0.24	2	hz	4.9	0.029
WDS 07015-0942 = A 3042 AB						
1922.84	85.8	0.22	2	A	-10.5	0.041
1931.15	105.9	0.22	2	A	-14.2	-0.005
1933.16	128.1	0.24	1	A	3.7	0.007
1936.23	129.9	0.21	4	Bos	-0.6	-0.034
1936.83	132.9	0.27	4	Vou	1.3	0.024
1938.15	134.9	0.26	4	Bos	0.9	0.011
1939.95	138.7	0.26	1	SMW	1.5	0.006
1944.62	146.9	0.26	2	Bos	1.8	-0.004
1944.83	145.6	0.27	4	Vou	0.2	0.006
1952.08	169.2	0.20	1	Bos	12.6	-0.075
1979.19	195.6	0.28	2	hz	1.3	-0.012

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	*Obs.*	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 07015-0942 = A 3042 AB						
1985.8381	203.8	0.334	1	McA	0.8	0.041
1989.9335	210.3	0.304	1	Har	1.9	0.010
1991	205	0.2	1	WDS	-4.8	-0.094
WDS 07294-1500 = STF 1104 AB						
1831.88	292.4	2.35	3	STF	-2.1	0.267
1864.50	312.3	2.21	3	Dem	-0.8	0.004
1878.44	318.3	2.29	4	Cin	-2.2	0.038
1892.52	327.0	2.28	9	Sp, Nis	-0.6	-0.009
1893.23	328.3	2.23	2	Lewis	0.3	-0.060
1899.87	330.6	2.40	4	Doo	-0.7	0.098
1901.13	331.9	2.35	2	Bu	0.0	0.046
1903.14	332.4	2.31	5	Jouffray	-0.5	0.003
1905.79	333.6	2.33	9	Doo, Ol, Sct	-0.6	0.020
1908.64	334.4	2.56	10	MCO, Wz	-1.2	0.247
1913.42	338.2	2.50	3	Dob, GrO	0.3	0.184
1919.36	340.0	2.34	6	Ol, Nvl, Geb	-0.8	0.024
1925.31	342.2	2.34	5	Vou, Baize	-1.5	0.027
1928.206	343.7	2.31	3	hintze	-1.5	0.000
1937.189	348.6	2.10	1	Fin	-1.0	-0.195
1937.19	347.9	2.26	1	Tbm	-1.7	-0.035
1937.54	349.4	2.41	3	Tbm	-0.4	0.116
1939.159	350.6	2.05	1	Fin	0.0	-0.240
1942.87	351.2	2.11	3	Vou	-1.2	-0.171
1943.21	351.8	2.33	3	Bz	-0.8	0.050
1943.84	350.8	2.07	1	Bz	-2.1	-0.208
1950.231	355.11	2.181	5	Rabe	-1.1	-0.076
1951.232	357.28	2.174	6	Rabe	0.6	-0.079
1953.222	357.52	2.134	6	Rabe	-0.2	-0.112
1954.237	358.08	2.132	6	Rabe	-0.2	-0.110
1959.12	361.0	2.18	5	hz	0.1	-0.041
1961.18	361.04	1.99	1	Wor	-1.0	-0.221
1962.10	364.9	1.88	3	Maurao	2.4	-0.327
1962.20	362.3	2.26	4	hz	-0.2	0.054
1965.19	363.2	3.14	3	hz	-0.9	0.949
1983.0504	374.1	2.012	1	McA	-1.3	-0.071
1985.06	375.4	2.07	2	hz	-0.2	0.001
1998	384	1.8	1	WDS	0.1	-0.174
WDS 08024+0409 = STF 1175						
1831.24	204.6	2.37	5	STF	-2.5	-0.063
1855.26	214.4	2.30	2	Ma	1.9	0.073
1868.92	217.8	2.09	5	delta	1.7	-0.014
1882.76	218.7	1.95	6	En	-1.4	-0.029

