

MICROMETER MEASUREMENTS OF SOUTHERN DOUBLE STARS MADE AT THE NATIONAL OBSERVATORY OF LLANO DEL HATO, VENEZUELA

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Received 1998 April 22; accepted 1998 August 31

RESUMEN

En este artículo se presentan 151 medidas micrométricas de 66 estrellas dobles observadas con el refractor de 65-cm del Observatorio Nacional de Llano del Hato en Mérida, Venezuela, durante los meses de febrero de 1997 y febrero de 1998.

ABSTRACT

This paper reports 151 micrometer measurements of 66 double stars observed with the 65-cm refractor at the Venezuelan National Observatory at Llano del Hato, Mérida, during February 1997 and February 1998.

Key words: **ASTROMETRY – VISUAL BINARIES**

1. INTRODUCTION

We report micrometer measurements of visual double stars made during February 1997 and February 1998 at the Llano del Hato Observatory of the Centro de Investigación en Astronomía (CIDA) at Mérida, Venezuela, using a refractor of 65-cm aperture and focal length 10.6 m. The procedure was the same as previously described by Prieto (1997). Most observations have an estimated error of $\pm 2^\circ$ for position angles and 15% for angular separation. In 1997 the visual conditions were very unfavorable and only 20 measurements were obtained, but in 1998 seeing was in general quite good, between $0''.4$ and $2''.5$.

2. RESULTS

Table 1 lists 151 measurements of 66 binaries and the residuals for 24 of them in the following format:

column 1 shows the star's WDS catalogue number (Worley & Douglass 1997), and subsequent columns its ADS catalogue number (Aitken 1932) if any, name (with identifying letters in the case of multiple star systems), the epoch of the observation, the observed position angle (θ) and angular separation (ρ), the number of nights on which the star was observed, the identification code of the observer (LIN for Ling and PRI for Prieto), the observed – calculated discrepancies in θ and ρ , the author code using the discoverer code of WDS and year of publication of the orbit.

For the star SEE 219 (WDS15088-4517) the ephemeris for the observation epoch appears in parentheses.

Most of the orbits were taken from Worley & Heintz (1983) or Cousteau, Morel, & Fulconis (1986); but for all orbits used, an appropriate reference is given.

We thank the staff of the CIDA for the help and facilities made available at Llano del Hato Observatory, and C. Abad for his very kind attention. This work was supported by the Xunta de Galicia (Spain) under project XUGA 24301B96.

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TABLE 1
MEASUREMENTS AND RESIDUALS

WDS	ADS	Name	1990.+	θ ($^{\circ}$)	ρ ($''$)	n	Obs.	θ_{o-c} ($^{\circ}$)	ρ_{o-c} ($''$)	Author
04590-1623	3588	BU 314AB	8.137	325.0	0.72	1	LIN	0.5	-0.07	HEI 84
				324.2	0.75	1	PRI	-0.3	-0.04	
05245-0224	4002	DA 5Aa-B	8.148	81.3	1.74	1	LIN	...	...	...
				80.0	1.72	1	PRI	...	...	
05417-0254	4279	BU 1052	8.148	9.3	0.53	1	LIN	-3.5	-0.06	HEI 96
				10.7	0.49	1	PRI	-2.1	-0.10	
05457-1447	4360	A 3018	8.148	294.2	0.75	1	LIN	...	...	...
				293.5	0.77	1	PRI	...	...	
06048-4828	...	DUN 23	8.137	297.5	2.59	1	LIN	-5.5	0.01	HEI 62
				297.7	2.54	1	PRI	-5.3	-0.04	
07175-4659	...	I 7	8.137	210.4	1.01	1	LIN	0.3	0.07	HEI 95
				209.2	1.05	1	PRI	-0.9	0.11	
07430-1704	6315	HU 710	8.148	74.0	0.48	1	LIN	-1.5	0.03	STA 78
				77.0	0.47	1	PRI	1.5	0.02	
07518-1354	6420	BU 101	8.142	308.7	0.41	2	LIN	-5.8	0.09	HRT 89
				309.9	0.41	2	PRI	-4.6	0.09	
07524-1139	6424	HU 53	8.148	148.6	0.58	1	LIN	...	...	...
				148.2	0.48	1	PRI	...	...	
08225-4829	...	I 67	8.145	135.7	0.72	1	LIN	...	...	...
				137.2	0.73	1	PRI	...	...	
08391-2240	6914	BU 208AB	8.142	216.3	1.37	2	LIN	2.8	0.08	HEI 90
				216.3	1.31	2	PRI	2.8	0.02	
09001-1228	7131	HU 225AB	8.142	247.1	0.51	2	LIN	1.2	0.06	D-P 96
				246.8	0.50	2	PRI	0.9	0.05	
09100-2845	7223	B 179	8.137	351.0	0.41	1	LIN	...	...	...
				348.7	0.44	1	PRI	...	...	
09267-2847	7379	JC 5	8.148	281.3	0.52	1	LIN	...	...	...
				280.9	0.52	1	PRI	...	...	
09278-0604	...	B 2530	8.142	331.4	0.40	1	LIN	-3.6	0.00	HEI 90
				329.7	0.41	1	PRI	-5.3	0.01	
09525-0806	7555	AC 5AB	8.145	64.3	0.61	1	LIN	1.8	0.00	HEI 82
				66.1	0.57	1	PRI	3.6	-0.04	
10043-2823	7629	I 292	8.142	314.0	0.55	1	LIN	-6.8	-0.09	HEI 93
				315.7	0.56	1	PRI	-5.1	-0.08	
10074-1943	7647	BU 218	8.145	138.0	0.50	1	LIN	...	...	...
				138.2	0.49	1	PRI	...	...	
10144-3515	...	I 1524	8.148	31.3	0.91	1	LIN	...	...	...
				31.4	0.89	1	PRI	...	...	
10161-5954	...	HU 1597	8.137	275.3	0.35	1	LIN	4.1	0.01	L-P 90
				...	...	...	...	6.4	0.02	
"	...	"	...	276.0	0.32	1	PRI	4.8	-0.02	L-P 90
				...	...	...	...	7.1	-0.01	
10217-0946	7738	BU 25	8.145	136.6	1.59	1	LIN	...	...	...
				137.5	1.58	1	PRI	...	...	
10361-2641	7846	BU 411	8.140	311.8	1.26	1	LIN	-3.7	-0.12	NBG 66
				310.5	1.29	1	PRI	-5.0	-0.09	
10366-2846	7852	I 857	8.142	264.1	0.26	2	LIN	...	...	...
				264.6	0.28	1	PRI	...	...	
10392-0553	7866	A 66	8.159	142.0	0.66	1	LIN	...	...	...
				140.0	0.66	1	PRI	...	...	
10582-3540	...	B 1175	8.148	250.5	0.63	1	LIN	...	...	...
				250.5	0.61	1	PRI	...	...	

