



**HAL**  
open science

## Orbital elements of double stars: STF77AB, STF1338AB

M. Scardia, Jean-Louis Prieur, Josefina Ling, L. Pansecchi, R. Argyle, E. Aristidi, A. Zanutta, L. Abbe, Philippe Bendjoya, Jean-Pierre Rivet, et al.

### ► To cite this version:

M. Scardia, Jean-Louis Prieur, Josefina Ling, L. Pansecchi, R. Argyle, et al.. Orbital elements of double stars: STF77AB, STF1338AB. Information Circular - IAU Commission G1 Double Stars , 2023, ISSN: 1024-7769, Circular 209, pp.1-2. hal-04078438

**HAL Id: hal-04078438**

**<https://hal.science/hal-04078438v1>**

Submitted on 23 Apr 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## INTERNATIONAL ASTRONOMICAL UNION

## COMMISSION G1 (BINARY AND MULTIPLE STAR SYSTEMS)

## DOUBLE STARS INFORMATION CIRCULAR No. 209 (FEBRUARY 2023)

## NEW ORBITS

WDS HIP	Name ADS	P(yr) $\sigma_P$	T(yr) $\sigma_T$	e $\sigma_e$	a(") $\sigma_a$	i(°) $\sigma_i$	$\Omega$ (°) $\sigma_\Omega$	$\omega$ (°) $\sigma_\omega$	2023 2024	Author(s) Last obs.	
00003-4417 –	I 1477 –	115.4 2.9	2011.58 0.86	0.717 0.020	0.435 0.014	65.6 2.6	147.5 1.5	297.3 2.2	185.3 189.0	0.212 0.212	TOK 2022.442
00026-0829 –	A 428 4	761 ...	1995.6 ...	0.644 ...	0.793 ...	108.8 ...	197.9 ...	210.3 ...	271.4 266.6	0.122 0.127	TOK 2022.611
00098-3347 794	SEE 3	268.9 15.0	1979.82 0.15	0.740 0.008	0.904 0.009	37.8 0.5	102.6 6.0	246.2 6.0	127.1 127.8	0.967 0.978	D et al. 2022.8452
00111+0513 –	TOK 869 –	8.659 0.145	2018.336 0.167	0.211 0.025	0.112 0.003	51.2 1.8	106.2 2.5	247.1 7.8	175.1 220.1	0.088 0.084	TOK 2023.006
00125-3219 –	B 1023 –	300 ...	1979.29 ...	0.861 ...	0.349 ...	145.0 ...	221.9 ...	270.0 ...	162.0 161.5	0.348 0.352	TOK 2023.006
00153-4230 –	RST 3344 –	136.9 ...	2029.05 ...	0.482 ...	0.153 ...	125.0 ...	161.5 ...	214.7 ...	349.2 345.1	0.088 0.086	TOK 2022.445
00160-4816 –	TOK 808 –	7.08 1.49	2023.388 0.165	0.314 0.084	0.147 0.004	21.9 17.0	34.9 37.9	195.6 65.7	193.7 287.1	0.105 0.106	TOK 2022.774
00164-2235 –	HDS 36 Aa,Ab –	28.83 0.57	2000.28 1.32	0.674 0.036	0.144 0.013	137.5 11.9	61.1 7.2	38.9 13.1	175.0 166.7	0.139 0.123	TOK 2022.445
00164-7024 –	HEI 198 –	53.73 4.41	2010.32 1.46	0.412 0.098	0.114 0.007	137.1 10.0	153.6 9.6	205.7 16.0	172.4 168.7	0.123 0.129	TOK 2022.611
00261-1123 –	YR 4 –	42.3 6.0	2026.17 0.82	0.617 0.112	0.255 0.005	162.1 6.2	35.2 106.0	16.1 116.0	114.1 94.6	0.160 0.133	TOK 2022.447
00271-0753 2143	A 431 AB 363	53.30 0.20	2003.75 0.35	0.636 0.006	0.362 0.005	109.8 1.0	26.1 1.5	295.2 1.0	268.1 263.2	0.211 0.224	D et al. 2022.4446

**NEW ORBITS (continuation)**

<b>WDS</b>	<b>Name</b>	<b>P(yr)</b>	<b>T(yr)</b>	<b>e</b>	<b>a(")</b>	<b>i(°)</b>	<b>Ω(°)</b>	<b>ω(°)</b>	<b>2023</b>	<b>Author(s)</b>	
<b>HIP</b>	<b>ADS</b>	$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	<b>2024</b>	<b>Last obs.</b>	
00329-0434	JNN 12 AC	15.0	2012.836	0.000	0.226	90.0	17.7	0.0	197.7	0.100	TOK
–	–	...	...	...	...	...	...	...	197.7	0.009	2022.445
00446-1856	HDS 99 AaAb	8.672	2020.647	0.497	0.132	174.5	1.2	302.7	274.2	0.166	D et al.
3493		0.032	0.085	0.003	0.003	3.0	5.0	7.0	254.6	0.189	2022.4446
00516+4412	YR 19 AB	26.03	2021.257	0.859	0.065	35.0	56.6	252.9	82.2	0.044	TOK
–	–	...	...	...	...	...	...	...	91.6	0.057	2018.650
01007-5235	I 49	500	2005.8	0.836	0.710	100.7	31.9	118.3	199.2	0.204	TOK
–	–	...	...	...	...	...	...	...	198.3	0.204	2022.611
01243-0655	BU 1163	16.046	2021.134	0.929	0.1996	117.0	28.9	348.6	224.4	0.191	D et al.
6564	1123	0.224	0.008	0.003	0.0010	0.5	0.5	0.5	221.3	0.251	2021.7556
01345+3440	A 1913 AB	3361.	1890.45	0.859	1.899	105.9	99.2	172.6	128.8	0.471	L et al.
7337	1227	1049.	1.64	0.028	0.348	0.8	0.2	5.5	128.5	0.476	2021.8168
02290-1959	RST 2280 Aa,Ab	31.926	2020.773	0.654	0.525	163.8	164.8	15.2	49.7	0.323	TOK
–	–	0.076	0.014	0.002	0.006	2.6	8.5	8.3	32.7	0.410	2022.611
02418-5300	SYU 4 Ba,Bb	5.121	2021.162	0.480	0.068	139.3	325.0	100.5	69.0	0.073	TOK
–	–	0.300	0.030	0.027	0.002	2.7	6.9	6.5	31.4	0.079	2022.933
02433+0314	STF 299	914.	2046.7	0.90	5.60	85.2	122.7	274.7	300.0	1.886	ALZ
–	2080	450.	10	0.05	2.0	2.0	5.0	15.0	300.2	1.849	2023.04
02514-2139	DON 43	121.5	1984.7	0.415	0.201	39.2	51.7	97.1	290.4	0.210	TOK
–	–	5.8	6.8	0.049	0.011	5.9	23.9	11.4	292.3	0.211	2022.845
02554-2513	HDS 375	65	2045.652	0.281	0.510	119.0	67.2	210.3	23.0	0.382	TOK
–	–	...	...	...	...	...	...	...	18.1	0.358	2022.611
03053-4059	HDS 391	41.654	2025.319	0.750	0.210	74.7	296.8	229.2	92.9	0.067	TOK
–	–	0.854	0.550	0.000	0.012	2.0	2.2	2.9	106.4	0.071	2022.611
03124-4425	JC 8 AB	45.018	2022.507	0.889	0.404	172.0	36.3	44.9	261.0	0.085	D et al.
14913		0.300	0.005	0.002	0.004	3.0	12.0	12.0	224.0	0.184	2022.8469
03184-2231	SEE 23	58.65	2024.213	0.835	0.295	62.0	128.8	294.1	319.5	0.087	TOK
–	–	0.70	0.117	0.013	0.007	0.8	1.7	1.5	35.7	0.024	2023.006

