INTERNATIONAL ASTRONOMICAL UNION COMMISSION 26

(DOUBLE STARS)

INFORMATION CIRCULAR No. 185 (FEBRUARY 2015)

NEW ORBITS

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2015 2016	Author(s)
32	STF 3056 AB	545^y	2142.0	0.670	136°4	141°9 0″709	ZIRM
00047+3416	0°6606	0″623	99°4	119°6	2009.8	141.9 0.708	
147	BU 255	245.	2067.2	0.960	166.1	66.3 0.445	ZIRM
00118+2825	1.4694	0.661	116.0	265.4	2008.8	65.9 0.442	
285	AC 1	525.	1820.1	0.600	107.5	288.7 1.839	ZIRM
00209+3259	0.6857	1.234	84.0	26.8	2012.1	288.8 1.841	
363	A 431 AB	53.56	2003.58	0.644	25.5	329.5 0.172	SCARDIA
00271-0753	6.7214	0.364	109.0	293.0	2013.573	321.9 0.168	et al. (*)
1081	STF 113 A-BC	650.	1686.0	0.640	87.2	20.4 1.637	ZIRM
01198-0031	0.5538	1.324	43.5	106.7	2013.9	20.6 1.638	
-	MCA 7	3.800	2010.280	0.017	145.0	47.8 0.030	DOCOBO
02366+1227	94.737	0.077	112.7	3.7	2010.718	322.9 0.078	et al. (**)
-	FIN 333	83.73	1998.06	0.423	34.1	34.1 0.462	DOCOBO
02434-6643	4.300	0.509	90.0	269.2	2013.737	34.1 0.457	et al. (**)
2524	A 2909	11.345	2013.744	0.507	16.2	23.1 0.129	DOCOBO
03244-1539	31.732	0.172	71.3	283.0	2013.737 3	38.4 0.125	et al. (**)
2117	BU 9AB	616.	1952.0	0.100	174.0	214.8 0.937	ZIRM
02471+3533	0.5844	1.882	67.3	21.5	2009.1	215.7 0.926	
2452	HU 1056	603.	2010.2	0.180	83.3	80.1 1.073	ZIRM
03196+6714	0.5970	1.386	99.2	15.4	2012.8	79.9 1.067	
2628	BU 533 AB	463.	1776.6	0.110	42.7	221.0 1.037	ZIRM
03356+3141	0.7775	0.992	94.8	15.3	2012.2	221.0 1.033	

NEW ORBITS (continuation)

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2015 2016	Author(s)
- 03520+0632	KU I15 AB 0.4133	871. 0.925	1909.3 96.1	0.660 73.7	28.6 2012.1	206.6 0.790 206.6 0.793	ZIRM
3430 04460-0659	BU 186 0.4934	729.6 1.53	1999.78 55.6	0.806 150.2	178.1 2012.8986	34.3 0.366 37.1 0.369	RICA
3072 04139+0916	BU 547 AB 0.7516	479. 1.053	1816.6 128.6	0.910 263.0	52.9 2009.1	339.5 1.263 339.4 1.263	ZIRM
4390 05480+0627	STF 795 0.3158	1140. 1.237	2187.6 61.0	0.580 340.7	19.6 2012.4	219.7 1.026 219.9 1.020	ZIRM
6263 07401+0514	STF 1126 AB 0.4787	752. 1.054	2254.0 55.4	0.330 208.7	124.4 2012.2	176.4 0.840 176.8 0.836	ZIRM
7039 08507+1800	A 2473 3.175	113.4 0.979	2018.01 80.2	0.972 89.0	115.0 2009.265	94.6 0.195 98.2 0.171	DOCOBO et al. (**)
- 09128-6055	HDO 207 0.900	400.0 0.548	1960.7 76.4	0.538 149.0	43.7 2013.238	77.2 0.134 74.2 0.132	DOCOBO et al. (**)
8332 11532-1540	A 2579 1.524	236.3 0.321	1897.68 147.9	0.287 160.6	17.8 2010.266	35.0 0.406 34.3 0.407	DOCOBO et al. (**)
8405 12042+2407	A 682 0.9474	380.0 0.389	1999.48 116.5	0.270 276.5	143.5 2013.033	178.2 0.191 176.6 0.196	RICA
8708 12564-0057	STT 256 0.5950	605. 1.549	1749.7 75.0	0.900 108.1	143.6 2013.3	100.4 1.061 100.5 1.064	ZIRM
8801 13099-0532	MCA 38 Aa.Ab 0.5180	695. 1.243	1935.3 74.7	0.720 124.8	126.8 2009.3	351.7 0.406 352.6 0.404	ZIRM
8988 13400+3759	HU 897 0.6780	531. 0.476	2076.2 33.9	0.360 41.4	88.0 2008.3	55.1 0.365 56.0 0.364	ZIRM
- 13535-3540	HWE 28 AB 0.9652	373.0 1.519	1958.57 74.2	0.775 90.7	112.3 2011.0401	314.6 1.008 315.0 1.009	DOCOBO & LING
9254 14247-1140	STF 1837 0.1946	1850. 2.712	2083.5 115.7	0.700 239.0	82.7 2006.3	271.5 1.159 271.2 1.155	ZIRM