TABLE 1 (CONTINUED)

WDS	ADS	Name	1990.+	θ ($^{\circ}$)	ρ ($''$)	n	Obs.	θ_{o-c} ($^{\circ}$)	ρ_{o-c} ($''$)	Author
11002-4323	...	SEE 126	8.145	163.4	0.82	1	LIN	...	...	...
			...	164.1	0.84	1	PRI	...	...	
11125-1830	8086	BU 220	8.137	322.2	0.34	1	PRI	0.3	0.03	HEI 95
11189-1146	8129	HU 130	8.140	114.2	1.09	1	LIN	...	...	...
			...	114.9	1.06	1	PRI	...	...	
11290-2446	8176	B 215	8.142	201.5	0.49	1	LIN	...	...	...
			...	201.6	0.50	1	PRI	...	...	
11336-4035	...	I 78	8.145	99.4	0.73	1	LIN	...	...	...
			...	97.9	0.73	1	PRI	...	...	
11529-3354	...	HJ 4478	7.118	34.5	0.67	1	LIN	...	...	...
			...	34.1	0.66	1	PRI	...	...	
"	...	"	8.159	37.2	0.69	1	LIN	...	...	...
			...	36.2	0.67	1	PRI	...	...	
11548-4224	...	I 79	8.145	93.0	0.39	1	LIN	...	...	...
			...	96.0	0.43	1	PRI	...	...	
11570-2529	8360	HU 1490	8.159	52.5	0.81	1	LIN	...	...	...
			...	52.8	0.83	1	PRI	...	...	
12023-5232	...	RST 570	8.145	222.8	0.67	1	LIN	...	...	...
			...	225.3	0.65	1	PRI	...	...	
12036-3901	...	SEE 143	7.118	67.1	0.75	1	LIN	0.0	-0.05	HEI 88
			...	64.7	0.76	1	PRI	-2.4	-0.04	
12158-2321	8481	BU 920	8.140	304.3	1.71	1	LIN	...	...	...
			...	303.0	1.70	1	PRI	...	...	
12247-2004	...	B 1716	8.148	224.4	0.71	1	LIN	...	...	...
			...	224.5	0.70	1	PRI	...	...	
12415-4858	...	HJ 4539AB	7.115	346.6	1.00	1	LIN	-2.8	-0.13	B 36
			...	345.9	0.99	1	PRI	-3.5	-0.14	
12564-0057	8708	STT 256	8.159	97.8	0.99	1	LIN	...	...	...
			...	98.9	0.97	1	PRI	...	...	
13039-0340	8759	BU 929	7.115	200.4	0.69	1	LIN	...	...	...
			...	198.6	0.65	1	PRI	...	...	
13145-2417	8831	FIN 297AB	8.138	338.8	0.33	1	LIN	-2.2	0.06	BAZ 88
			...	338.5	0.28	1	PRI	-2.5	0.01	
13183-2651	8850	B 246	8.148	128.9	0.56	1	LIN	...	...	...
			...	127.2	0.59	1	PRI	...	...	
13229-4757	...	SLR 18	8.145	244.0	0.69	1	LIN	...	...	...
			...	244.4	0.70	1	PRI	...	...	
13310-3924	...	SEE 179	8.138	262.6	0.27	1	LIN	3.9	0.06	FIN 64
			...	264.5	0.28	2	PRI	5.8	0.07	
13343-0837	8950	BU 114	8.159	165.6	1.28	1	LIN	...	...	...
			...	165.8	1.29	1	PRI	...	...	
13347-1313	8954	BU 932AB	8.148	58.2	0.36	1	LIN	1.6	-0.03	STA 80
			8.137	57.3	0.39	1	PRI	0.7	0.00	
13368-3224	...	I 221	8.140	114.4	0.53	1	LIN	...	...	...
			...	116.3	0.54	1	PRI	...	...	
13535-3540	...	HWE 28AB	7.115	308.4	0.89	1	LIN	-8.2	0.05	HEI 69
			...	309.9	0.84	1	PRI	-6.7	-0.01	
14077-4952	...	SLR 19	8.159	315.6	1.32	1	LIN	-4.7	0.05	E-O 86
			...	316.2	1.31	1	PRI	-4.1	0.03	
14129-3000	9156	SEE 202AB	8.142	114.2	1.18	1	LIN	...	...	...
			...	115.4	1.20	1	PRI	...	...	
14160-0704	9186	HU 138	8.140	16.1	0.52	1	LIN	-1.7	-0.02	D-C 90
			...	14.8	0.55	1	PRI	-2.9	0.01	