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 08024+0409 = STF 1175						
1885.29	222.6	1.88	4	Hl	1.7	-0.076
1890.10	222.1	2.09	2	T	-0.4	0.177
1890.73	224.4	1.84	7	Sp	1.7	-0.067
1899.87	225.2	1.91	8	Doo	-0.6	0.083
1901.21	225.8	1.93	4	Pos, SBn	-0.5	0.115
1903.12	226.4	1.77	3	Do	-0.6	-0.029
1907.46	225.2	1.78	4	Frm, Ws, Has	-3.5	0.019
1912.00	231.1	1.70	11	Doo, GrO, Ws, EdO	0.6	-0.023
1915.47	232.5	1.52	8	Rabe, Dob, FBn, Wz	0.5	-0.175
1920.46	238.8	1.63	12	VvS, Lv, Chan, GrO	4.7	-0.025
1923.07	234.1	1.80	18	Nvl, Abt, Lv, ZSO, B, Geb, VBs	-1.2	0.165
1925.92	237.4	1.53	5	Berm, Lv	0.8	-0.083
1928.170	235.7	1.66	6	Rabe	-2.0	0.063
1935.86	241.5	1.66	3	?	0.1	0.117
1936.25	243.2	1.36	1	Geb	1.6	-0.180
1952.68	248.0	1.442	16	Rabe	-2.6	0.000
1958.79	255.2	1.45	3	Cou	1.0	0.037
1959.53	259.4	1.44	3/2	GrO	4.7	0.030
1960.23	252.9	1.28	5	hz	-2.2	-0.127
1960.98	255.8	1.46	4	Wor	0.2	0.056
1962.21	254.2	1.42	4	hz	-2.1	0.021
1966.158	257.2	1.165	6	Wor	-1.6	-0.220
1971.104	263.9	1.42	3	Wor	2.0	0.051
1973.16	261.9	1.26	3	hz	-1.3	-0.104
1977.184	268.5	1.37	4	Wor	2.6	0.015
1981.04	266.9	1.38	2	hz	-1.5	0.031
1986.01	270.9	1.41	2	hz	-0.8	0.066
1987.216	273.6	1.33	4	Wor	1.1	-0.013
1997.20	276.45	1.435	4	hz, Alz	-2.7	0.088
WDS 08095+3213 = STF 1187 AaB						
1829.50	71.0	1.61	5	StF	-1.7	-0.040
1844.30	67.7	1.89	2	StT	2.3	0.130
1866.74	55.1	1.84	6	delta	-0.8	-0.104
1875.31	50.9	2.22	4	Sp	-1.9	0.204
1890.27	47.8	2.27	3	Maw	0.0	0.127
1890.92	47.1	2.05	18	Nis et al.	-0.5	-0.098
1893.14	45.8	2.17	4	Lewis	-1.1	0.003
1897.92	45.3	2.05	2	Hu	-0.1	-0.157
1903.27	42.9	2.13	4	VBs	-1.0	-0.121
1903.33	43.3	2.26	33	KgsO et al.	-0.6	0.009
1906.31	40.6	2.72	4	Ino	-2.4	0.444
1907.14	42.1	2.16	7	Doo et al.	-0.7	-0.122
1911.57	40.6	2.26	35	Has et al.	-1.0	-0.058

