

INTERNATIONAL ASTRONOMICAL UNION COMMISSION 26

(DOUBLE STARS)

INFORMATION CIRCULAR No. 177 (JUNE 2012)

NEW ORBITS

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2012 2013	Author(s)
- 00095+1907	Cou 247 2°2569	159 ^y 51 0 ^h 543	2005.80 137°0	0.309 103°4	21°1 2010.635	241°4 0 ^h 330 237.3 0.341	DOCOBO & CAMPO
- 00101+3825	HDS23 Da,Db 11.4620	31.41 0.131	2006.28 134.8	0.856 311.2	93.7 2004.8237	336.8 0.128 332.9 0.141	CVETKOVIC
- 00143-2732	HDS 33 16.03530	22.450 0.252	2012.355 61.9	0.627 72.4	157.5 2011.0366	180.3 0.080 302.9 0.075	CVETKOVIC
674 00492+5720	A 921 AB 2.9882	120.47 0.221	1982.40 59.6	0.696 96.6	140.3 2007.7987	14.9 0.177 16.6 0.177	CVETKOVIC
- 02396-1152	FIN 312 135.6852	2.6532 0.105	2012.3092 24.7	0.229 30.0	100.1 2009.754	68.9 0.088 251.1 0.109	DOCOBO & ANDRADE
2375 03101+2145	BU 1030 AB 0.6301	571. 0.802	2156. 123.7	0.084 90.3	97.4 2007.999	103.2 0.800 102.8 0.800	ZIRM & RICA
2377 03127+7133	STT 50 AB 1.1650	309. 1.020	2087. 135.9	0.400 5.6	14.3 2009.081	147.8 0.942 146.8 0.932	SCARDIA et al. (*)
2639 03365+1011	A 830 1.6438	219.0 0.325	2066.2 125.7	0.31 167.1	18.0 2003.9519	348.3 0.290 347.2 0.285	ZIRM & RICA
- 03494-1956	RST 2324 4.2001	85.71 0.245	1995.14 143.0	0.606 27.6	17.6 2011.0394	209.3 0.279 207.3 0.288	CVETKOVIC
3116 04187+0445	A 1939 0.6610	544. 0.876	2201.5 50.8	0.0 0.0	75.8 2003.9520	297.6 0.678 298.3 0.674	ZIRM & RICA
- 04515-3454	FIN 320 8.3237	43.25 0.256	2006.38 107.5	0.865 108.9	19.6 2010.966	135.5 0.092 126.2 0.096	DOCOBO & ANDRADE

NEW ORBITS (continuation)

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2012 2013	Author(s)
- 06253+0130	FIN 343 5.2409	68.69 0.133	2019.94 144.6	0.494 228.9	44.8 2011.037	268.3 0.097 261.1 0.093	DOCOBO & ANDRADE
5280 06393+4200	STT 150 1.5524	231.9 0.301	1982.2 100.8	0.731 247.7	17.5 2008.115	12.9 0.271 12.6 0.274	DOCOBO & LING
- 07003-2207	FIN 334 Aa,Ab 0.7579	475. 0.275	2014. 107.3	0.603 178.9	153.2 2010.969	335.5 0.109 334.3 0.109	DOCOBO & ANDRADE
6459 07555+2422	A 2537 0.8411	428. 0.338	2083. 113.8	0.0 0.0	3.6 2004.2035	37.9 0.208 37.0 0.211	ZIRM & RICA
- 08291-4756	FIN 315 Aa,Ab 1.0588	340. 0.427	1948. 78.9	0.748 300.0	114.7 2012.102	202.2 0.102 204.6 0.103	DOCOBO & ANDRADE
- 08345-3236	FIN 335 20.7302	17.366 0.146	2014.467 39.6	0.557 220.3	98.5 2011.935	204.7 0.106 234.9 0.089	DOCOBO & ANDRADE
- 09173-6841	FIN 363 AB 104.6572	3.4398 0.0917	2013.3248 139.1	0.453 120.1	160.4 2012.102	194.6 0.115 128.9 0.062	DOCOBO & ANDRADE
- 09442-2746	FIN 326 19.7088	18.266 0.110	2020.143 123.6	0.404 141.2	3.5 2012.028	21.3 0.139 15.2 0.143	DOCOBO & ANDRADE
7738 10217-0946	BU 25 0.4405	817. 1.837	2295. 141.2	0.0 0.0	0.2 2005.298	131.8 1.574 131.4 1.571	ZIRM & RICA
- 12064-6543	FIN 367 Aa,Ab 7.4426	48.37 0.171	2001.27 119.4	0.800 276.0	176.0 2011.037	116.2 0.130 112.5 0.133	DOCOBO & ANDRADE
8764 13040-1738	BU 798 5.9801	60.2 0.352	1980.3 84.8	0.431 209.6	170.9 2009.2600	174.4 0.418 174.7 0.404	ZIRM & RICA
- 13117-2633	FIN 305 19.0325	18.915 0.104	2019.167 153.7	0.931 87.1	3.9 2009.26	92.3 0.173 89.9 0.166	DOCOBO & ANDRADE
- 13320-6519	FIN 369 14.5243	24.786 0.176	1996.930 75.2	0.473 81.4	16.6 2012.184	314.0 0.071 331.1 0.084	DOCOBO & ANDRADE
9126 14087+3341	HU 742 0.4957	726. 1.457	1984. 107.7	0.643 38.1	118.9 2011.3459	345.2 0.279 342.2 0.296	RICA