**NEW ORBITS (continuation)**

<b>WDS</b>	<b>Name</b>	<b>P(yr)</b>	<b>T(yr)</b>	<b>e</b>	<b>a(")</b>	<b>i(°)</b>	<b>Ω(°)</b>	<b>ω(°)</b>	<b>2023</b>	<b>Author(s)</b>	
<b>HIP</b>	<b>ADS</b>	$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	<b>2024</b>	<b>Last obs.</b>	
03271+1845	CHR 10 AB	8.399	2022.767	0.584	0.055	21.9	195.3	79.2	320.0	0.024	TOK
–	–	0.033	0.113	0.040	0.003	12.8	30.2	27.0	35.7	0.053	2022.685
03311-0029	HDS 444	20.52	2025.082	0.570	0.079	37.3	228.2	159.9	279.1	0.052	TOK
–	–	1.47	0.458	0.079	0.005	8.6	10.9	15.6	318.6	0.035	2023.006
03489+1143	A 831	300	2047.17	0.139	0.501	63.2	174.1	314.4	98.0	0.205	TOK
–	–	...	...	...	...	...	...	...	101.1	0.207	2022.683
03526-0829	RST 4762 AB	154.6	1993.93	0.287	0.173	118.3	84.6	146.2	216.3	0.098	TOK
–	–	...	...	...	...	...	...	...	212.9	0.096	2022.845
03544-4021	FIN 344 AB	14.060	2008.095	0.586	0.061	33.0	67.1	50.6	201.7	0.033	TOK
–	–	0.049	0.057	0.009	0.001	2.6	4.3	4.4	237.2	0.055	2022.685
03565-0624	A 463	175.9	1992.8	0.787	0.246	155.2	93.5	228.2	76.5	0.295	TOK
–	2885	16.3	2.8	0.042	0.022	18.8	37.3	38.6	75.7	0.300	2023.006
04007+2023	TOK 363 Aa,Ab	16.728	2010.325	0.287	0.113	27.7	199.2	149.1	226.4	0.117	TOK
–	–	0.099	0.197	0.008	0.002	4.0	3.1	4.8	246.0	0.101	2022.686
04037-1545	A 2913	257.8	1990.94	0.750	0.361	107.6	167.8	13.2	357.6	0.308	TOK
–	–	73.8	0.53	0.046	0.063	2.9	1.1	2.3	357.2	0.317	2023.006
04070+3934	COU 1394	329.6	2016.89	0.176	0.419	70.0	134.5	354.1	135.9	0.345	L et al.
–	–	48.7	8.25	0.076	0.037	0.4	0.9	10.8	136.5	0.345	2022.0546
04108-4200	HDS 530	23.6	2018.945	0.583	0.222	110.8	13.2	103.6	167.6	0.155	TOK
–	–	...	...	...	...	...	...	...	158.0	0.145	2022.611
04119+2338	CHR 14 Aa,Ab	43.397	1993.282	0.925	0.423	77.5	335.9	79.0	228.8	0.167	TOK
–	–	0.255	0.403	0.014	0.046	1.6	1.1	1.5	233.4	0.159	2022.774
04159+3142	STT 77 AB	188.81	2075.36	0.440	0.565	56.5	74.3	31.1	310.4	0.433	S et al.
19883	3082	1.19	1.45	0.006	0.015	0.7	0.7	1.6	312.0	0.425	2023.0755
04287+2613	HDS 576	47.5	1994.762	0.762	0.282	78.0	111.4	275.7	249.2	0.146	TOK
–	–	...	...	...	...	...	...	...	252.8	0.154	2020.834
04312+0157	HDS 585	72.16	2013.98	0.457	0.387	76.2	259.9	166.6	145.9	0.085	TOK
–	–	3.57	0.14	0.018	0.013	0.3	0.4	0.9	169.4	0.082	2022.774

**NEW ORBITS (continuation)**

<b>WDS HIP</b>	<b>Name ADS</b>	<b>P(yr) <math>\sigma_P</math></b>	<b>T(yr) <math>\sigma_T</math></b>	<b>e <math>\sigma_e</math></b>	<b>a(") <math>\sigma_a</math></b>	<b>i(°) <math>\sigma_i</math></b>	<b><math>\Omega</math>(°) <math>\sigma_\Omega</math></b>	<b><math>\omega</math>(°) <math>\sigma_\omega</math></b>	<b>2023 2024</b>	<b>Author(s) Last obs.</b>
04330-1633 –	CRI 7 Aa,Ab –	5.708 0.186	2017.370 0.230	0.197 0.054	0.088 0.003	99.1 1.9	171.1 1.2	76.9 7.3	148.3 0.027 355.0 0.076	TOK 2022.774
04400-3105 –	HDS 602 –	28.017 0.232	2021.799 0.016	0.698 0.007	0.310 0.006	118.1 1.0	174.8 1.5	81.8 1.1	0.9 0.147 348.0 0.211	TOK 2022.683
04507-8202 –	HDS 625 –	300 ...	2017.152 ...	0.838 ...	0.500 ...	99.0 ...	117.8 ...	256.7 ...	119.8 0.147 118.8 0.166	TOK 2022.774
04553-1625 –	HDS 635 –	150 ...	1997.182 ...	0.829 ...	0.483 ...	126.0 ...	136.2 ...	84.7 ...	271.5 0.432 270.5 0.438	TOK 2021.730
04590-1623 –	BU 314 AB 3588	55.38 0.58	2034.26 0.37	0.921 0.015	0.467 0.004	119.3 2.2	131.6 2.8	339.2 4.0	315.2 0.673 314.6 0.643	TOK 2022.129
05033-2315 –	BEU 7 –	15.34 0.21	2022.16 0.91	0.093 0.020	0.324 0.003	136.5 3.3	93.4 1.7	254.1 25.4	172.5 0.217 139.0 0.251	TOK 2022.842
05162-1121 –	CHR 225 –	11.00 ...	1985.84 ...	0.973 ...	0.044 ...	66.2 ...	205.2 ...	53.6 ...	51.5 0.059 53.2 0.060	TOK 2022.195
05174-3522 –	TSN 1 –	0.713 0.001	2022.373 0.035	0.219 0.042	0.059 0.003	108.7 3.6	164.0 2.7	141.1 16.8	110.3 0.020 267.5 0.021	TOK 2022.845
05508-3945 –	I 1494 AB –	277.66 ...	2026.03 ...	0.292 ...	0.511 ...	104.6 ...	88.8 ...	217.9 ...	260.4 0.316 259.5 0.308	TOK 2010.068
06115-7214 –	JNN 48 –	100 ...	2006.56 ...	0.441 ...	0.323 ...	130.7 ...	169.0 ...	188.5 ...	218.2 0.232 214.3 0.245	TOK 2022.290
06312-7031 –	HDS 889 –	34.07 ...	2001.61 ...	0.650 ...	0.105 ...	135.4 ...	58.5 ...	71.8 ...	155.4 0.118 150.7 0.115	TOK 2023.009
06319-0938 –	A 670 5172	281.1 29.9	1988.319 0.555	0.753 0.026	0.557 0.030	72.9 1.2	3.8 0.6	30.6 1.9	180.2 0.528 180.5 0.539	TOK 2023.007
06337-2853 –	B 700 –	190.6 19.5	2008.26 1.00	0.810 0.021	0.218 0.014	113.6 2.5	147.1 2.4	134.7 3.4	245.4 0.066 240.7 0.068	TOK 2022.843
06354-0403 –	JNN 271 –	10.40 ...	2022.024 ...	0.217 ...	0.186 ...	88.2 ...	171.5 ...	341.2 ...	172.6 0.132 177.9 0.048	TOK 2022.774