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 08095+3213 = STF 1187 AaB						
1916.14	40.5	2.34	11	Rabe et al.	0.1	-0.014
1923.63	37.5	2.48	39	Chan et al.	-1.0	0.068
1924.536	36.8	2.48	4	Hinz	-1.4	0.061
1926.20	39.9	2.13	1	Bz	2.1	-0.302
1927.163	37.0	2.55	4	Hinz	-0.6	0.111
1933.055	34.6	2.46	2	Hinz	-1.6	-0.023
1933.20	36.4	2.34	4	Baiz	0.2	-0.144
1933.320	39.5	2.22	1	Bar	3.4	-0.265
1936.21	33.5	2.73	3	Dur	-2.0	0.224
1938.22	34.1	2.55	1	Mul	-0.9	0.029
1941.948	33.0	2.52	3	Rou et Sem	-1.2	-0.027
1946.335	33.1	2.47	4	Ly et al.	-0.1	-0.108
1948.164	31.8	2.81	5	Fok	-1.0	0.220
1949.98	30.8	2.65	2	Mul	-1.6	0.047
1951.174	31.0	2.66	14	Rabe	-1.2	0.049
1953.158	31.4	2.67	3	Dju	-0.3	0.046
1954.142	30.7	2.67	3	Knu	-0.8	0.039
1957.17	30.1	2.69	3	Cou	-0.8	0.040
1957.19	30.9	2.59	3	Clo	-0.0	-0.060
1959.22	30.6	2.67	6/3	GrO	0.1	0.007
1961.14	29.1	2.63	4	Wor	-1.0	-0.046
1961.16	28.7	2.70	4	hz	-1.4	0.024
1965.27	28.5	2.57	3	hz	-0.8	-0.131
1965.281	29.6	2.69	4	Walk	0.3	-0.011
1966.13	27.8	2.76	3	Bert	-1.3	0.053
1966.170	27.7	2.90	1	Wor	-1.4	0.193
1966.301	28.8	2.82	3	Dju	-0.3	0.112
1966.337	29.8	2.54	1	Zul	0.7	-0.168
1967.202	27.6	2.55	2	Dju, Zul	-0.8	-0.163
1972.210	29.2	2.30	1	Ole	1.3	-0.443
1973.187	27.4	2.63	3	Wor	-0.3	-0.119
1974.353	28.2	3.10	2	Hol	0.7	0.344
1990.231	26.6	2.74	2	Pop	2.0	-0.102
1991.896	23.4	2.88	3	Doug & Wor	-0.9	0.030
1994.721	23.3	2.91	4	Ger et al.	-0.5	0.045
1996.314	23.8	3.01	1	Ger et al.	0.3	0.138
1997.165	24.0	2.84	2	Alz	0.6	-0.036
1997.27	23.9	2.91	2	hz	0.6	0.033
WDS 08402+1921 = CHARA 130						
1982.2535	153.3	0.115	1	Pet	-0.9	0.005
1984.0607	160.3	0.144	1	Pet	3.0	0.015
1986.8922	160.3	0.100	1	Mas	-2.3	0.007
1987.2664	163.9	0.087	1	Mas	0.1	0.003
1989.2295	161.5	0.059	1	McA	-24.7	0.033

Table 2. (continued)

t	$\theta_t(^o)$	$\rho_t('')$	n	$Obs.$	$\Delta\theta(^o)$	$\Delta\rho('')$
WDS 08402+1921 = CHARA 130						
1992.3094	341.3	0.054	1	Mas	10.5	-0.021
1993.1968	342.1	0.071	1	Har	8.1	-0.018
1993.9258	333.4	0.078	1	Mas	-2.9	-0.011
1994.0925	331.4	0.085	1	Mas	-5.4	-0.002
WDS 18178+4351 = A 578 AB						
1903.60	388.4	0.22	4	A	6.9	-0.004
1917.66	365.2	0.27	3	A	2.2	-0.004
1921.52	352.6	0.30	2	A	-6.1	0.022
1941.88	328.5	0.26	3	VBs	-7.3	-0.006
1953.56	344.3	0.24	2	Wilson JR	23.4	-0.010
1958.58	305.8	0.24	3	Bos	-8.2	-0.004
1959.81	308.2	0.26	5	WBs	-4.0	0.017
1974.50	278.6	0.26	4	hz	-11.3	0.028
1977.50	278.3	0.22	3	hz	-6.8	-0.011
1982.54	287.2	0.23	2	hz	10.1	-0.001
1984.43	266.7	0.16	2	hz	-7.4	-0.071
1986.708	265.2	0.23	2	Pop, Zul	-5.3	-0.001
1994.59	262.4	0.23	2	hz	4.3	-0.004
1997.65	262.2	0.25	2	hz	8.8	0.016
WDS 23401+1258 = Hu 1325						
1904.97	183.7	0.66	1	Hu	16.0	0.007
1905.61	169.4	0.59	2	A	0.6	-0.064
1917.81	188.6	0.54	2	OL	0.4	-0.100
1922.69	196.5	0.62	2	VBs	-0.0	0.000
1931.43	207.6	0.59	3	VBs	-5.7	0.024
1951.81	269.4	0.61	1	VBs	0.7	0.150
1954.80	279.4	0.44	3	VBs	1.1	-0.021
1958.67	286.1	0.53	4	Bos	-4.3	0.059
1959.82	295.9	0.47	2	Cou	2.0	-0.006
1960.95	305.6	0.50	2	Cou	8.4	0.019
1961.74	301.6	0.58	4	Bos	2.1	0.095
1961.83	301.5	0.43	2	Cou	1.8	-0.056
1963.90	307.4	0.45	3	Cou	1.8	-0.048
1965.89	313.6	0.59	3	Cou	2.8	0.080
1969.778	313.6	0.48	1	Zul	-6.8	-0.057
1973.56	345.5	0.47	7	Zul	16.6	-0.094
1975.83	332.9	0.61	3	hz	-0.7	0.030
1980.75	342.9	0.60	3	hz	-0.1	-0.011
1995.86	366.8	0.66	2	hz	-1.1	0.002

