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Orbital elements of double stars: BU 602 and HU 143 Aa,Ab

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INTERNATIONAL ASTRONOMICAL UNION

COMMISSION G1 (BINARY AND MULTIPLE STAR SYSTEMS)

DOUBLE STARS INFORMATION CIRCULAR No. 197 (FEBRUARY 2019)

NEW ORBITS

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2019 2020	Author(s)
426 00310-1005	BU 1158BC 0°8503	423 ^y 4 0 ^y 897	1939.8 74°5	0.359 10°2	169°8 2017.6801	324°3 0 ^y 479 325.0 0.491	DOCOBO & LING
622 00447+4817	NOI 3 AaAb 126.9841	2.835 0.017	2006.966 113.4	0.019 92.9	88.6 2007.6326	267.3 0.017 116.6 0.012	DOCOBO & CAMPO
854 01023+0552	A 2003 4.3421	82.91 0.193	2005.78 70.4	0.111 64.1	131.7 2014.9399	291.9 0.133 294.8 0.143	DOCOBO & LING
- 01084-5515	RST 1205AB 1.2431	289.6 1.194	1920.9 71.2	0.597 292.2	24.9 2017.6802	124.0 0.574 125.4 0.578	LING
- 03095+4544	HDS 404 13.9130	25.875 0.519	2008.510 97.4	0.223 172.0	13.4 2011.6920	17.7 0.537 16.3 0.588	DOCOBO & CAMPO
3032 04093-0756	A 469 2.8459	126.5 0.274	1969.9 61.7	0.869 95.4	61.8 2014.8538	331.0 0.235 331.8 0.236	DOCOBO & LING
- 09264-4215	B 1122 1.5982	225.25 0.298	2035.97 67.7	0.808 258.0	88.4 2014.0435	241.9 0.148 243.3 0.146	DOCOBO & CAMPO
- 09477+2036	COU 284 1.3750	261.81 0.270	2008.85 122.2	0.891 83.9	11.3 2014.2748	170.3 0.119 168.7 0.125	DOCOBO et al (*)
- 11468+1500	BU 602 0.6274	573.8 1.030	2144.59 75.1	0.824 85.3	170.3 2016.340	127.9 0.533 128.2 0.534	LING et al (**)
9511 15075+5516	HU 143Aa,Ab 1.6590	217.0 0.634	2006.70 74.7	0.343 135.8	139.1 2016.493	318.6 0.446 319.4 0.451	LING et al (**)

NEW ORBITS (continuation)

ADS α 2000 δ	Name n	P a	T i	e ω	Ω (2000) Last ob.	2019 2020	Author(s)
-	MLR 430	127.8	2022.40	0.677	162.8	355.2 0.099	LING
16497+5816	2.8169	0.258	54.0	258.8	2016.389	5.1 0.083	et al (**)
-	BAG 7	2.778	2014.684	0.349	328.6	100.5 0.132	DOCOBO
15521+1052	129.5896	0.101	34.6	328.6	2015.5406	204.3 0.063	et al. (*)

(*) DOCOBO, CAMPO & GÓMEZ

(**) LING, SCARDIA, PRIEUR, PANSECCHI, ARGYLE, ARISTIDI, ZANUTTA, ABE, BENDJOYA, RIVET, SUAREZ, & VERNET.

NEW DOUBLE STARS

Discovered by: Marco Scardia using the speckle camera PISCO attached to the Epsilon telescope of the Calern Observatory

STAR	Coord. FK5 J2000	Mag.	Epoch	θ ($^{\circ}$)	ρ ($''$)	Notes
SCA 190 AC	23 45 18.24+05 06 58.4	8.1 - 11 .0	2018.875	298.0	1.694	AB is BU 1223
SCA 190 BC	23 45 18.24+05 06 58.4	10.7 - 11 .0	2018.875	301.	0.19	
SCA 191 AC	05 52 55.67+27 59 52.5	9.7 - 11.1	2018.933	246.8	0.934	AB is COU 899
SCA 191 BC	05 52 55.67+27 59 52.5	10.8 - 11.1	2018.933	338.2	0.243	