**NEW ORBITS (continuation)**

<b>WDS HIP</b>	<b>Name ADS</b>	<b>P(yr) <math>\sigma_P</math></b>	<b>T(yr) <math>\sigma_T</math></b>	<b>e <math>\sigma_e</math></b>	<b>a(") <math>\sigma_a</math></b>	<b>i(°) <math>\sigma_i</math></b>	<b><math>\Omega</math>(°) <math>\sigma_\Omega</math></b>	<b><math>\omega</math>(°) <math>\sigma_\omega</math></b>	<b>2023 2024</b>	<b>Author(s) Last obs.</b>
06390-5850	B 1962	300	1970.96	0.108	0.520	105.1	15.0	230.0	36.1 0.300	TOK
–	–	...	...	...	...	...	...	...	35.2 0.308	2022.933
06493-0216	FIN 322	61.41	1969.57	0.263	0.152	111.1	240.5	72.3	241.1 0.132	TOK
–	–	0.92	0.53	0.021	0.002	0.9	0.6	1.3	238.3 0.127	2023.007
06508-1423	RST 4323	190	2022.327	0.935	0.473	105.6	24.7	317.4	14.6 0.041	TOK
–	–	...	...	...	...	...	...	...	350.9 0.040	2022.843
06510+0551	HDS 950	29.13	2017.086	0.444	0.127	98.9	165.3	278.1	157.5 0.102	TOK
–	–	...	...	...	...	...	...	...	154.6 0.094	2022.774
06586-0016	RST 5252	600	1907.424	0.595	0.750	108.7	23.3	162.5	53.9 0.469	TOK
–	–	...	...	...	...	...	...	...	53.5 0.475	2023.007
07091-5905	RST 4340	132.25	2013.28	0.112	0.284	56.9	91.2	149.4	272.5 0.256	TOK
–	–	...	...	...	...	...	...	...	274.3 0.256	2022.933
07166+0920	A 2854	300	1979.21	0.660	0.360	96.0	27.4	119.3	190.8 0.124	TOK
–	5946	...	...	...	...	...	...	...	190.0 0.120	2022.774
07508+0317	A 2880	109.75	1991.893	0.601	0.182	47.7	91.9	292.6	175.5 0.169	TOK
–	6405	2.77	0.101	0.009	0.003	0.7	1.4	1.5	177.5 0.171	2022.774
07513-0924	BU 1195	500	2012.39	0.970	0.319	65.6	74.4	196.9	69.3 0.120	TOK
–	6412	...	...	...	...	...	...	...	69.7 0.128	2022.774
08021-1710	HDS 1140 AB	34.875	2001.248	0.299	0.372	119.3	92.3	156.6	91.1 0.463	TOK
–	–	...	...	...	...	...	...	...	87.9 0.449	2023.007
08230-7102	HDS 1196 AB	20.99	2023.603	0.292	0.078	115.5	10.8	167.4	205.9 0.049	TOK
–	–	0.99	0.343	0.050	0.002	2.2	2.3	10.7	190.7 0.055	2023.009
08277-0425	A 550	21.049	2002.362	0.887	0.107	141.4	63.7	76.1	92.3 0.031	TOK
–	6825	0.051	0.122	0.021	0.010	7.2	8.5	7.6	229.3 0.042	2022.846
08331-2436	BU 205 AB	143.83	1955.09	0.295	0.532	142.6	172.5	86.7	273.8 0.550	TOK
–	6871	0.84	0.49	0.007	0.005	0.9	1.5	1.4	272.0 0.550	2023.007
08369-7857	KOH 79 AB	47.9	1989.35	0.268	0.172	110.0	4.1	70.5	37.1 0.108	TOK
–	–	11.4	2.08	0.204	0.016	1.6	5.0	16.2	31.4 0.118	2022.129

**NEW ORBITS (continuation)**

WDS HIP	Name ADS	P(yr)	T(yr)	e	a(")	i(°)	Ω(°)	ω(°)	2023	Author(s)	
		$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	2024	Last obs.	
08375-3906	B 1618	180	2020.46	0.395	0.167	52.7	75.0	231.7	306.7	0.071	TOK
–	–	...	...	...	...	...	...	...	313.1	0.068	2022.845
08423+2002	COU 382	1447.2	1959.64	0.856	1.032	130.5	80.6	327.4	346.3	0.357	L et al.
–	–	423.4	0.66	0.025	0.183	1.3	2.5	2.9	345.6	0.361	2020.1116
08507+1800	A 2473	234.8	2050.42	0.139	0.305	33.1	37.3	126.9	106.9	0.236	TOK
–	6412	...	...	...	...	...	...	...	109.1	0.235	2022.197
08563-3707	RST 2593	132.38	1915.70	0.361	0.842	156.8	20.5	181.6	310.6	0.776	TOK
–	–	6.93	4.40	0.060	0.033	8.2	13.0	15.6	307.8	0.760	2023.007
08589+0829	DEL 2	5.532	2006.441	0.771	0.391	123.7	280.1	19.8	285.1	0.094	TOK
–	–	0.002	0.007	0.002	0.001	0.4	0.3	0.6	106.2	0.464	2022.846
08594-2412	RST 2597	400	1970.38	0.707	0.282	145.9	54.1	103.7	182.1	0.242	TOK
–	–	...	...	...	...	...	...	...	181.4	0.245	2023.007
09017-5211	HJ 4165	900	2293.62	0.163	1.416	67.5	77.7	210.5	156.8	0.592	TOK
–	–	...	...	...	...	...	...	...	157.7	0.590	2022.857
09082-2829	B 177 AB	400	2035.805	0.700	0.180	85.2	197.0	142.9	210.6	0.025	TOK
–	–	...	...	...	...	...	...	...	214.0	0.020	2022.441
09125-4032	B 1115	136.36	2005.756	0.442	0.330	142.1	103.4	270.4	98.4	0.278	TOK
–	–	5.18	0.271	0.016	0.006	1.5	2.2	3.5	95.9	0.284	2022.441
09210+3811	STF 1338 AB	381.5	2001.4	0.202	1.480	29.8	164.4	120.4	318.9	1.174	S et al.
45858	7307	23.8	8.1	0.019	0.015	1.4	6.2	17.3	320.1	1.180	2023.0760
09455-2824	B 188	293.2	1983.85	0.838	0.387	46.3	22.3	175.4	356.8	0.383	TOK
–	–	45.6	0.81	0.018	0.040	5.6	3.6	4.5	357.3	0.390	2023.009
10056-8405	TOK 396 Aa,Ab	34.75	2022.012	0.252	0.210	80.7	5.7	147.6	183.2	0.154	TOK
–	–	...	...	...	...	...	...	...	186.0	0.163	2022.047
10087-2538	B 193	450	1952.52	0.500	0.542	107.6	70.2	26.2	263.7	0.417	TOK
–	7659	...	...	...	...	...	...	...	263.4	0.424	2023.009
10089-2945	HDS 1462	120	2023.863	0.850	0.291	89.6	67.9	202.0	247.7	0.046	TOK
–	–	...	...	...	...	...	...	...	248.2	0.037	2022.933