Table 3. Ephemeris

t	$\theta(^o)$	$\rho('')$	$\theta(^o)$	$\rho('')$	$\theta(^o)$	$\rho('')$	$\theta(^o)$	$\rho('')$
	WDS 00134+2659		**WDS 00162+7657**		**WDS 00214+6700**		**WDS 01462+3343**	
2001.0	164.8	0.346	52.3	0.901	154.0	0.591	66.0	0.390
2002.0	163.7	0.350	52.1	0.901	153.9	0.595	66.6	0.393
2003.0	162.6	0.353	51.8	0.902	153.8	0.599	67.2	0.395
2004.0	161.5	0.356	51.5	0.902	153.7	0.603	67.7	0.397
2005.0	160.5	0.359	51.2	0.903	153.6	0.607	68.3	0.399
2006.0	159.4	0.362	50.9	0.903	153.5	0.610	68.8	0.401
2007.0	158.4	0.365	50.6	0.904	153.4	0.614	69.3	0.404
2008.0	157.4	0.368	50.3	0.904	153.3	0.618	69.9	0.406
2009.0	156.4	0.370	50.0	0.905	153.2	0.621	70.4	0.408
2010.0	155.4	0.373	49.7	0.905	153.1	0.625	70.9	0.410
	WDS 03261+1229		**WDS 07015-0942**		**WDS 07294-1500**		**WDS 08024+0409**	
2001.0	54.7	0.287	222.8	0.294	26.0	1.952	281.7	1.352
2002.0	52.6	0.299	224.1	0.294	26.7	1.944	282.4	1.353
2003.0	50.6	0.310	225.4	0.294	27.4	1.936	283.0	1.355
2004.0	48.8	0.320	226.7	0.294	28.1	1.928	283.7	1.357
2005.0	47.0	0.329	228.0	0.293	28.8	1.921	284.3	1.359
2006.0	45.4	0.337	229.3	0.293	29.5	1.913	285.0	1.361
2007.0	43.8	0.345	230.6	0.293	30.2	1.905	285.6	1.364
2008.0	42.3	0.352	231.9	0.292	31.0	1.897	286.3	1.366
2009.0	40.8	0.358	233.2	0.292	31.7	1.889	286.9	1.369
2010.0	39.4	0.364	234.6	0.291	32.4	1.882	287.5	1.372
	WDS 08095+3213		**WDS 08402+1921**		**WDS 18178+4351**		**WDS 23401+1258**	
2001.0	22.7	2.895	157.1	0.129	248.2	0.235	15.9	0.656
2002.0	22.5	2.899	158.6	0.126	246.7	0.235	17.5	0.654
2003.0	22.3	2.904	160.4	0.113	245.1	0.234	19.1	0.652
2004.0	22.2	2.908	162.8	0.092	243.6	0.234	20.7	0.650
2005.0	22.0	2.913	166.8	0.066	242.1	0.234	22.3	0.648
2006.0	21.8	2.917	177.6	0.035	240.5	0.233	23.9	0.645
2007.0	21.7	2.922	254.0	0.013	239.0	0.233	25.6	0.642
2008.0	21.5	2.926	319.0	0.037	237.4	0.232	27.2	0.639
2009.0	21.3	2.931	328.9	0.066	235.8	0.231	28.9	0.636
2010.0	21.2	2.935	333.2	0.086	234.2	0.229	30.6	0.632