NEW COMPANIONS TO EXOPLANET HOST STARS

Reported by: Francisco Rica using GAIA-DR2

Astrometric data from GAIA-DR2

STAR	parallax (mas)	$\mu(\text{AR})$ (mas/yr)	$\mu(\text{DEC})$ (mas/yr)	Vrad (km/s)
HD 17092	4.35 ± 0.05	$+40.33 \pm 0.10$	-10.31 ± 0.10	$+5.92 \pm 0.19$
companion Ba	4.56 ± 0.11	$+42.10 \pm 0.22$	-10.87 ± 0.17	-
companion Bb	4.32 ± 0.10	$+41.81 \pm 0.21$	-12.17 ± 0.17	-
Kepler-181	1.61 ± 0.02	-13.42 ± 0.04	-10.07 ± 0.04	-
companion	1.69 ± 0.44	-13.71 ± 1.02	-10.53 ± 1.01	-

Other values for 2015.5

	HD 17092 (Ba,Bb) companion	Kepler-181 companion
magnitude	17.4 -18.1	21.2
θ	$38^\circ 5'$	$123^\circ 7'$
ρ	$15'' 79$	$10'' 762$

NEW DOUBLE STARS

Discovered by André Debackère using LCO global telescope network.

- FTN : Faulkes Telescope North T2m, Haleakala, Hawaii, LCO
- FTS : Faulkes Telescope South T2m, Siding Spring, Australia, LCO
- V38 : T0.4m, Fort Davis, Texas, USA, LCO

Notes (N):

- 1- In NGC 1245 field
- 2- At 35 NE of J 1324
- 3- In M50 field
- 4- At 8.4 NE of J 703
- 5- In Abell S0636 field
- 6- In NGC 3342 field
- 7- In M64 field
- 8- In NGC 7331 field

STAR	Precise Coord	GAIA-DR2	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	θ ($^{\circ}$)	ρ ($''$)	Obs N
DBR 296 A	031436.849+471115.34	435058647832796416	12.32	0.2873 0.0394	0.354 0.074	-1.667 0.060	2018.817	70.27	5.081	1FTN 1
B	031437.319+471117.01	435058647832476416	13.89	0.3371 0.0286	0.578 0.052	-1.635 0.042				
DBR 297 A	031458.833+471033.15	435063591332121472	12.65	0.4677 0.0388	0.321 0.073	-1.666 0.056	2018.817	316.72	3.310	1FTN 1
B	031458.618+471035.62	435063595634784896	14.77	0.5989 0.0342	0.188 0.064	-1.249 0.049				
DBR 298 A	062147.331+110308.24	3330853451378781568	14.71	0.4874 0.0749	1.268 0.080	-0.562 0.066	2018.867	140.29	3.783	1FTN 2
B	062147.497+110305.34	3330853382659305088	16.13	0.6536 0.1294	0.904 0.138	-2.103 0.113		± 0.11	± 0.006	