**NEW ORBITS (continuation)**

<b>WDS</b>	<b>Name</b>	<b>P(yr)</b>	<b>T(yr)</b>	<b>e</b>	<b>a(")</b>	<b>i(°)</b>	<b>Ω(°)</b>	<b>ω(°)</b>	<b>2023</b>	<b>Author(s)</b>	
<b>HIP</b>	<b>ADS</b>	$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	<b>2024</b>	<b>Last obs.</b>	
10112-3245	HDS 1469	34.6	2018.330	0.623	0.174	114.7	71.9	166.3	120.7	0.085	TOK
–	–	...	...	...	...	...	...	...	109.6	0.110	2022.933
10142-7636	KOH 88	49.72	1995.073	0.500	0.197	119.9	276.1	182.0	270.8	0.288	TOK
–	–	...	...	...	...	...	...	...	269.3	0.283	2022.283
10214-2616	HDS 1491	22.11	2024.12	0.198	0.119	149.6	72.1	183.1	273.4	0.095	TOK
–	–	0.76	0.31	0.016	0.001	2.7	5.3	11.6	252.0	0.095	2022.933
10255-6504	HDS 1499	13.39	2022.271	0.700	0.073	47.0	101.6	178.2	18.8	0.028	TOK
–	–	...	...	...	...	...	...	...	62.6	0.058	2023.010
10275+0334	STT 218	300	2038.91	0.645	0.725	50.4	41.6	221.8	191.5	0.339	TOK
–	7779	...	...	...	...	...	...	...	194.2	0.335	2021.318
10283-2416	TOK 537 Aa,Ab	29.18	2021.841	0.680	0.320	54.7	158.0	370.7	245.0	0.087	TOK
–	–	4.15	0.032	0.030	0.029	0.8	1.6	0.9	289.6	0.147	2022.933
10375-0932	RST 3708	153.51	1968.18	0.449	0.412	44.4	194.3	9.6	4.7	0.555	TOK
–	–	8.08	2.08	0.030	0.005	3.8	4.7	9.2	5.6	0.559	2023.009
10476-1538	TOK 71 4Aa,Ab	6.146	2015.102	0.505	0.049	116.2	103.0	308.8	359.1	0.028	TOK
–	–	0.092	0.151	0.024	0.002	2.7	2.2	5.0	318.6	0.047	2023.009
10595-4130	RST 2720	156.05	2029.46	0.000	0.214	55.4	51.6	0.0	43.0	0.209	TOK
–	–	...	...	...	...	...	...	...	44.4	0.210	2022.441
11005-5022	B 1695	160	1920.89	0.700	0.344	60.9	44.8	120.6	17.6	0.427	TOK
–	–	...	...	...	...	...	...	...	18.1	0.427	2023.010
11049-3548	HDS 1582	20.94	2021.318	0.850	0.067	99.8	52.1	349.5	243.7	0.035	TOK
–	–	5.50	0.369	0.055	0.006	2.3	2.8	17.0	240.2	0.055	2022.933
11122-4616	HDS 1596	50.08	2018.829	0.400	0.213	53.1	80.8	141.5	278.7	0.143	TOK
–	–	...	...	...	...	...	...	...	287.5	0.142	2022.441
11128-7402	B 2009	143.4	1971.48	0.239	0.278	140.0	113.5	118.5	209.6	0.251	TOK
–	–	...	...	...	...	...	...	...	207.3	0.252	2022.443
11192-1950	TOK 383 Aa,Ab	12.99	2020.254	0.370	0.041	141.3	10.7	166.2	82.6	0.034	TOK
–	–	0.82	0.258	0.043	0.002	7.9	12.1	16.5	59.0	0.042	2023.009



**NEW ORBITS (continuation)**

<b>WDS HIP</b>	<b>Name ADS</b>	<b>P(yr)</b> $\sigma_P$	<b>T(yr)</b> $\sigma_T$	<b>e</b> $\sigma_e$	<b>a(")</b> $\sigma_a$	<b>i(°)</b> $\sigma_i$	<b><math>\Omega</math>(°)</b> $\sigma_\Omega$	<b><math>\omega</math>(°)</b> $\sigma_\omega$	<b>2023 2024</b>	<b>Author(s) Last obs.</b>	
11255-2114	I 881	450	1997.224	0.343	0.589	78.2	148.5	100.4	319.8	0.336	TOK
–	8156	...	...	...	...	...	...	...	320.2	0.344	2022.441
11336-4035	I 78	600	2064.253	0.112	1.063	84.5	93.7	93.6	104.2	0.447	TOK
–	–	...	...	...	...	...	...	...	104.6	0.436	2022.446
11415-7703	TOK 845	30.0	2023.344	0.395	0.127	111.7	46.8	140.6	250.3	0.054	TOK
–	–	...	...	...	...	...	...	...	234.3	0.074	2023.010
11436-1401	YSC 210	17.73	2008.88	0.177	0.163	117.9	27.4	314.1	185.7	0.131	TOK
–	–	0.85	0.50	0.045	0.003	1.0	1.8	5.8	165.3	0.092	2023.009
11486+1417	BU 603 AB	133.12	1938.51	0.788	0.685	147.4	255.1	96.3	326.3	0.996	TOK
–	8311	2.06	0.94	0.020	0.035	6.0	9.1	6.8	325.6	0.991	2022.130
12096-6727	HDS 1716	61.50	2018.80	0.508	0.149	47.5	56.1	348.4	106.4	0.073	TOK
–	–	5.84	0.38	0.026	0.005	2.5	3.9	3.0	120.3	0.075	2022.047
12111-5302	HU 1604	215.2	2055.34	0.300	0.355	56.0	103.7	15.6	43.8	0.197	TOK
–	–	...	...	...	...	...	...	...	46.7	0.198	2021.160
12117-5222	RIZ 2	3.615	2019.034	0.736	0.058	130.0	282.9	99.2	69.3	0.040	TOK
–	–	0.110	0.106	0.026	0.001	0.0	6.7	3.8	15.0	0.062	2022.441
12228-0405	BWL 29AB	10.02	2024.21	0.591	0.183	108.4	21.6	68.5	39.5	0.115	TOK
–	–	0.44	0.37	0.115	0.024	3.6	3.2	3.4	9.4	0.068	2023.010
12268-0536	A 78	110.03	1998.612	0.773	0.294	57.1	257.5	38.0	85.3	0.395	TOK
–	8551	1.63	0.224	0.005	0.003	0.9	0.9	1.6	85.9	0.402	2023.010
12570-5435	HDS 1815	100	2041.025	0.160	0.310	71.2	17.4	34.6	357.7	0.210	TOK
–	–	...	...	...	...	...	...	...	0.1	0.220	2021.245
13117-2633	FIN 305	20.093	2022.917	0.938	0.119	130.0	230.4	129.7	163.8	0.011	TOK
–	–	0.098	0.100	0.020	0.012	10.8	11.9	3.3	115.9	0.077	2022.441
13123-5955	SEE 170 AB	27.51	2022.175	0.661	0.166	61.9	101.6	197.4	346.8	0.036	TOK
–	–	0.50	0.036	0.006	0.001	0.8	0.8	1.9	56.7	0.062	2022.441
13138-6756	HDS 1853	93.7	2021.58	0.444	0.198	110.0	87.9	270.0	138.6	0.047	TOK
–	–	...	...	...	...	...	...	...	122.6	0.061	2022.441

**NEW ORBITS (continuation)**

<b>WDS HIP</b>	<b>Name ADS</b>	<b>P(yr) <math>\sigma_P</math></b>	<b>T(yr) <math>\sigma_T</math></b>	<b>e <math>\sigma_e</math></b>	<b>a(") <math>\sigma_a</math></b>	<b>i(°) <math>\sigma_i</math></b>	<b><math>\Omega</math>(°) <math>\sigma_\Omega</math></b>	<b><math>\omega</math>(°) <math>\sigma_\omega</math></b>	<b>2023 2024</b>	<b>Author(s) Last obs.</b>	
13217-3919	HDS 1875	41.40	2019.508	0.528	0.203	118.8	196.5	231.8	219.7	0.115	TOK
–	–	1.80	0.137	0.014	0.006	2.6	2.7	4.2	211.1	0.146	2023.010
13344-5931	TOK 403	17.109	2021.073	0.462	0.143	117.0	72.6	269.9	71.7	0.114	TOK
–	–	0.468	0.032	0.011	0.002	0.5	0.8	2.0	60.3	0.130	2023.010
13437-4204	FIN 353 AB	46.56	2020.55	0.890	0.066	83.0	45.8	198.4	42.8	0.038	TOK
–	–	2.94	0.63	0.017	0.006	2.1	2.2	15.9	43.8	0.050	2023.010
14001+0416	HDS 1965	150	2083.24	0.244	0.226	96.9	159.1	52.9	314.3	0.076	TOK
–	–	...	...	...	...	...	...	...	311.6	0.069	2022.441
14106+0528	YSC 52 Aa,Ab	27.06	2026.88	0.600	0.103	142.5	101.2	80.9	137.4	0.090	TOK
–	–	...	...	...	...	...	...	...	124.8	0.079	2022.130
14190-0636	HDS 2016 AB	18.891	2003.708	0.300	0.348	107.9	285.6	72.1	205.6	0.076	TOK
–	–	0.043	0.051	0.005	0.001	0.2	0.2	0.4	132.5	0.154	2022.444
15042-1530	RST 3906	52.25	2020.54	0.672	0.178	89.8	154.9	18.4	333.9	0.019	TOK
–	–	1.89	0.27	0.011	0.006	0.5	0.8	5.6	334.5	0.052	2022.682
15092-7614	RST 1816	300	2024.12	0.866	0.212	155.3	70.0	7.9	95.0	0.031	TOK
–	–	...	...	...	...	...	...	...	66.4	0.028	2022.441
15157-2736	BU 350 9552	600	2021.04	0.828	0.858	139.5	171.1	181.0	333.4	0.148	TOK
–	–	...	...	...	...	...	...	...	324.8	0.148	2022.444
15251-2340	RST 2957	55.6	2027.56	0.568	0.213	85.4	92.8	342.4	285.7	0.050	TOK
–	–	3.0	0.77	0.050	0.009	0.5	0.3	5.6	307.6	0.018	2021.078
15433-0515	TOK 594 Aa,Ab	3.783	2019.081	0.858	0.058	53.3	155.4	126.0	29.0	0.018	TOK
–	–	0.052	0.047	0.041	0.005	5.0	9.8	10.5	102.7	0.065	2022.307
15462-2804	KOH 49 Ca,Cb	19.02	2038.69	0.322	0.118	136.3	99.0	212.5	136.9	0.097	TOK
–	–	0.57	0.53	0.022	0.007	3.6	3.9	8.4	121.1	0.117	2022.444
15537-0429	TOK 725	12.97	2020.778	0.617	0.094	150.0	269.5	44.5	91.4	0.101	TOK
–	–	0.53	0.032	0.014	0.002	0.0	5.9	5.2	78.0	0.122	2022.130
16016-7843	HDS 2259	64.0	2004.496	0.824	0.365	88.4	156.6	45.5	337.6	0.498	TOK
–	–	...	...	...	...	...	...	...	337.6	0.501	2022.441