NEW ORBITS (continuation)

ADS α2000δ	Name n	P a	T i	e ω	Ω(2000) Last ob.	2015 2016	Author(s)
9312	STF 1858A B	1750.	1758.9	0.900	30.7	37.9 3.029	ZIRM
14336+3535	0.2057	4.796	85.6	259.3	2011.5	37.9 3.030	
9395	HU 141	173.9	1949.33	0.890	6.9	309.6 0.411	ZIRM
14492-1050	2.0702	0.374	57.4	114.8	2008.5	310.0 0.414	
9396	BU 106 AB	614.	1655.0	0.650	46.5	6.1 1.946	ZIRM
14493-1409	0.5863	1.587	52.9	116.5	2008.1	6.3 1.948	
-	HJ 4753 AB	772.	2048.0	0.430	137.4	117.9 0.824	ZIRM
15185-4753	0.4663	1.657	114.6	80.9	2010.3	117.2 0.811	
9600	HU 146	627.	2174.7	0.300	113.3	123.7 0.717	ZIRM
15210+2104	0.5742	0.839	102.8	84.1	2010.4	123.5 0.719	
9628	HU 149	770.	1979.4	0.170	90.7	270.7 0.652	ZIRM
15246+5413	0.4675	0.776	96.8	156.0	2010.4	270.7 0.652	
9647	STF 1944	1030.	2089.3	0.500	142.6	295.2 0.633	ZIRM
15277+0606	0.3495	1.131	126.6	294.8	2010.5	294.6 0.626	
9834	HU 1274	361.	1974.3	0.000	124.4	114.5 0.444	ZIRM
15550-1923	0.9972	0.576	101.7	0.0	2009.3	114.2 0.438	
9880	STT 303 AB	1460.	1475.0	0.000	11.0	173.6 1.587	ZIRM
16009+1316	0.2466	2.214	72.9	0.0	2012.5	173.8 1.593	
10659	A 1156	195.22	2000.00	0.260	168.3	345.8 0.204	DOCOBO
17366+0723	1.8441	0.281	95.5	156.8	2009.2659	345.5 0.201	& LING
-	CHR 63	20.911	2013.189	0.027	62.9	268.9 0.068	DOCOBO
17375+2419	17.216	0.096	114.8	97.9	2008.467	257.2 0.083	et al. (**)
-	CHR63	10.420	2005.929	0.753	72.4	269.4 0.068	DOCOBO
17375+2419	34.549	0.127	100.6	259.8	2008.467	253.8 0.053	et al. (**)
10728	STF 2218	2130.	2108.0	0.790	85.9	309.7 1.446	ZIRM
17403+6341	0.1690	3.575	133.5	234.1	2013.6	309.2 1.439	
10796	HU 1288	765.	2005.0	0.160	159.5	160.2 0.436	ZIRM
17472+1502	0.4706	0.519	64.5	355.1	2010.6	160.5 0.436	

NEW ORBITS (continuation)

ADS α**2000**δ	**Name** **n**	**P** **a**	**T** **i**	**e** ω	Ω**(2000)** **Last ob.**	**2015** **2016**	**Author(s)**
11098	HU 314	1075.	1885.7	0.200	170.0	72.9 0.290	ZIRM
18086+1838	0.3349	0.602	123.1	31.7	2010.6	72.1 0.291	
12447	STF 2525 AB	882.9	1887.72	0.958	155.3	289.5 2.163	SCARDIA
19266+2719	0.4077	1.870	150.7	62.5	2014.740	289.5 2.172	et al. (*)
12623	STT 375	682.	2271.2	0.200	177.7	187.3 0.602	ZIRM
19346+1808	0.5279	0.521	24.0	159.4	2011.7	187.7 0.601	
13196	STF 2606 AB	455.	1745.7	0.690	127.4	146.4 0.675	ZIRM
19585+3317	0.7912	1.081	82.4	240.5	2012.8	146.6 0.669	
14880	BU 838	1280.	2050.0	0.200	12.9	154.5 1.661	ZIRM
21209+0307	0.2813	2.342	40.8	148.7	2007.7	154.9 1.664	
16011	HU 981	934.	1904.6	0.650	53.0	214.3 0.295	ZIRM
22305+6137	0.3854	0.612	102.0	116.9	2008.8	214.0 0.294	
-	KUI 114	54.57	1969.38	0.005	128.9	126.3 0.252	DOCOBO
22408-0333	6.597	0.367	87.5	12.9	2012.705	126.8 0.280	et al. (**)
16317	STF 2950 AB	804.	2083.5	0.520	116.2	274.8 1.182	ZIRM
22514+6142	0.4478	1.854	128.3	298.1	2011.9	274.2 1.169	