NEW DOUBLE STARS

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

STAR	Precise Coord	GAIA-DR2	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	θ ($^{\circ}$)	ρ ($''$)	Obs	N
DBR 299 A	070231.794-082439.52	3051560318056542720	12.70	0.9381 0.0406	-0.246 0.081	-0.629 0.089	2018.793	111.03 ± 0.53	4.521 ± 0.034	1	FTN 3
B	070232.077-082441.19	3051560318056542464	14.66	1.0317 0.1638	1.188 0.298	1.333 0.339					
DBR 300 A	070239.201-081816.51	3051565712529135232	13.52	0.9817 0.0307	-0.993 0.052	-0.545 0.047	2018.793	281.92 ± 0.28	5.189 ± 0.009	1	FTN 3
B	070238.859-081815.37	3051565712535394560	13.64	0.9788 0.0318	-0.982 0.059	-0.669 0.049					
DBR 301 A	071003.910+154228.12	3359908248003139840	13.69	0.8751 0.0271	-1.572 0.045	-1.068 0.040	2017.916	151.30	4.140	1	V38 4
B	071004.051+154224.46	3359908252298765440	13.54	0.9189 0.0260	-1.470 0.043	-0.894 0.037					
DBR 302 A	091236.408+152459.41	607634178989103872	13.63	1.2671 0.0373	8.327 0.074	8.199 0.062	2018.867	325.08	2.955	1	FTN
B	091236.296+152501.85	607634174694871552	14.39	1.1793 0.0433	8.327 0.087	8.048 0.073					
DBR 303 A	093544.475-172403.90	5678963160733208704	11.49	0.9657 0.0384	-6.634 0.060	9.263 0.059	2018.870	59.75	3.069	1	FTN
B	093544.678-172402.22	5684967975985298432	14.24	0.9622 0.0849	-6.880 0.099	10.254 0.127					

NEW DOUBLE STARS

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

STAR	Precise Coord	GAIA-DR2	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	θ ($^{\circ}$)	ρ ($''$)	Obs	N
DBR 304 A	102937.892-352053.50	5447123957129284608	14.43	0.6039	-16.317	4.647	2018.546	234.36	4.047	1	FTS 5
B	102937.623-352055.86	5447123957129284480	14.74	0.0300	0.041	0.054					
				0.5610	-16.137	4.395					
				0.0333	0.045	0.060					
DBR 305 A	102950.313-351907.37	5447124300726789888	16.07	0.5008	-21.001	2.067	2018.546	194.25	2.865	1	FTS 5
B	102950.233-351910.19	5447124300726789760	16.75	0.0692	0.116	0.108					
				0.4815	-5.902	3.859					
				0.0993	0.166	0.154					
DBR 306 A	103713.585-583731.96	5350671464268766848	12.42	0.3380	-5.622	3.804	2018.821	348.49	3.570	1	FTS 6
B	103713.495-583728.46	5350671459954134272	13.57	0.2478	0.494	0.454					
				0.3541	-7.060	3.014					
				0.0163	0.030	0.031					
DBR 307 A	103720.618-583724.88	5350671494313891584	12.72	0.3573	-7.068	2.613	2018.821	176.76	2.242	1	FTS 6
B	103720.634-583727.15	5350671498620130304	13.32	0.0284	0.053	0.053					
				0.3874	-7.207	2.659					
				0.0190	0.036	0.035					
DBR 308 A	104025.134-462531.85	5366278443388374656	13.41	1.9706	-11.508	-3.249	2018.123	274.10	1.900	1	FTS
B	104024.954-462531.77	5366278447690675584	14.32	0.0178	0.028	0.027					
				1.9895	-10.925	-3.177					
				0.0221	0.036	0.034					