**NEW ORBITS (continuation)**

<b>WDS</b>	<b>Name</b>	<b>P(yr)</b>	<b>T(yr)</b>	<b>e</b>	<b>a(")</b>	<b>i(°)</b>	<b>Ω(°)</b>	<b>ω(°)</b>	<b>2023</b>	<b>Author(s)</b>	
<b>HIP</b>	<b>ADS</b>	$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	<b>2024</b>	<b>Last obs.</b>	
16038+1406	HDS 2265	50.43	2021.182	0.841	0.335	59.3	177.7	344.1	285.5	0.081	TOK
–	–	1.00	0.021	0.003	0.003	0.7	0.6	1.3	307.3	0.127	2022.283
16402-2800	VOU 44 AB	108.9	1956.5	0.272	0.219	48.5	217.9	-64.3	8.8	0.236	TOK
–	–	7.5	10.0	0.069	0.015	10.1	8.4	25.0	10.6	0.238	2022.684
16430-0857	YSC 155	10.793	2021.643	0.742	0.066	116.2	149.2	13.9	343.4	0.057	TOK
–	–	0.175	0.082	0.018	0.002	2.3	2.4	6.0	334.9	0.086	2022.684
16567+1539	HDS 2395	26.22	2020.522	0.854	0.130	133.2	157.5	2.3	1.6	0.106	TOK
–	–	...	...	...	...	...	...	...	355.9	0.135	2022.389
17191-4638	BSO 13 Ba,Bb	0.241	2015.901	0.773	0.042	59.4	244.5	165.2	236.5	0.073	TOK
–	–	...	0.016	...	0.006	9.3	18.4	41.8	242.6	0.070	2022.684
17191-4638	BSO 13 AB	954.2	1908.206	0.816	12.751	35.2	320.1	150.3	259.9	10.883	TOK
–	–	...	...	...	...	...	...	...	260.2	10.949	2016.000
17304-0104	STF 2173 AB	46.520	1962.294	0.173	0.972	99.2	151.6	326.3	42.0	0.179	TOK
–	10598	0.099	0.158	0.004	0.004	0.1	0.1	1.2	14.9	0.247	2022.217
17362-1752	YSC 158 Aa,Ab	20.70	2016.26	0.277	0.078	69.7	99.4	228.2	102.6	0.090	TOK
–	–	6.96	0.94	0.163	0.010	5.8	2.8	22.3	106.9	0.090	2022.195
17387-2155	HDS 2492	21.454	2006.710	0.399	0.103	27.9	34.6	203.1	106.3	0.103	TOK
–	–	0.527	1.963	0.059	0.012	22.8	28.2	48.7	121.3	0.092	2022.195
17556+0204	HDS 2527	66.28	2036.91	0.500	0.114	129.6	58.5	73.0	104.1	0.096	TOK
–	–	...	...	...	...	...	...	...	99.9	0.096	2022.390
18003+2154	WSI 106 Aa,Ab	12.40	2017.316	0.256	0.061	124.2	146.4	111.3	215.6	0.045	TOK
–	–	0.44	0.116	0.021	0.002	1.8	2.5	4.9	190.8	0.053	2022.444
18136-3158	B 1353	130	1994.773	0.696	0.111	58.7	113.7	218.2	117.8	0.141	TOK
–	–	...	...	...	...	...	...	...	118.4	0.144	2022.444
18281-2645	HDS 2615 AB	43.48	1985.42	0.500	0.383	100.0	173.5	80.1	178.7	0.301	TOK
–	–	...	...	...	...	...	...	...	176.6	0.294	2022.444
18282-5230	B 1362	153.32	2004.31	0.556	0.235	79.7	56.4	333.2	112.4	0.043	TOK
–	–	12.33	0.99	0.046	0.014	1.2	1.2	9.6	123.8	0.040	2022.441

**NEW ORBITS (continuation)**

<b>WDS</b>	<b>Name</b>	<b>P(yr)</b>	<b>T(yr)</b>	<b>e</b>	<b>a(")</b>	<b>i(°)</b>	<b>Ω(°)</b>	<b>ω(°)</b>	<b>2023</b>	<b>Author(s)</b>	
<b>HIP</b>	<b>ADS</b>	$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	<b>2024</b>	<b>Last obs.</b>	
18305-1052	HDS 2623 Aa,Ab	55.0	2024.105	0.650	0.183	81.7	19.6	175.8	191.1	0.050	TOK
–	–	...	...	...	...	...	...	...	198.4	0.063	2022.682
19093+1138	HDS 2716	150	2019.56	0.940	0.190	68.8	97.6	104.9	312.3	0.041	TOK
–	–	...	...	...	...	...	...	...	318.3	0.044	2022.289
19105-5813	B 2468	670	2013.44	0.955	1.594	138.1	186.3	18.6	26.0	0.428	TOK
–	–	...	...	...	...	...	...	...	24.5	0.462	2022.444
19200-1435	RST 4037	311.8	2025.525	0.256	0.277	58.8	57.6	192.1	241.2	0.205	TOK
–	–	...	...	...	...	...	...	...	242.3	0.204	2022.444
19264-1433	HDS 2760	80.0	1971.614	0.270	0.274	118.8	260.8	121.0	274.7	0.302	TOK
–	–	...	...	...	...	...	...	...	273.0	0.304	2022.444
19301-4904	HDS 2772	80.0	2020.248	0.700	0.301	66.8	168.4	153.6	12.8	0.094	TOK
–	–	...	...	...	...	...	...	...	26.8	0.087	2019.375
19326+1203	HEI 574	400	1967.845	0.800	0.472	85.9	150.8	200.0	149.8	0.492	TOK
–	–	...	...	...	...	...	...	...	149.8	0.498	2018.485
19466+0703	TOK 368	13.76	2023.356	0.537	0.101	0.0	63.5	0.0	28.5	0.050	TOK
–	–	0.43	0.151	0.025	0.002	0.0	1.7	0.0	121.8	0.056	2022.682
19561-3208	BWL 53 Ba,Bb	40.0	2022.412	0.194	0.199	54.2	58.7	274.2	349.0	0.098	TOK
–	–	...	...	...	...	...	...	...	8.1	0.111	2022.441
19581-4808	HDS 2842	41.89	2015.885	0.742	0.256	70.4	71.5	236.3	79.2	0.278	TOK
–	–	2.17	0.043	0.013	0.006	0.7	0.6	1.1	80.8	0.292	2022.441
20012+0120	A 2275	400	2039.863	0.200	0.492	47.2	126.6	58.6	152.6	0.361	TOK
–	13248	...	...	...	...	...	...	...	153.7	0.358	2022.390
20050+2313	CHR 92	5.111	2022.842	0.405	0.043	150.9	85.7	177.5	243.0	0.026	TOK
–	–	0.010	0.033	0.013	0.001	4.6	8.8	10.0	138.4	0.044	2022.682
20073-5127	RST 1059	166.0	2013.0	0.276	0.172	18.3	102.5	106.8	249.0	0.128	TOK
–	–	25.3	5.2	0.064	0.010	9.8	55.8	73.6	252.5	0.130	2022.441
20158+2749	MCA 60 AB	45.40	2012.40	0.595	0.177	85.2	142.3	182.1	139.1	0.185	TOK
–	–	0.47	0.75	0.016	0.003	0.7	0.4	6.4	139.6	0.202	2022.682