(*) SCARDIA, PRIEUR, PANSECCHI, ARGYLE & ZANUTTA
(**) DOCOBO, TAMAZIAN, CAMPO, MALKOV & CHULKOV

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NEW COMBINED SPECTROSCOPIC/ASTROMETRIC ORBITS

In the article "Are the orbital poles of binary stars in the solar neighbourhood anisotropically distributed?" (2015 A&A 574, A6), the authors reported the fact that, of the 95 systems that are closer than 18 pc from the Sun and have an orbit in the 6th Catalogue of Orbits of Visual Binaries, the pole ambiguity could be resolved for 51 systems using radial velocity measurements. Also, it was possible to correct the erroneous nodes and determine new combined spectroscopic/astrometric orbits for the following systems: WDS 01083+5455 Aa,Ab; 01418+4237 AB; 02278+0426 AB (SB2); 09006+4147 AB (SB2); 16413+3136 AB; 17121+4540 AB; 18070+3034 AB.

Agati J-L., Bonneau D., Jorissen A., Souli E., Udry S., Verhas P. and Dommanget J.

NOTE

ON THE DESIGNATION OF MULTIPLE STARS

On the designation of multiple stars

Back in 2003, the IAU GA XXV recognized the need of a unified and computer-friendly system for designating components of binary and multiple stars (`http://adsabs.harvard.edu/abs/2005HiA....13.1011M`). The naming system adopted in the WDS is not satisfactory because the discoverer codes are not recognized or used by the majority of astronomers. Sometimes, but not always, component identifiers are appended to the discoverer codes. Both codes and component identifiers in the WDS change with time. As a result, a given binary has a changing name in the WDS and in the orbit catalogs and cannot be associated with a unique string of characters for automated searches. The WDS nomenclature is also poorly suited for hierarchical systems.

In my work, I follow the rule formulated by Hartkopf & Mason (`http://adsabs.harvard.edu/abs/2005HiA....13..981H`): "A comma will be used as the delimiter between components in a system, with the full component identifier before and after the comma (e.g. Aa,Ab)." There must be no exceptions to this rule when dealing with triples. When needed, hierarchy is coded by adding the name of the parent component in a separate field or with another comma (see e.g. `http://www.ctio.noao.edu/~atokovin/stars/index.php`). For example, in a triple system consisting of a close pair A,B and a wider component C, the outer pair is named AB,C,* (where * means no parent) and the inner pair as A,B,AB. Here AB refers to the center of mass of the inner binary - a composite "component" with such properties as position, mass, and flux, while A,B refers to the orbit of the inner pair with its period, eccentricity, mass ratio, etc. Obviously, the component AB and the system A,B are different entities, not to be confused. Each component must be designated by a unique, fixed sequence of letters and numbers (a string). A system is then designated by its two components joined with comma. Strict adherence to this rule will allow automated searches in the double-star catalogs, easy designation of newly discovered components, and consistent description of hierarchy.

Once the fixed component designations are adopted (changing designations are not acceptable anyway), each system will be uniquely defined by its two components, so the discoverer codes become redundant. They are the old, complementary way to name visual binaries. The historical reasons behind these codes (individual observers) are no longer valid. Modern authors do not assign their codes to the new systems, while such codes invented later by the WDS are arbitrary and essentially meaningless. Discoverer codes are not used for eclipsing and spectroscopic binaries or exoplanets.

The messy designations in the current WDS arise from the old restrictions on the number of characters in the computer records and from the desire to reflect the hierarchy in the component's names themselves. As the knowledge of hierarchy changes, so do the component letters in the WDS. To serve as component designations, these letters must be fixed. In contrast, the hierarchy can be described flexibly by parent components and can be changed as needed without affecting the component's names.

To implement the IAU recommendation, I propose the following:

1. Freeze the component designations existing currently in the WDS. Explicitly assign A and B to those that are missing.

2. Enforce the use of comma in the system designation.

3. Separate the component-based system designations such as A,B from the discoverer codes, never concatenate them in one string.

4. Discontinue assigning discoverer codes to new systems.

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The deadline for contributions to Information Circular No. 186 is:

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