

Erratum

An Apparent Phenomenal Descriptive Method for Judging the Synchronization of Rotation of Binary Stars

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Table 1. The calculated results for synchronous parameters of twenty components in ten eclipsing binary systems by using the apparent descriptive method of formula (4).

Name	Sp type	P (d)	i (deg)	$R_{1,2}(R_{\odot})$	$(V_{1,2} \sin i)_M$ (km/s)	$Q_{e,e'}$	$P_R \gtrless P$	Synch
GT Cep	1 B2V	4.9087	78	4.64	42	1.11	$P_R > P$	B
	2 A0			6.04	58	1.05	$P_R > P$	A
My Cyg	1 Am	4.0051	89	2.32	26	1.13	$P_R > P$	B
	2 Am			2.06	47	0.55	$P_R < P$	D
V451 Oph	1 B9V	2.1966	87	2.48	48	1.19	$P_R > P$	B
	2 A0			1.98	45	1.01	$P_R > P$	A
U Oph	1 B4.5	1.6773	86.6	3.27	110	0.89	$P_R < P$	B
	2 B5.5			3.02	100	0.91	$P_R < P$	B
V505 Sgr	1 A2v	1.8287	75	2.30	100	0.95	$P_R < P$	A
	2 F81V			2.35	50	1.94	$P_R > P$	E
CV Vel	1 B2V	6.8925	88.2	4.27	50	0.63	$P_R < P$	D
	2 B2V			4.16	85	0.36	$P_R < P$	D
CD Tau	1 F7V	3.4351	88	1.49	34	0.64	$P_R < P$	D
	2 F7V			1.50	34	0.65	$P_R < P$	D
V1143 Cyg	1 F5V	7.6407	87	1.34	9	0.98	$P_R < P$	A
	2 F5V			1.04	20	0.34	$P_R < P$	D
ZZ Boo	1 F2V	4.9917	88	1.76	12	1.48	$P_R > P$	E
	2 F2V			1.70	25	0.69	$P_R < P$	D
AS Cam	1 B8V	3.4309	89	2.06	40	0.7	$P_R < P$	C
	2 A0V			2.47	30	1.21	$P_R > P$	C

Table 2. The calculated results for synchronous parameters of thirty-five components in twenty single-lined and double-lined spectroscopic binary systems by using four apparent descriptive methods.

The first method calculated by using $a_{1,2} \sin i$										
Name	Sp type	P (d)	$R_{1,2}$ (R_{\odot})	$m_{1,2}$ (m_{\odot})	$q_{1,2}$	$(V_{1,2} \sin i)_M$ (km/s)	$(a_{1,2} \sin i) \times 10^6$ (km)	$Q_{1,1'}$	$P_R \lesseqgtr P$	Synch
AG Per	1	2.0287	3.02	5.08	0.89	105	4.53	0.69	$P_R < P$	D
	2		2.78	4.52	1.1	120	4.97	0.55	$P_R < P$	D
V448 Cyg	1	6.5179	10.00	22.25	0.73	95	$1.92 \times 10^{+1}$	1.08	$P_R > P$	B
	2		17.34	16.24	1.37	92	$1.50 \times 10^{+1}$	1.10	$P_R > P$	B
GK Cep	1	0.9362	2.67	2.67	0.93	106	2.21	1.29	$P_R > P$	C
	2		2.45	2.48	1.08	100	2.41	1.27	$P_R > P$	C
EI Cep	1	8.4397	2.99	1.80	0.95	15	9.42	1.25	$P_R > P$	C
	2		2.31	1.71	1.05	10	8.92	1.31	$P_R > P$	D
AH Cep	1	1.7748	6.44	16.52	0.87	175	6.08	1.08	$P_R > P$	B
	2		5.98	14.37	1.15	160	6.91	1.02	$P_R > P$	A
The second method calculated by using $m_{1,2} \sin^3 i$										
Name	Sp type	P (d)	$R_{1,2}$ (R_{\odot})	$m_{1,2}$ (m_{\odot})	$q_{1,2}$	$(V_{1,2} \sin i)_M$ (km/s)	$m_{1,2} \sin^3 i$ (m_{\odot})	$Q_{2,2'}$	$P_R \lesseqgtr P$	Synch
EK Cep	1	4.4278	1.59	2.11	0.55	45	2.0	0.63	$P_R < P$	D
	2		1.19	1.16	1.82	14	1.1	1.02	$P_R > P$	B
NY Cep	1	15.2767	10.56	16.51	0.67	80	$2.7 \times 10^{+1}$	0.52	$P_R < P$	D
	2		8.66	11.06	1.49	71	$1.3 \times 10^{+1}$	0.43	$P_R < P$	D
RX Her	1	1.7786	2.37	2.86	0.86	73	2.7	0.93	$P_R < P$	B
	2		2.05	2.50	1.07	60	2.3	0.94	$P_R < P$	B
Z Vul	1	2.4454	4.54	5.42	0.43	98	5.4	0.95	$P_R < P$	A
	2		4.57	2.33	2.32	115	2.2	0.79	$P_R < P$	C
λ Tau	1	3.9529	5.64	6.04	0.24	85	6.4	0.87	$P_R < P$	B
	2		4.33	1.45	4.16	60	1.7	0.97	$P_R < P$	A