**NEW ORBITS (continuation)**

WDS HIP	Name ADS	P(yr)	T(yr)	e	a(")	i(°)	Ω(°)	ω(°)	2023		Author(s)
		$\sigma_P$	$\sigma_T$	$\sigma_e$	$\sigma_a$	$\sigma_i$	$\sigma_\Omega$	$\sigma_\omega$	2024	Last obs.	
20521+0205	A 2286 AB	252.9	2014.484	0.667	0.217	58.9	111.7	203.1	21.4	0.049	TOK
–	14372	...	...	...	...	...	...	...	31.4	0.052	2022.289
20598-2028	TOK 370	22.50	2015.924	0.389	0.141	95.5	184.7	81.2	358.9	0.121	TOK
–	–	1.56	0.243	0.082	0.006	0.8	0.7	3.5	356.7	0.104	2022.390
21116+2620	LSC 95	50.0	2013.766	0.326	0.103	122.9	118.9	223.8	137.6	0.090	TOK
–	–	...	...	...	...	...	...	...	133.1	0.098	2022.682
21214+1020	A 617	6.058	1991.838	0.800	0.099	126.9	278.2	9.9	112.5	0.103	TOK
–	14893	0.003	0.022	0.005	0.001	1.1	1.6	2.7	100.5	0.159	2022.842
21344-0745	YSC 72	12.12	2013.03	0.828	0.110	129.5	134.2	150.5	137.2	0.139	TOK
–	–	0.17	0.43	0.029	0.011	12.2	7.8	16.8	127.8	0.095	2022.444
22225-0727	A 2694	94.88	2000.456	0.950	0.435	53.0	52.9	287.6	157.2	0.424	TOK
–	15877	...	...	...	...	...	...	...	157.9	0.433	2022.611
22255-1536	HDS 3179	200	2000.98	0.882	0.523	58.8	40.7	344.0	194.0	0.422	TOK
–	–	...	...	...	...	...	...	...	194.7	0.437	2021.330
22299-3101	HDS 3187	120	2030.293	0.400	0.375	103.3	187.5	41.7	189.8	0.249	TOK
–	–	...	...	...	...	...	...	...	188.3	0.246	2022.845
22313-0633	CHR 111	1.7317	2019.147	0.375	0.068	66.5	262.3	172.1	221.6	0.041	TOK
–	–	0.0004	0.008	0.010	0.001	1.6	0.9	1.8	294.6	0.044	2021.732
22397-7806	HDS 3218	95.0	2039.204	0.183	0.265	140.8	147.1	22.2	199.8	0.209	TOK
–	–	...	...	...	...	...	...	...	195.2	0.211	2022.611
22508-6543	HDS 3246	20.18	2016.35	0.414	0.210	93.9	272.7	146.2	280.5	0.123	TOK
–	–	0.35	0.11	0.013	0.002	0.4	0.3	2.2	278.1	0.167	2022.390
22532-3750	HDS 3250 Aa,Ab	13.03	2012.14	0.084	0.125	41.0	220.2	150.1	299.0	0.092	TOK
–	–	0.35	0.33	0.024	0.002	2.0	4.5	14.2	338.6	0.093	2022.685
23029-1320	HD S3283 AB	76.27	2035.29	0.692	0.139	120.8	42.3	255.0	268.6	0.096	TOK
–	–	...	...	...	...	...	...	...	264.9	0.095	2021.566
23133-4937	I 1467	250	2029.1	0.791	0.304	122.5	159.7	310.3	310.5	0.084	TOK
–	–	...	...	...	...	...	...	...	303.1	0.070	2022.442

**NEW ORBITS (continuation)**

<b>WDS HIP</b>	<b>Name ADS</b>	<b>P(yr)</b> $\sigma_P$	<b>T(yr)</b> $\sigma_T$	<b>e</b> $\sigma_e$	<b>a(")</b> $\sigma_a$	<b>i(°)</b> $\sigma_i$	<b><math>\Omega</math>(°)</b> $\sigma_\Omega$	<b><math>\omega</math>(°)</b> $\sigma_\omega$	<b>2023 2024</b>	<b>Author(s) Last obs.</b>
23167-1534	HU 399	600	2012.05	0.846	0.504	70.3	141.4	326.2	169.4 0.089	TOK
–	–	...	...	...	...	...	...	...	173.0 0.087	2022.447
23209+1643	HEI 88	33.83	2002.882	0.629	0.171	26.5	113.3	273.8	218.8 0.244	TOK
–	16643	0.19	0.167	0.008	0.003	2.3	7.9	6.6	222.5 0.240	2022.682
23216-2018	HU 292	300	1991.892	0.606	0.516	126.4	101.7	227.0	116.2 0.387	TOK
–	–	...	...	...	...	...	...	...	115.3 0.397	2022.444
23218-1217	HU 95	161.73	1943.30	0.371	0.400	155.6	19.3	290.7	268.1 0.505	TOK
–	–	6.00	1.33	0.021	0.016	7.0	12.0	9.2	267.0 0.505	2022.445
23286-3821	HDS 3342	47.81	2014.875	0.363	0.118	128.5	125.9	156.4	232.0 0.071	TOK
–	–	2.03	0.435	0.033	0.005	2.5	3.2	4.4	220.3 0.073	2022.442
23296-4001	HDS 3346 AB	48.5	2020.44	0.577	0.121	80.8	8.3	241.8	358.5 0.047	TOK
–	–	21.6	0.61	0.097	0.035	4.7	3.1	13.4	2.9 0.068	2022.685
23328-1645	VOU 28BC	44.265	2024.979	0.239	0.846	89.5	176.6	237.9	356.9 0.562	TOK
–	–	0.207	0.338	0.022	0.007	0.3	0.1	4.3	357.1 0.461	2021.566
23455-1610	MTG 5	21.10	2024.274	0.498	0.410	99.1	9.5	353.9	33.6 0.093	TOK
–	–	0.71	0.235	0.044	0.013	0.7	0.4	2.9	13.2 0.194	2022.845
23456-4841	HDS 3376	41.26	1990.33	0.750	0.365	67.2	68.9	99.3	41.5 0.322	TOK
–	–	...	...	...	...	...	...	...	44.4 0.318	2022.444
23587-0333	BU 730	500	2151.27	0.230	1.249	60.0	83.8	18.3	335.8 0.687	TOK
–	15075	...	...	...	...	...	...	...	337.0 0.682	2022.447

TOK = TOKOVININ

D et al. = DOCOBO, CAMPO, MÉNDEZ & COSTA

L et al. = LING, SCARDIA, PRIEUR, PANSECCHI, ARGYLE, ARISTIDI, ZANUTTA,  
 ABE, BENDJOYA, RIVET, VERNET & MACCARINI

ALZ = ALZNER

S et al. = SCARDIA, PRIEUR, LING, PANSECCHI, ARGYLE, ARISTIDI, ZANUTTA,  
 ABE, BENDJOYA, RIVET, VERNET & MACCARINI

## NEW DOUBLE STARS

Discovered by André Debackère using LCO global telescope network.