NEW ORBITS (continuation)

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2012 2013	Author(s)
9182 14153+0308	STF 1819 1.6107	223.5 1.119	2008.1 146.8	0.200 181.1	3.0 2011.477	174.1 0.892 172.0 0.891	SCARDIA et al. (*)
9195 14165+3334	Hu 1266 9.2426	38.95 0.167	2025.55 26.0	0.644 131.9	176.6 2008.461	147.4 0.249 150.3 0.244	DOCOBO & CAMPO
- 14373-4608	FIN 318 Aa,Ab 3.5472	101.49 0.194	1977.47 117.8	0.674 260.0	172.1 2011.303	128.3 0.182 126.9 0.181	DOCOBO & ANDRADE
9872 16003+1140	A 1639 AB 1.1439	314. 0.291	1938. 35.8	0.0 0.0	5.1 2009.2605	87.9 0.236 89.3 0.236	ZIRM & RICA
- 16057-0617	FIN 384 Aa,Ab 72.5368	4.9630 0.046	2013.3710 154.7	0.559 8.4	108.5 2009.263	252.3 0.059 184.1 0.028	DOCOBO & ANDRADE
- 16229+3803	COU 1281 7.7486	46.46 0.255	2015.38 76.2	0.629 269.0	26.8 2008.461	205.0 0.164 209.2 0.136	DOCOBO & TAMAZIAN
- 16384+3514	COU 985 3.9517	91.10 0.298	1986.55 59.0	0.327 34.3	81.3 2009.4415	254.7 0.336 256.2 0.344	DOCOBO & LING
10398 17130+0745	STT 325 0.1268	2838. 3.34	2130. 77.9	0.662 348.8	6.2 2010.5819	290.6 0.349 292.4 0.351	RICA
- 17173-3010	BU 1119 0.3488	1032. 0.906	2012. 131.5	0.612 175.2	45.3 2008.5398	228.4 0.351 227.2 0.351	ZIRM & RICA
- 17221-7007	FIN 373 6.0688	59.32 0.115	2008.55 69.4	0.172 270.5	119.6 2009.263	88.4 0.057 95.7 0.067	DOCOBO & ANDRADE
- 17471+4737	CHR 64 1.7919	200.90 0.451	1948.47 73.4	0.247 186.1	164.9 2009.4546	152.5 0.418 153.0 0.427	LING
- 17542+1108	FIN 381 39.9645	9.008 0.0853	2007.297 160.9	0.327 58.3	173.6 2008.461	292.4 0.108 269.0 0.102	DOCOBO & ANDRADE
11170 18126+3836	BU 1091 AB 0.2774	1297. 1.175	1933. 138.5	0.896 77.8	172.9 2010.500	319.9 0.736 319.7 0.741	ZIRM & RICA
- 19035-6845	FIN 357 26.4511	13.610 0.142	2016.470 160.5	0.372 261.6	169.8 2008.772	54.6 0.170 37.1 0.156	DOCOBO & ANDRADE

