

ORBITAL ELEMENTS OF TWO DOUBLE STARS

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SUMMARY: This paper presents the orbital elements of two binary stars. The orbits are revisions of orbits which do not fit well the recent observations (ADS 8145, ADS 10085). For each pair are given the orbital elements, the dynamical parallaxes, masses, absolute magnitude, the measures, the O - C and ephemerides.

Orbits for two visual binaries have been computed using the methods of Thiele - Innes. Dynamical parallaxes were computed by use of the method of Baize and Roman (1946) with magnitudes and

spectral types taken from the Lick Index Catalogue of Visual Double Stars, 1961.0 (1963). The relevant information is given in Table I.

Table I

ADS 8145 = IDS 11179N0441 = A 2776 AB, 8.8 – 8.8, F5		
P = 136.40	A = +0.0384	$\pi_{\text{dyn.}} = 0''005$ $m_{\text{AB}} = 4.16_{\odot}$ $M_{\text{A}} = 2.2_{\text{abs.mag.}}$ $M_{\text{B}} = 2.2_{\text{abs.mag.}}$ $a = 40\text{A.U.}$
n = 2.6393	B = +0.1980	
T = 1963.86	F = -0.0660	
a = 0''20	G = +0.0128	
e = 0.00	C = 0.0000	
i = 70°0	H = ±0.1885	
$\omega = 0^{\circ}0$	$T_{\Omega} = 1963.86$	
$\Omega = 79^{\circ}0$	$T_{\text{U}} = 2032.06$	

Observations and residuals

T	P	ρ	mag.	n	Obs.	$(O - C)_p$	$(O - C)_\rho$
1914.30	273.9	0.17	8.9 - 8.9	2	A	-6.2	+0.03
1927.31	41.	0.10	8.7 - 8.7	1	A	+70.8	+0.03
1937.27	36.3	0.15	8.7 - 8.7	1	VBs	+0.0	+0.06
1944.25	55.7	0.16	8.7 - 8.7	2	VBs	-0.4	+0.02
1945.33	57.4	0.20	8.7 - 8.7	2	VBs	-0.7	+0.06
1950.33	65.3	0.16	8.7 - 8.7	2	VBs	-0.3	-0.01
1954.12	72.3	0.14		3	VBs	+2.4	-0.04
1957.64	78.2	0.15		4	VBs	-4.8	-0.04
1961.19	79.5+	0.22	$\Delta m = 0.0$	3	WOR	+2.8	+0.02
1962.08	81.0+	0.19	8.9 - 9.1	4	B	+3.5	-0.01
1963.94	69.2+	0.20	8.3 - 8.3	3	COU	-9.9	-0.02
1969.23	90.3	0.18	$\Delta m = 0.0$	1	Walk	+6.5	-0.02
1969.28	88.6	0.18	$\Delta m = 0.0$	2	WOR	+4.7	-0.02
1975.30	86.9	0.16		4	Heintz	-3.1	0.00
1981.34	98.8	0.151			R6	+0.7	+0.01
1983.05	100.1	0.153			C2	-1.1	0.00
1983.97	103.8	0.127			R11	+0.9	-0.01
1984.38	103.2	0.133			C2	-0.6	0.00
1986.40	109.1	0.136			R16	+0.6	+0.02
1987.26	106.2	0.12			C4	-4.7	+0.01

+ Quadrant reversed

Ephemerides

T	P	ρ	T	P	ρ
1992.00	128.8	0.08	1994.5	143.3	0.07
1992.5	131.4	0.08	1995.0	146.6	0.07
1993.0	134.1	0.08	1995.5	150.2	0.07
1993.5	137.0	0.08	1996.0	153.8	0.07
1994.0	140.1	0.08	1996.5	157.6	0.07

ADS 10085 = 16263N3406 = HU 1173, 9.3 - 9.3, F5

$P = 116.36$
 $n = 3.0938$
 $T = 1967.86$
 $a = 0.178$
 $e = 0.70$
 $i = 52.8$
 $\omega = 200.7$
 $\Omega = 59.2$

$A = -0.0525$
 $B = -0.1625$
 $F = +0.1187$
 $G = +0.0025$
 $C = -0.0523$
 $H = -0.1326$
 $T_\Omega = 2001.37$
 $T_U = 2083.36$

$\pi_{\text{dyn.}} = 0''.005$
 $m_{AB} = 3.54\odot$
 $M_A = 2.75\text{abs.mag.}$
 $M_B = 2.75\text{abs.mag.}$
 $a = 36\text{A.U.}$

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Observations and residuals

T	P	ρ	Mag.	n	Obs.	$(O - C)_p$	$(O - C)_\rho$
1905.38	69.2	0.24	8.4 - 8.7	2	HU	-0.8	-0.05
1921.92	80.8	0.24	8.8 - 9.0	4	VBs	+2.1	-0.03
1932.46	84.9	0.22	8.8 - 9.0	4	VBs	-0.9	-0.01
1944.29	90.0	0.175	8.8 - 9.1	2	VBs	-8.2	+0.00
1945.30	100.4	0.17		4	VOU	+0.70	+0.01
1948.63	90.9	0.155	8.8 - 9.1	2	VBs	-14.8	+0.02
1953.52	116.	0.10		1	VBs	-2.9	-0.01
1958.58	140.6	0.1	8.7 - 8.9	4	B	-4.3	+0.02
1968.541	274.6	0.12	$\Delta m = 0.0$	1	WOR	+10.7	+0.07
1975.48	32.9	0.14		3	Heintz	+13.8	+0.06
1983.31	43.6	0.163			R9	+1.1	0.00
1986.41	43.6	0.19			C4	-3.2	0.00
1987.27	42.5	0.193			C4	-5.3	0.00
1990.503	47.6	0.247		2	COU	-3.6	+0.04

Ephemerides

T	P	ρ	T	P	ρ
1992.0	52° 5	0" 22	1997.0	56.4	0.25
1993.0	53.4	0.23	1998.0	57.1	0.25
1994.0	54.2	0.23	1999.0	57.7	0.25
1995.0	54.9	0.24	2000.0	58.4	0.26
1996.0	55.7	0.24	2001.0	59.0	0.26

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ПУТАЊСКИ ЕЛЕМЕНТИ ДВЕ ДВОЈНЕ ЗВЕЗДЕ

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Претходно саопштење

Саопштавају се орбитални елементи за двојне звезде ADS 8145 и ADS 10085. За сваку двојну звезду одређени су орбитални елементи динамичка паралакса, маса, апсолутни сјај и ефемериде.