- F65 : T 2m Faulkes Telescope North FTN, Haleakala, Hawaii
- V37 : T 1m Mc Donald Observatory, Fort Davis, Texas, USA
- V38 : T 0.40m Mc Donald Observatory, Fort Davis, Texas, USA
- Z17 : T 0.4m Teide Observatory, Tenerife, Canary Islands, Spain

STAR	Precise Coord	GAIA-EDR3 Id.	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	$\theta$ ( $^{\circ}$ )	$\rho$ ( $''$ )	Obs
DBR 331 A	041941.595+29152837	164858853621879552	9.27	1.7033 0.0195	-2.459 0.023	-2.012 0.021	2022.928	207.10 $\pm 0.41$	5.678 $\pm 0.030$	3V38 Z17
B	041941.395+291523.24	164858853621880576	12.61	1.8271 0.0241	-2.666 0.030	-2.219 0.020				
DBR 332 A	063740.114+292029.89	3434649513701792000	10.52	2.0097 0.0261	7.189 0.029	-10.137 0.024	2022.998	26.1	2.54	1V37
B	063740.203+292033.19	3434649513701791872	12.66	1.9785 0.0140	6.450 0.017	-9.592 0.014				
DBR 333 A	063821.417+292304.26	3434643324652286080	11.53	8.9695 0.0337	7.760 0.036	-55.104 0.029	2022.998	60.1	1.55	1V37
B	063821.273+292305.79	3434643328949108224	12.13	8.9655 0.0225	6.316 0.023	-52.755 0.019				

## NEW DOUBLE STARS

Discovered by André Debackère using LCO global telescope network.  
(continuation)

STAR	Precise Coord	GAIA-EDR3 Id.	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	$\theta$ ( $^{\circ}$ )	$\rho$ ( $''$ )	Obs	
DBR 334	A	181458.412+363853.49	4606018933638349440	13.38	0.7876	-0.797	11.939	2022.686	140.1	2.02	1F65
	B	181458.503+36385179	4606018933638349312	14.25	0.0098 0.8000	0.010 -0.829	0.012 11.718				
DBR 335	A	205903.907+442049.42	2162237414729717760	12.93	2.0552	-7.071	-8.930	2022.361	210.10	5.758	1F65 (1)
	B	205903.636+442044.41	2162237414729717504	12.95	0.0132	0.015	0.015		$\pm 0.17$	$\pm 0.020$	
DBR 336	A	222806.778+522233.35	2001447479981110784	13.47	1.8767	32.441	-3.680	2022.424	226.56	1.533	1F65 (2)
	B	222806.656+522232.28	2001447479967044352	16.09	0.0145	0.015	0.014		$\pm 0.54$	$\pm 0.013$	
					0.0480	0.065	0.057				

(1) in NGC 7000 field

(2) in NGC 7296 field



## PAPERS PUBLISHED IN 2022

1. ABU-DHAIM, A. et al.: *Studying the Physical Parameters of the Stellar Binary System Hip 42455 (HD 73900)*. *AcA*, **72**, 171A (2022).
2. BANYARD, G. et al.: *The observed multiplicity properties of B-type stars in the Galactic young open cluster NGC 6231*. *A&A*, **658**, A 69B (2022).
3. BASHI, D. et al.: *Gaia spectroscopic orbits validated with LAMOST and GALAH radial velocities*. *MNRAS*, **517**, (3) 3888B (2022).
4. BROŽ, M. et al.: *Towards a consistent model of the hot quadruple system HD 93206 = QZ Carinæ. II. N-body model*. *A&A*, **666**, A 24B (2022).
5. CHRISTIAN, S. et al.: *A Possible Alignment Between the Orbits of Planetary Systems and their Visual Binary Companions*. *AJ*, **163**, (5) 207C (2022).
6. CHULKOV, D. & MALKOV, O. et al.: *Visual binary stars with known orbits in Gaia EDR3*. *MNRAS*, **517**, (2) 2925C (2022).
7. CLARK, C. A.: *A New Stellar Companion to GJ 1292*. *RNAAS*, **6**, (11) 242C (2022).
8. CLARK, C. A. et al.: *A Dearth of Close-in Stellar Companions to M-dwarf TESS Objects of Interest*. *AJ*, **163**, (5) 232C (2022).
9. CLARK, C. A. et al.: *The POKEMON Speckle Survey of Nearby M Dwarfs. I. New Discoveries*. *AJ*, **164**, (2) 33C (2022).
10. CVETKOVIĆ, Z. & PAVLOVIĆ, R.: *Recalculated Orbits Of Binaries and New Linear Solutions*. *AJ*, **164**, (3) 98C (2022).
11. DE FURIO, M. et al.: *The Small Separation A-star Companion Population: First Results with CHARA/MIRC-X*. *ApJ*, **941**, (2) 118D (2022).
12. DSILVA, K. et al.: *A spectroscopic multiplicity survey of Galactic Wolf-Rayet stars. II. The northern WNE sequence*. *A&A*, **664**, A93D (2022).
13. EISNER, N. L. et al.: *Planet Hunters TESS IV: a massive, compact hierarchical triple star system TIC 470710327*. *MNRAS*, **511**, (4) 4710E (2022).
14. EL-BADRY, K. & RIX, H-W.: *What are the spectroscopic binaries with high-mass functions near the Gaia DR3 main sequence?* *MNRAS*, **515**, (1) 1266E (2022).
15. EL-BADRY, K. et al.: *Unicorns and giraffes in the binary zoo: stripped giants with subgiant companions*. *MNRAS*, **512**, (4) 5620E (2022).
16. EL-BADRY, K. et al.: *Birth of a Be star: an APOGEE search for Be stars forming through binary mass transfer*. *MNRAS*, **516**, (3) 3602E (2022).

17. FEKEL, F. C. et al.: *An Analysis of the Eclipsing Binaries HD 71636, V1022 Cassiopeiae, and OT Andromedae*. AJ, **164**, (5) 224F (2022).
18. FOWLER, C., PLUFF, J. & THOMAS, J.: *Updated Orbit and Observations of Spectroscopic Binary HD 2019*. RNAAS, **6**, 211F (2022).
19. FROST, A. J. et al.: *HR 6819 is a binary system with no black hole. Revisiting the source with infrared interferometry and optical integral field spectroscopy*. A&A, **659**, L 3F (2022).
20. GARDNER, T. et al.: *ARMADA. II. Further Detections of Inner Companions to Intermediate-mass Binaries with Microarcsecond Astrometry at CHARA and VLTI*. AJ, **164**, (5) 184G (2022).
21. GILI, R. et al.: *Measurements of visual double stars with PISCO2 at the Nice 76-cm refractor in 2013-2014*. AN, **343**, (8) e20224008 (2022).
22. GOMEZ, J. et al.: *20 Orbits of binaries based on soar speckle observations*. MNRAS, **509**, (3) 4229G (2022).
23. GUO, Y. et al.: *The Binarity of Early-type Stars from LAMOST medium-resolution Spectroscopic Survey*. RAA, **22**, (2), B 5009G (2022).
24. HEINTZ, T. M. et al.: *Testing White Dwarf Age Estimates Using Wide Double White Dwarf Binaries from Gaia EDR3*. ApJ, **934**, (2) 148H (2022).
25. HUSSEIN, A. M. et al.: *Atmospheric and Fundamental Parameters of Eight Nearby Multiple Stars*. AJ, **163**, (4) 182H (2022).
26. HWANG, H-C. et al.: *Wide binaries from the H3 survey: the thick disc and halo have similar wide binary fractions*. MNRAS, **513**, (1) 754H (2022).
27. HWANG, H-C. et al.: *Wide Twin Binaries are Extremely Eccentric: Evidence of Twin Binary Formation in Circumbinary Disks*. ApJ, **933**, (2), L 32H (2022).
28. JACK, D. et al.: *Yet another star in the Albireo system. The discovery of Albireo Ad*. A&A, **661**, A 49J (2022).
29. JACK, D. et al.: *Bright spectroscopic binaries: II. A study of five systems with orbital periods of  $P \leq 500$  days*. AN, **343**, (3), 10015J (2022).
30. JANSSENS, S. et al.: *Uncovering astrometric black hole binaries with massive main-sequence companions with Gaia*. A&A, **658**, A 129J (2022).
31. KERVELLA, P. et al.: *The binary system of the spinning-top Be star Achernar*. A&A, **667**, 111K (2022).
32. KLEMENT, R. et al.: *Interferometric Detections of sdO Companions Orbiting Three Classical Be Stars*. ApJ, **926**, 21) 231K (2022).
33. KLEMENT, R. et al.: *Dynamical Masses of the Primary Be Star and Secondary sdB Star in the Single-lined Binary  $\kappa$  Dra (B6 IIIe)*. ApJ, **940**, (1) 86K (2022).