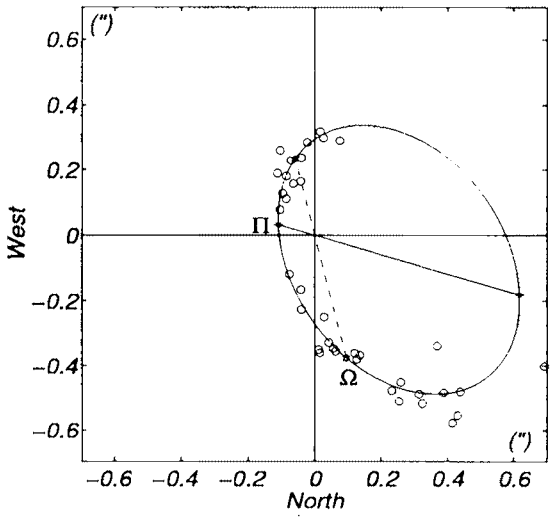

Fig. 1. *ADS 161*

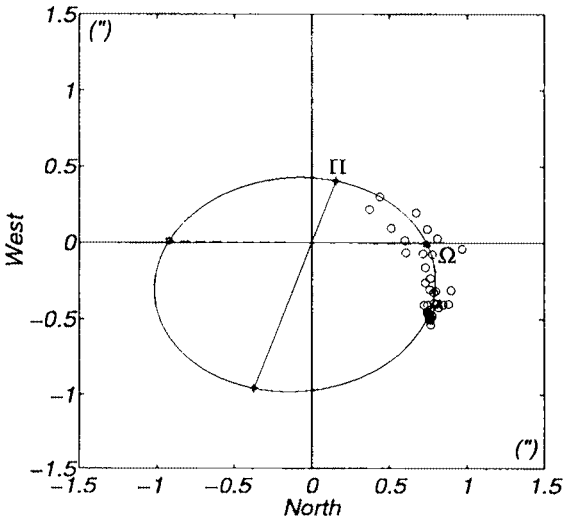

Fig. 2. *ADS 207*

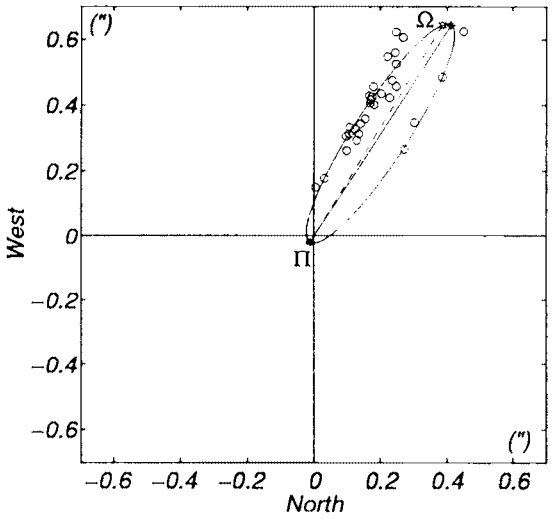

Fig. 3. *ADS 293*

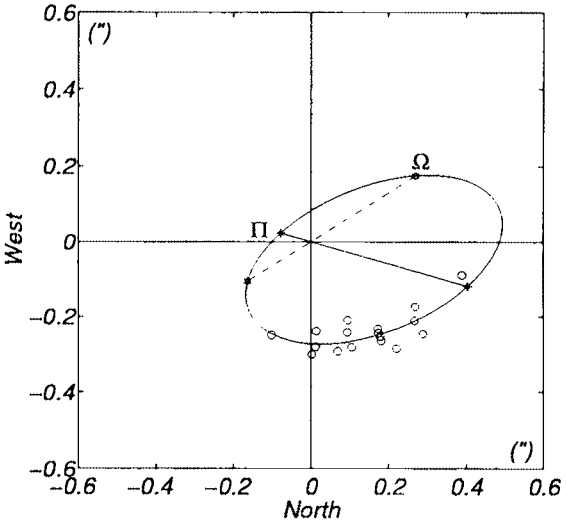

Fig. 4. *ADS 1393*

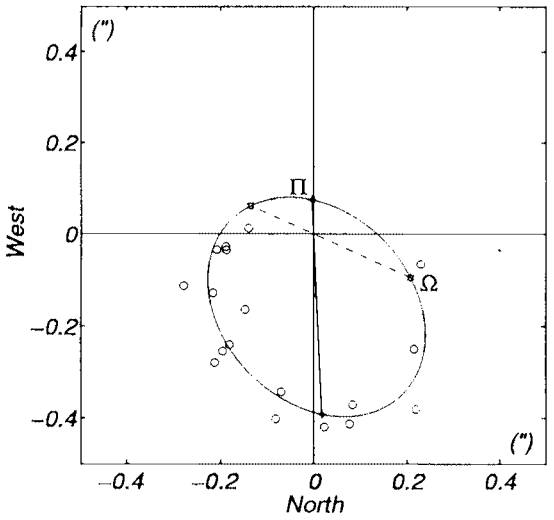

Fig. 5. *ADS 2531*

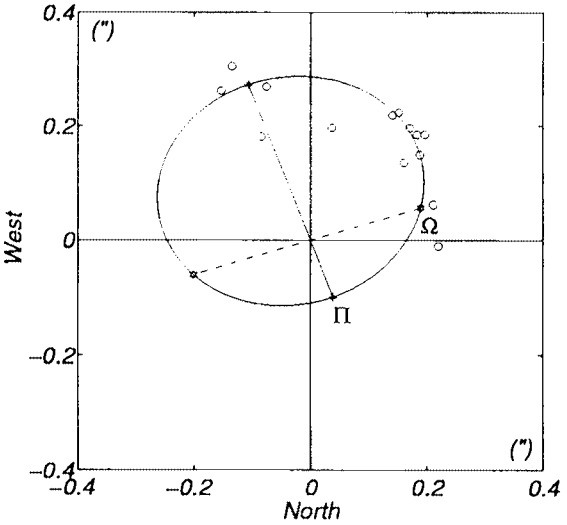

Fig. 6. *ADS 5707*

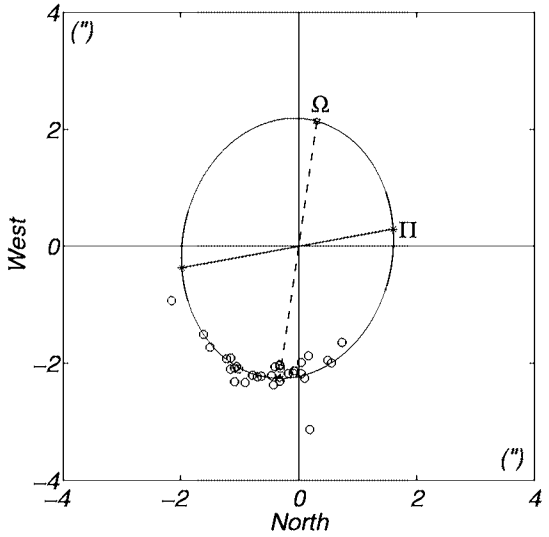