TABLE 1 (CONTINUED)

WDS	ADS	Name	1990.+	θ ($^{\circ}$)	ρ ($''$)	n	Obs.	θ_{o-c} ($^{\circ}$)	ρ_{o-c} ($''$)	Author
14252-2808	9256	STN 31	8.144	268.7	0.59	2	LIN	...	...	...
			...	268.8	0.58	2	PRI	...	...	...
14319-3227	...	I 525	8.145	110.6	0.58	1	LIN	...	...	...
			...	110.1	0.62	1	PRI	...	...	...
14356-3633	...	HJ 4687	8.145	126.7	0.70	1	LIN	...	...	...
			...	127.4	0.70	1	PRI	...	...	...
14389-2220	9328	BU 226	8.148	116.8	0.79	1	LIN	...	...	...
			...	116.4	0.77	1	PRI	...	...	...
14398-3833	...	I 1576AB	8.145	54.3	0.80	1	LIN	...	...	...
			...	55.2	0.83	1	PRI	...	...	...
14418-2942	9344	BU 345	7.118	283.3	0.94	1	LIN	...	...	...
			...	285.7	0.95	1	PRI	...	...	...
"	...	"	8.159	286.5	0.95	1	LIN	...	...	...
			...	286.7	0.93	1	PRI	...	...	...
14419-3056	...	BU 414	7.118	346.8	0.90	1	LIN	...	...	...
			...	346.4	0.90	1	PRI	...	...	...
"	...	"	8.159	346.7	0.97	1	LIN	...	...	...
			...	346.6	0.98	1	PRI	...	...	...
14492-1050	9395	HU 141	7.118	118.8	0.45	1	LIN	...	...	...
			...	118.2	0.46	1	PRI	...	...	...
14511-3706	...	I 529	8.145	46.6	0.97	1	LIN	-0.3	0.02	DOM 78
			...	46.3	0.91	1	PRI	-0.6	-0.04	...
14587-2739	9453	BU 239	7.115	357.3	0.56	1	LIN	...	...	...
			...	354.5	0.57	1	PRI	...	...	...
"	...	"	8.137	355.5	0.55	1	PRI	...	...	...
15088-4517	...	SEE 219	8.140	Round		1	LIN	(40.0)	(0.15)	D-L 91
			...	Round		1	PRI	...	...	...
15142-3830	...	B 1274	8.145	65.3	0.70	2	LIN	...	...	...
			8.142	66.0	0.70	1	PRI	...	...	...
15185-4753		HJ 4753AB	7.118	126.3	1.05	1	LIN	...	...	...
			...	127.8	0.98	1	PRI	...	...	...
15290-2852	9659	BU 1114AB	8.143	317.5	0.73	2	LIN	...	...	...
			...	317.0	0.75	2	PRI	...	...	...
15462-2804	9775	BU 620Aa-B	8.142	169.8	0.59	1	LIN	...	...	...
			...	170.4	0.59	1	PRI	...	...	...

References: B = van den Bos (1936); BAZ = Baize (1988); D-C = Docobo & Costa (1990); D-L = Docobo & Ling (1991); D-P = Docobo & Prieto (1996); DOM = Dommanget (1978); E-O = Erceg & Olevic (1986); FIN = Finsen (1964); HEI = Heintz(1962, 1969, 1982, 1984, 1988, 1990, 1993, 1995, 1996); HRT = Hartkopf et al., (1989); L-P = Ling & Prieto (1990); NBG = Newburg (1966); STA = Starikova (1978, 1980).

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