NEW ORBITS (continuation)

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2012 2013	Author(s)
12057 19073+2432	A 262 3.3272	108.2 0.143	1959.1 50.4	0.83 122.0	136.2 2007.532	89.8 0.196 90.4 0.197	ZIRM & RICA
12144 19106+5429	A 1391 2.5532	141.0 0.234	1980.60 42.2	0.416 177.1	62.8 2007.602	14.3 0.212 16.4 0.218	SCARDIA et al. (*)
12515 19296+1224	A 1653 1.5714	229.1 0.211	2039.9 171.5	0.073 332.4	65.8 2007.601	143.2 0.198 141.5 0.198	SCARDIA et al. (*)
- 19336+3846	CHR 87 7.6340	47.16 0.140	2020.44 59.5	0.198 80.8	166.1 2010.4816	163.0 0.133 167.3 0.130	CVETKOVIC
13611 20157+4339	A 2095 AB 2.4226	148.58 0.345	2049.90 94.5	0.758 101.6	101.6 2009.4390	154.5 0.273 154.3 0.275	LING
14748 21125+2821	HO 152 1.6431	219.1 0.366	2018.4 67.7	0.376 29.3	135.4 2010.635	137.2 0.233 138.6 0.227	SCARDIA et al. (*)
- 21158-5316	FIN 329 9.8495	36.55 0.151	2003.61 122.7	0.041 154.2	79.9 2009.755	215.0 0.101 201.9 0.091	DOCOBO & ANDRADE
- 21477-3054	FIN 330 AB 18.0388	19.957 0.137	2006.000 103.0	0.256 199.0	29.1 2010.586	36.0 0.138 32.6 0.157	DOCOBO & ANDRADE
- 21579-5500	FIN 307 29.4190	12.237 0.176	2007.518 76.3	0.032 64.9	90.8 2009.668	275.6 0.170 285.2 0.127	DOCOBO & ANDRADE
- 22077+2622	COU 537 7.5901	47.43 0.185	1993.70 35.1	0.595 89.1	69.3 2008.710	322.1 0.236 325.1 0.238	DOCOBO & LING
16539 23088+1058	A 1238 AB 5.0006	71.99 0.247	1963.25 153.5	0.277 145.7	114.3 2008.887	109.4 0.289 106.2 0.285	SCARDIA et al. (*)
16886 23382+5514	A 1493 2.5597	140.61 0.148	1924.24 152.5	0.037 299.9	106.8 2008.820	303.2 0.150 301.0 0.151	DOCOBO & LING

(*) SCARDIA, PRIEUR, PANSECCHI & ARGYLE

NEW LINEAR FITS

Authors: RICA, F. M. & ZIRM, H.