Table 2. (Continued)

Name	Sp type	P (d)	The third method calculated by using $K_{1,2}$					$Q_{3,3'}$	$P_R \lesseqgtr P$	Synch
			$R_{1,2}$ (R_\odot)	$m_{1,2}$ (m_\odot)	$q_{1,2}$	e	$(V_{1,2} \sin i)_M$ (km/s)			
EG Ser	1 A0	9.9473	2.17	3.05	0.78	0	48	75.8	$P_R < P$	D
	2 A2		1.93	2.37	1.29	0	68	83.8	$P_R < P$	D
V624 Her	1 A _{3m}	3.8950	2.93	2.23	0.86	0	36	96.6	$P_R > P$	A
	2 A _{4m}		2.32	1.90	1.17	0	36	117.2	$P_R < P$	B
Sig Aql	1 B ₃ V	1.9503	4.12	6.48	0.86	0	108	16.42	$P_R < P$	B
	2 B ₃ V		3.44	5.58	1.16	0	125	208	$P_R < P$	C
WW Air	1 A7V	2.5250	1.93	1.81	0.96	0	35	115.6	$P_R > P$	B
	2 A7V		1.92	1.74	1.04	0	35	127.7	$P_R > P$	B
RZ Cha	1 F5IV	2.8321	2.94	1.90	0.84	0	39	108.2	$P_R > P$	D
	2 F5IV		3.19	1.59	1.19	0	39	107.6	$P_R > P$	C

Name	Sp type	P (d)	The fourth method calculated by using $f(m)$					Q_4	$P_R \lesseqgtr P$	Synch
			R_1 (R_\odot)	m_1 (m_\odot)	q_1	$(V_1 \sin i)_M$ (km/s)	$f(m)$ (m_\odot)			
UW Vir ₁	A ₄	1.8107	1.52	1.77	0.24		76	1.9×10^{-2}	$P_R < P$	D
TW Dra ₁	A ₅ V	2.8067	2.06	2.24	0.43		123	5.9×10^{-2}	$P_R < P$	D
QS Aql ₁	B5V	2.4968	2.65	6.82	0.17		75	2.7×10^{-2}	$P_R < P$	C
DV Aqr ₁	LateA	1.5755	2.16	2.20	0.59		92	1.4×10^{-1}	$P_R < P$	C
UX Her ₁	A3	1.5489	1.80	1.92	0.30		61	2.1×10^{-2}	$P_R < P$	B

References

Li, Lin-sen, *Acta Astrophys. Sinica*, 1998, **18**, 77; 1997, **17**, 407.