NEW DOUBLE STARS

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

STAR	Precise Coord	GAIA-DR2	G Mag.	Plx e-plx	pmRA e-pmRA	pmDE e-pmDE	Epoch	θ ($^{\circ}$)	ρ ($''$)	Obs N
DBR 309 A	125656.099+214412.49	3942881785633099008	10.98	9.9930 0.0732	-53.152 0.117	-29.616 0.108	2018.898	314.59	2.895	1 FTN 7
B	125655.951+214414.52	3942881789927998720	14.77	9.8452 0.0564	-53.071 0.115	-31.417 0.085				
DBR 310 A	181631.210-182937.08	4094884320373175936	13.70	0.3540 0.0252	1.459 0.049	-3.906 0.042	2018.473	62.55	2.126	1 FTS
B	181631.347-182936.21	4094884324718932864	14.03	0.3159 0.0285	-0.315 0.050	-2.173 0.043				
DBR 311 A	181634.645-182950.70	4094884255999440896	14.32	0.5090 0.0329	-4.704 0.055	-0.906 0.047	2018.473	100.71	3.086	1 FTS
B	181634.853-182951.23	4094884359078655232	15.05	0.5365 0.0405	-0.414 0.067	-3.990 0.057				
DBR 312 A	181634.749-183508.91	4094882602383605888	13.00	0.7265 0.2209	-2.590 0.410	-3.936 0.333	2018.473	36.87	4.436	1 FTS
B	181634.939-183505.50	4094882602396240768	13.34	0.6589 0.0268	0.562 0.050	-2.565 0.041				
DBR 313 A	223657.173+342801.35	1903156053888525184	13.90	1.2665 0.1066	-4.649 0.204	0.171 0.165	2018.495	248.39	1.109	2 FTN 8
B	223657.085+342800.99	19031560538886297856	14.74	1.09221 0.0850	-4.710 0.232	1.232 0.139		± 1.15	± 0.028	

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RENÉ GILI (1951-2018)

René Gili was born on August 17, 1951 in Lachen, Switzerland but his family left Switzerland to settle in Nice where he spent his childhood. During a visit at the beginning of the 1970s to the Nice Observatory, Dr. Paul Couteau noticed the interest of the young man in astronomical observation and, very quickly, taught him the use of instruments. In 1974, René Gili acquired volunteer status. He sometimes assisted Paul Couteau measuring double stars in the evenings. Gradually, he learned the use of the micrometer and, from 1987, began a personal program of measurement of these stellar couples using both the 0.50m and the 0.76m refractors. In 1991, he published his first measurements alone and in September of the same year, he accompanied Paul Couteau and Josefina Ling at the Observatory of the Pic du Midi de Bigorre for a mission of measurements of close couples using the eyepiece of the Bernard Lyot 2 m aperture telescope. From the mid-1990s, his curiosity led him to become interested in computer science and digital imaging. In 1996 with Jean-Claude Thorel and the advice of the optician Yves Bresson, he set up an ICCD for high resolution imaging that resulted in the acquisition of a charge transfer HiSis camera. In 2009, René Gili published two series of measurements with Jean-Louis Agati. At the same time, he began to develop digital acquisitions at the Great Equatorial with an EMCCD camera acquired with his own money, allowing him to approach the technique of tavelography. The extension of this project carried out with the help of Daniel Bonneau, Marco Scardia, and Jean-Louis Prieur was the construction of a real tavelograph named PISCO 2. Thanks to the new technique, the images obtained border on the theoretical separating power of the telescope, $0''16$, exceed the magnitude of 12, and support large differences in brightness.

The name of René Gili is attached to a hundred new pairs which he discovered and which have been published in the Information Circular of the Commission of the Double Stars of the International Astronomical Union. The thousands of measurements which he has made since 2014 with the PISCO 2 instrument attached to the large refractor remain to be exploited. From 2008 to 2012, René participated in several campaigns of tests of a diffractive imaging device (the Fresnel imager) on the Great Equatorial, developed by the team of Laurent Koechlin of the Observatoire de Toulouse, in collaboration with Jean-Pierre Rivet.

He was a member of the Astronomical Society of France belonging to both the Planetary and the Double Stars Commissions. This led him to present his work during meetings of the Commission and to co-sign publications in the journal "Observation et Travaux". René Gili, was a self-made man with a rich personality who acquired extensive knowledge in the fields of astronomy, photography, and opera music. These qualities allowed him to become an efficient and productive observer. Fervent admirer of Paul Couteau, he developed a particular attachment to the Observatory of the Côte d'Azur. On October 12, 2018, his death was recorded at his home. One more complete biography can be consulted in *Observations & Travaux (Société Astronomique de France)*, n° 86, décembre 2018.

Pierre Durand, Jean-Claude Thorel, Daniel Bonneau, and Jean-Pierre Rivet



René GILI

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