ADS α 2000 δ	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2012 2013
124 00104+5831	BU 253 Ba.Bb -	0.06529 0.44747	-0.00137 0.00020	0.45 8.3	2151.477 2002.067	31.5 0.493 31.4 0.492
129 00108+5846	BU 485 Ca.Cb -	-0.06589 -0.06151	0.00248 -0.00265	0.09 227.0	2012.907 1994.7084	229.1 0.090 226.8 0.090
733 00561+5406	A 1259 -	0.10177 -0.04992	-0.00084 -0.00172	0.11 116.1	2007.804 1995.9207	120.2 0.114 121.1 0.114
859 01029+5148	BU 1161 -	0.12272 0.33133	0.00313 -0.00116	0.35 20.3	2014.624 2003.9515	18.9 0.353 19.4 0.353
996 01137+0735	BU 1029 BC -	0.04272 -0.14774	0.02585 0.00748	0.15 163.9	1925.095 2001.78	77.6 2.344 77.6 2.371
1533 01556+0146	BU 1367 -	0.71285 0.13364	0.00164 -0.00877	0.73 79.4	1991.170 2001.7970	93.7 0.749 94.4 0.751
4117 05310+0440	A 2646 AB -	0.07838 -0.14789	0.00180 0.00096	0.17 152.1	1956.096 1993.0924	117.8 0.203 117.3 0.204
4136 05323+0217	A 2509 -	-0.04795 -0.05719	0.00457 -0.00383	0.07 220.0	1922.420 1997.15	137.9 0.539 137.8 0.545
4301 05435+1642	A 2436 -	0.19145 -0.12266	-0.00262 -0.00408	0.23 122.7	1977.504 2007.999	159.0 0.282 159.8 0.285
4360 05457-1447	A 3018 -	-0.43797 -0.27494	-0.00641 0.01022	0.52 237.9	1940.304 2006.104	297.0 1.008 297.4 1.018
5407 06450+1045	A 2825 -	-0.06687 -0.01961	0.00140 -0.00479	0.07 253.7	1948.546 1995.16	176.1 0.324 175.9 0.329
5671 07008+2716	BU 1022 AB -	0.30116 -0.00581	0.00009 0.00455	0.30 91.1	1959.068 1997.22	52.5 0.386 51.9 0.389
6484 07573-0950	A 1578 -	-0.19533 0.23354	-0.00468 -0.00392	0.30 320.1	1906.580 1996.24	255.4 0.712 255.2 0.718

NEW LINEAR FITS (continuation)

Authors: RICA, F. M. & ZIRM, H.

ADS α 2000 δ	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2012 2013
7360 09261+5344	A 1343 -	0.08806 0.26574	0.00492 -0.00163	0.28 18.3	1983.778 1997.23	45.9 0.316 46.7 0.318
8467 12138+4643	A 1849 -	0.02442 0.12785	-0.00171 0.00033	0.13 10.8	2033.656 1990.348	26.9 0.135 26.2 0.135
8508 12194+1744	A 2059 -	-0.02846 0.49901	0.00790 0.00045	0.50 356.7	1969.974 1991.32	30.4 0.600 31.0 0.605
8515 12202-2211	BU 605 -	-0.21236 -0.29380	-0.00852 0.00616	0.36 215.9	1985.278 1996.1239	253.6 0.459 254.7 0.465
9810 15517-0559	A 21 AB -	-0.26622 -0.20122	-0.00413 0.00546	0.33 232.9	1965.325 1991.55	276.7 0.462 277.3 0.467
10257 16555-2134	BU 241 -	0.21911 0.19607	0.00271 -0.00303	0.29 48.2	2043.912 2008.5425	24.4 0.321 25.1 0.320
10648 17354+1322	A 1879 -	0.20819 0.19082	0.00359 -0.00391	0.28 47.5	1918.658 1995.60	107.8 0.570 108.1 0.575
10860 17526+2536	A 234 AB -	0.20410 -0.00999	-0.00021 -0.00422	0.20 92.8	2005.408 1991.64	100.6 0.206 101.7 0.207
11619 18440+0321	A 2388 -	0.22122 -0.00146	-0.00002 -0.00326	0.22 90.4	1959.152 1995.61	128.3 0.280 128.8 0.282
13681 20188+3507	A 286 AB -	0.14321 0.01918	-0.00032 0.00237	0.14 82.4	1959.342 2007.723	41.4 0.191 40.8 0.193
14766 21133+4655	A 884 -	0.21818 -0.30719	0.00397 0.00282	0.38 144.6	1966.471 2000.4946	114.2 0.437 113.6 0.440
14821 21171+4001	A 1441 AB -	-0.13721 0.05712	-0.00107 -0.00257	0.15 292.6	1994.994 2008.8577	275.0 0.156 274.0 0.157
14958 21254+1121	A 887 AB -	-0.00817 -0.09978	-0.00251 0.00021	0.10 184.7	2001.143 1996.5376	200.0 0.104 201.3 0.104

NEW LINEAR FITS (continuation)

Authors: RICA, F. M. & ZIRM, H.