34. LESTER, K.V. et al.: *Visual Orbits of Spectroscopic Binaries with the CHARA Array. IV. HD 61859, HD 89822, HD 109510, and HD 191692.* AJ, **164**, (6) 228L (2022).
35. LENNON, D. J. et al.: *The VLT-FLAMES survey of massive stars. NGC 2004#115: A triple system hosting a possible short period B+BH binary.* A&A, **665**, A 180L (2022).
36. LI, J. et al.: *Mass-ratio Distribution of Binaries from the LAMOST-MRS Survey.* ApJ, **933**, (2) 119L (2022).
37. LING, J. F. et al.: *Speckle Observations with PISCO in Calern (France): Orbit and Mass Determinations for 22 Visual Binaries.* AcA, **72**, 113L (2022).
38. MAHY, L. et al.: *Identifying quiescent compact objects in massive Galactic single-lined spectroscopic binaries.* A&A, **664**, 159M (2022).
39. MALKOV, O. & KNIAZEV, A.: *Wide binary stars with non-coeval components.* OAst, **31**, (1) 327M (2022).
40. MAYER, P. et al.: *Towards a consistent model of the hot quadruple system HD 93206 = QZ Carinæ. I. Observations and their initial analyses.* A&A, **666**, A 23M (2022).
41. MAZEH, T. et al.: *Probable dormant neutron star in a short-period binary system.* MNRAS, **517**, (3) 4005M (2022).
42. MOLINA, F. et al.: *Orbital and atmospheric parameters of two wide O-type subdwarf binaries: BD-11 °162 and Feige 80.* A&A, **658**, A 122M (2022).
43. MORALES, L. M. et al.: *The Interferometric Binary  $\epsilon$  Cnc in Praesepe: Precise Masses and Age.* AJ, **164**, (2) 34M (2022).
44. PAVLOVSKI, K. et al.: *Dynamical parallax, physical parameters, and evolutionary status of the components of the bright eclipsing binary  $\alpha$  Draconis.* A&A, **658**, 92P (2022).
45. PREECE, H.P. et al.: *Forming hot subluminous stars from hierarchical triples - I. The role of an outer tertiary on formation channels.* MNRAS, **517**, (2) 2111P (2022).
46. PILECKI, B. et al.: *Discovery of a Binary-origin Classical Cepheid in a Binary System with a 59 day Orbital Period.* ApJ, **940**, (2) L48P (2022).
47. POWELL, B. P. et al.: *TIC 114936199: A Quadruple Star System with a 12 Day Outer-orbit Eclipse.* ApJ, **938**, (2) 133P (2022).
48. PUTKURI, C. et al.: *The double-lined spectroscopic binary orbit of the massive supergiant HD 152147: A new target for interferometry.* MNRAS, **517**, (2) 3101P (2022).

49. REGGIANI, M. et al.: *Probing the low-mass end of the companion mass function for O-type stars.* A&A, **660**, A 122R (2022).
50. SALAMA, M. et al.: *An Adaptive Optics Census of Companions to Northern Stars Within 25 pc with Robo-AO.* AJ, **163**, (5) 200S (2022).
51. SANCHEZ-BERMUDEZ, J. et al.: *The outer orbit of the high-mass stellar triple system Herschel 36 determined with the VLTI.* MNRAS, **514**, (1) 1162S (2022).
52. SHAKHT, N. A., IZMAILOV, I. S. & GORSHANOV, D. L.: *Checking the possibility of determining the relative orbits of stars rotating around the center body of the Galaxy.* OAst, **31**, (1) 136s (2022).
53. SHARA, M. M. et al.: *A speckle-imaging search for close and very faint companions to the nearest and brightest Wolf-Rayet stars.* MNRAS, **509**, (2) 2897S (2022).
54. SHENAR, T. et al.: *The Tarantula Massive Binary Monitoring. VI. Characterisation of hidden companions in 51 single-lined O-type binaries: A flat mass-ratio distribution and black-hole binary candidates.* A&A, **665**, 148S (2022).
55. SUCHOMSKA, K. et al.: *Evolved eclipsing binary systems in the Galactic bulge: Precise physical and orbital parameters of OGLE-BLG-ECL-305487 and OGLE-BLG-ECL-116218.* A&A, **6658**, 30S (2022).
56. TOKOVININ, A.: *The Family of V1311 Ori: a Young Sextuple System or a Mini-cluster?.* AJ, **163**, (3) 127T (2022).
57. TOKOVININ, A.: *Spectroscopic Orbits of Subsystems in Multiple Stars. VIII.* AJ, **163**, (4) 161T (2022).
58. TOKOVININ, A.: *Resolved Gaia Triples.* ApJ, **926**, (1) 1T (2022).
59. TOKOVININ, A. et al.: *Speckle Interferometry at SOAR in 2021.* AJ, **164**, (2) 58T (2022).
60. TORRES, G.: *Orbital solution and dynamical masses for the nearby binary system GJ67 AB.* MNRAS, **514**, (4) 5183T (2022).
61. TORRES, G. et al.: *The Orbits and Dynamical Masses of the Castor System.* ApJ, **941**, (1) 8T (2022).
62. TORRES, G. & SAKANO, K.:  *$\eta$  Geminorum: an eclipsing semiregular variable star orbited by a companion surrounded by an extended disc.* MNRAS, **516**, (2) 2514T (2022).
63. UZUNDAG, M. et al.: *Volume-limited sample of low-mass red giant stars, the progenitors of hot subdwarf stars. I. Sample selection and binary classification method.* A&A, **668**, A 89U (2022).
64. VRIJMOET, E .H. et al.: *The Solar Neighborhood. XLIX. New Discoveries and Orbits of M-dwarf Multiples with Speckle Interferometry at SOAR.* AJ, **163**, (4) 178T (2022).

65. VYNATHEYA, P. et al.: *Algebraic and machine learning approach to hierarchical triple-star stability*. MNRAS, **516**, (3) 4146V (2022).
66. ZARRILLI, S. et al.: *Characterising the orbit and circumstellar environment of the high-mass binary MWC 166 A*. A&A, **665**, 146Z (2022).
67. ZHENG, L-L. et al.: *A White Dwarf-Main-sequence Binary Unveiled by Time-domain Observations from LAMOST and TESS*. ApJ, **936**, (1) 33Z (2022).

\*\*\*\*\*

The deadline for contributions to Information Circular No. 210 is:

June 15th 2023

**J. A. Docobo** (joseangel.docobo@usc.es) [1,2]

**J. F. Ling** (josefinaf.ling@usc.es) [1]

Tel: +34 881 815 016

[1] Observatorio Astronómico R. M. Aller  
 P. O. Box 197  
<http://www.usc.es/astro>  
 Universidade de Santiago de Compostela  
 SPAIN

[2] Real Academia de Ciencias de Zaragoza  
 Facultad de Ciencias  
 C/ Pedro Cerbuna, 12  
 50009 Zaragoza  
 SPAIN

---

ISSN: 1024-7769