Fig. 7. *ADS 6126*

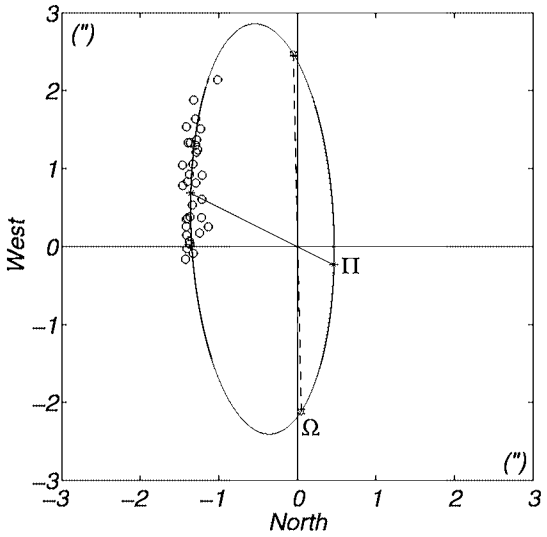

Fig. 8. *ADS 6532*

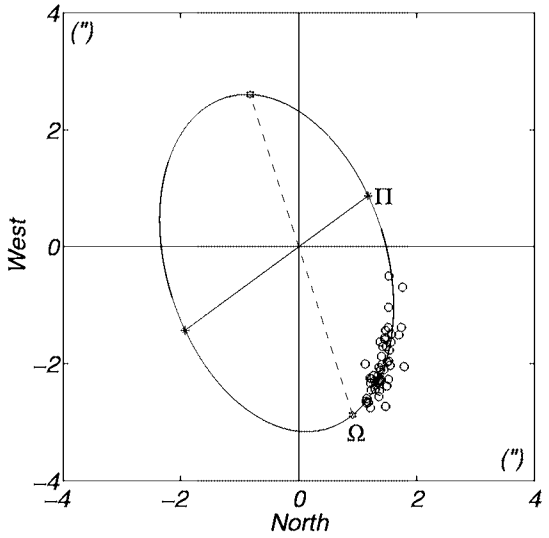

Fig. 9. *ADS 6623*

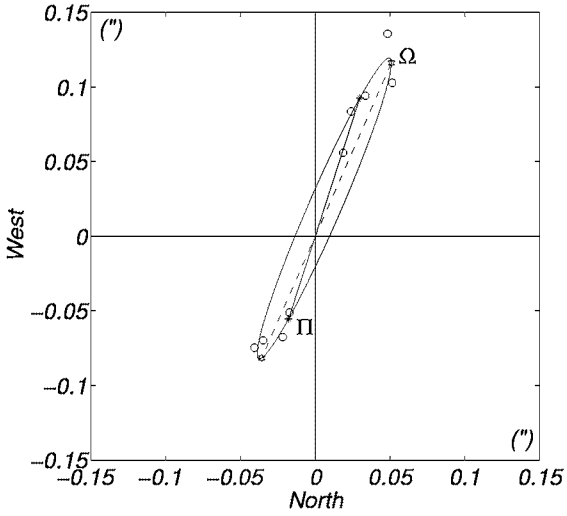

Fig. 10. *CHARA 130*

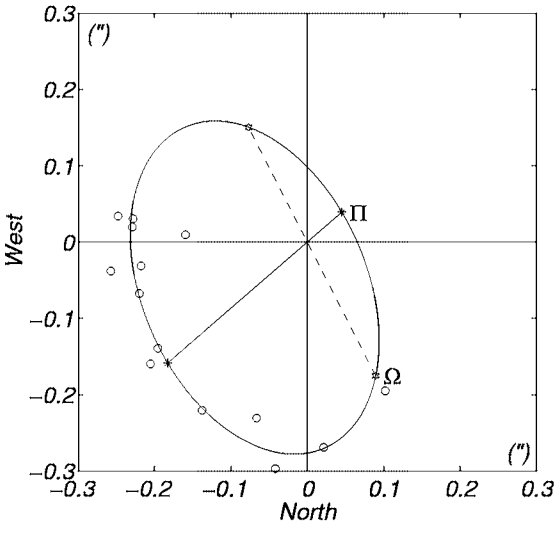

Fig. 11. *ADS 11247*

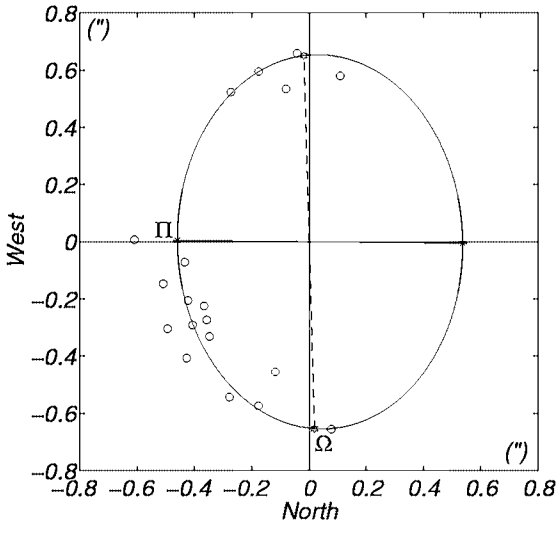

Fig. 12. *ADS 16914*

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ПРЕЛИМИНАРНА ОРБИТА ПАРА CHARA 130 И 11 ПОПРАВЉЕНИХ ОРБИТА ДВОЈНИХ ЗВЕЗДА

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Оригинални научни рад

У раду су први пут израчунати путањски елементи интерферометријског пара CHARA 130 и поправљени путањски елементи за 11 дугопериодичних двојних звезда. Из израчунатих елемената добијене су динамичке паралаксе које су упоређене са Hipparcos-овим паралаксама, као и масе изабраних парова.