ADS $\alpha 2000\delta$	Name -	X_0 Y_0	X_A Y_A	ρ_0 θ_0	T_0 Last ob.	2012 2013
16010	A 1467	-0.26152	-0.00169	0.29	1981.679	270.2 0.313
22308+4007	-	0.11620	-0.00379	294.0	2008.8580	269.5 0.314
16702	BU 718 AB	0.25198	-0.00422	0.37	1967.375	171.9 0.452
23219+3149	-	-0.27373	-0.00389	137.4	2003.768	172.5 0.455

ANNOUNCEMENT

THE CCDM

A Catalog of Double and Multiple Stars in the continuation of the ancient ones.

In the years before 1980, the idea of a very important astronomical space project was born in the French astronomical community and after a few year of discussions, it rapidly took shape. This idea was disseminated outside of France, especially in European and American countries.

Meetings were organized and finally the European Space Agency (ESA) became involved. The project of the launch of a specific European Astrometric Satellite was accepted. Therefore, the contributions of the participating European Countries consisted of setting up three consortia: INCA, FAST, and NDAC, to:

- a) prepare the launch of the satellite,
- b) follow the mission, and
- c) take charge of the data reductions.

This organization officially started working in the year 1980.

The project consisted of observing 120,000 stars with INCA (INPUT CATALOG CONSORTIUM) in charge of the list. This list was called the INPUT CATALOGUE and contained a specific sub-list of double and multiple stars.

Thus, FAST and NDAC were apparently not immediately involved but they had to prepare their programs for data reduction.

Starting from a copy of the INDEX (1976.5)¹ of which the format was fundamentally

¹As mentioned in all of our publications on the subject.

changed (as imposed by the need for the satellite to receive individual data for each component), a sub-list of 14,711 systems was realized (Annex 1; vol 6, Double and Multiple Systems of the Input Catalog, C. Turon et al.) for the launch of the satellite on July 9, 1989.

After the Hipparcos launch, it seemed useful to publish this sub-list which had increased to 34,031 systems (Communications de l'Observatoire Royal de Belgique, Série A, n° 115, 1994) under the name of “*Catalog of the components of double and multiple stars*” (CCDM).

The INDEX created by C. E. Worley, evolved with the new name, the “*Washington Double Star Catalog*” (WDS).

Today, the CCDM contains some 68,000 systems (much less than the 116,000 of the WDS). But it contains an important improvement, contributed by Omer Nys, a co-author of the Catalog who, while retired, continued his very important work from the second edition (Observations et Travaux, n° 51, January 2007) until his death in January 2007. This contribution could have been lost if not accurately recorded.

Both the WDS and CCDM catalogues are issued from the INDEX around the years 1975-1980, but evolved differently afterwards. The main difference between the two catalogues lies in their formats: while the WDS has one registration for each double star (even inside multiple systems), the CCDM has one registration for each component. This was necessary in order to assign only one piece of data per parameter.

The second edition (Observations & Travaux) contained only 49,300 systems. A detailed description will be published in O&T as soon as possible. We expect this event in mid-July 2012.

J. Dommagnet

KARL DRAGUTIN RAKOS (1925-2011)

A native of Croatia in the former Yugoslavia, Karl Rakos earned his doctorate at the University Graz, Austria, in 1956. Soon thereafter he joined the Institute for Astronomy of the Vienna University, his home for the balance of a distinguished scientific and academic career. His research, from stellar astronomy to population studies in galaxies, included photometric and astrometric investigations of visual binaries by photoelectric area scanning, a technique of his creation. In recognition of his contributions to binary-star research, Commission 26 elected him as its president for the term of 1985-1988.

With the death of Professor Karl D. Rakos, the astronomical community has lost an exceptionally creative and productive member. However, his legacy will live on through the significant contributions he has made to his beloved science, and in the careers he has launched and fostered as an inspiring teacher and caring mentor.

Otto Franz

The deadline for contributions to Information Circular No. 178 is:

October 15th 2012

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