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NEW AND UNPUBLISHED TIMES OF MINIMA OF ECLIPSING BINARY SYSTEMS

BORKOVITS, TAMÁS[1,6]; BÍRÓ, IMRE BARNA[1]; HEGEDÜS, TIBOR[1]; KISS, ZOLTÁN TAMÁS[1]; SZAKÁTS, RÓBERT[1]; REGÁLY, ZSOLT[2]; PATKÓS, LÁSZLÓ[2]; KLAGYIVIK, PÉTER[2]; SIMITY, SZABOLCS[3,7]; GREZSA, TAMÁS[4,7]; GERGELY, GÁBOR[5,7]; LUKÁCS, KATALIN[5,7]

[1] Baja Astronomical Observatory of Bács-Kiskun County, Baja, Szegedi út, Kt. 766, H–6500 Hungary; e-mail: borko@electra.bajaobs.hu

[2] Konkoly Observatory of the Hungarian Academy of Sciences, Budapest, Pf. 67, H–1525 Hungary

[3] Department and Environmental Physics and Laser Spectroscopy, University of Pécs, Pécs, Hungary

[4] Department of Experimental Physics and Astronomical Observatory, University of Szeged, Szeged, Dóm tér 9, H-6720, Hungary

[5] Department of Astronomy, Eötvös Loránd University, Budapest, Pf. 32, H–1518 Hungary

[6] Guest observer at Piszkéstető Observatory of Konkoly Observatory

[7] On summer training at Baja Astronomical Observatory

Observatory and telescope:
50-cm $f/8.4$ Ritchey–Chrétien telescope (Ba50) of the Baja Astronomical Observatory (Hungary) 50-cm $f/6$ modified Cassegrain telescope (Baja Astronomical Robotic Telescope – BART1) of the Baja Astronomical Observatory (Hungary) 50-cm $f/15$ Cassegrain telescope (Pi50) of the Konkoly Observatory at Piszkéstető Mountain Station (Hungary) 1-m $f/13.3$ RCC telescope (Pi100) of the Konkoly Observatory at Piszkéstető Mountain Station (Hungary)

Detector:	512×512 Apogee AP-7 CCD camera (Ba50) 4096×4096 Apogee Alta U16 CCD camera (BART1) cooled UBVRI Photometer (Pi50) uncooled UBV Photometer (Pi50u) 1340×1300 Princeton Instr. CCD camera (Pi100)

Method of data reduction:
Reduction of CCD frames was made with customly developed IRAF[1] packages.

Method of minimum determination:
The minima times were computed with parabolic fitting, and in some cases with linearized Pogson-method or Kwee-van Woerden method (Kwee & van Woerden, 1956).

[1]IRAF is distributed by the National Optical Astronomical Observatories, operated by the Association of the Universities for Research in Astronomy, inc., under cooperative agreement with the National Science Foundation

Times of minima:					
Star name	Time of min. HJD 2400000+	Error	Type	Filter	Rem.
RT And	53592.4863	6	II	V	Bor+Kla/Pi100
	54738.3933	6	II	V, R	Bor/Pi50
	55432.4158	2	I	R	Bor/Ba50
AB And	54353.5058	1	II	V	Bor/BART1
	55400.4531	2	I	R	Bor/Ba50
OO Aql	55101.3767	1	II	–	Bor/BART1
SS Ari	55479.3805	2	I	R	Bor/Ba50
IM Aur	54375.4016	1	I	V	Bor/BART1
	54751.452	1	II	V	Bor/Ba50
	54794.4802	2	I	V	Bor/Ba50
IU Aur	54081.4270	5	I	R	Heg/Ba50
	54752.5836	4	II	V	Kis/Ba50
	54781.575	1	II	V	Kis/Ba50
	54802.4045	5	I	V	Bír/Ba50
	54809.6489	7	I	V	Bor/Ba50
	54810.5544	7	II	V	Bor/Ba50
	54822.328	1	I	V	Bor/Ba50
	54840.4413	6	I	V	Bor/Ba50
	55463.5918	3	I	R	Bor/Ba50
	55590.3876	1	I	–	Heg/BART1
	55599.4428	1	I	–	Bír/BART1
	55600.3484	2	II	–	Szak/BART1
SV Cam	44833.4584	2	I	V, B	Pat/Pi50u
	48904.3157	2	I	B	Pat/Pi50u
	49702.5888	6	I	V, B	Pat/Pi50u
	50096.3916	2	I	V, B	Pat/Pi50u
AS Cam	54868.4524	3	I	V, R	Bor/Ba50
RZ Cas	54697.4451	1	I	V, R	Bor+Reg/Pi50
PV Cas	55491.4665	7	I	R	Bor/Ba50
VW Cep	54693.3926	5	I	B, V	Bor+Reg/Pi50
	54955.5607	5	I	V, R	Bor/Pi50
	54956.5317	1	II	V, R	Bor/Pi50
	54956.5324	2	II	B	Bor/Pi50
	55029.4481	9	II	B, V, R	Bor+Sim/Ba50
	55030.4260	6	I	B, V, R	Sim+Bor/Ba50
	55030.5613	3	II	B, R	Sim+Bor/Ba50
	55033.4864	5	I	B, V, R	Bír/Ba50
	55034.4580	10	II	B, V, R	Szak/Ba50
	55035.4344	6	I	B, V, R	Bír/Ba50
	55035.5718	5	II	B, V, R	Bír/Ba50
	55036.4070	12	II	B, V, R	Szak/Ba50
	55036.5480	8	I	B, V, R	Szak/Ba50
	55037.3833	7	I	B, V, R	Szak/Ba50
	55037.5192	8	II	B, V, R	Szak/Ba50
	55039.4676	12	II	B, V, R	Bor/Ba50
EK Cep	54597.4199	3	I	B, V, R	Bor/Ba50
	54628.4142	4	I	B, V, R	Bor/Ba50
GSC 4274-1702	54754.383	1	I	R	Bor/Ba50
	54761.4543	10	I	V, R	Bor/Ba50
	54767.334	1	I	V	Bor/Ba50
	54774.395	1	I	V, R	Bír+Kis/Ba50
	54798.5428	7	II	R	Bír/Ba50
GU Her	54640.501	1	I	R	Bor/Ba50
	54931.4978	6	I	R	Bor/Ba50
	55411.443	1	II	R	Bor/Ba50
HS Her	55362.4683	7	II	R	Bor/Ba50
	55430.402	1	I	R	Bor/Ba50

Times of minima:					
Star name	Time of min. HJD 2400000+	Error	Type	Filter	Rem.
V994 Her A[a]	54290.517	1	I	V	Kis/BART1
	54314.5204	8	II	V	Heg/BART1
	54315.522	1	I	V	Bor/BART1
	54360.3524	4	II	V	Kis/BART1
	54361.3570	2	I	V	Bor/BART1
	54383.2729	3	II	V	Bor/BART1
	54610.3494	8	II	R, V, B	Bír+Gre/Ba50
	54713.4349	14	I	R, V, B	Heg/Ba50
V994 Her B[a]	54283.4131	1	I	V	Kis/BART1
	54290.515	3	I	V	Kis/BART1
	54298.3787	2	II	V	Bír/BART1
	54300.4457	4	I	V	Bor/BART1
	54307.5424	5	I	V	Ger+Luk/BART1
	54332.457	1	II	V	Kis/BART1
	54334.523	:	I	V	Kis/BART1
	54347.3084	3	I	V	Bor/BART1
	54364.3439	3	I	V	Bír/BART1
	54374.2829	7	I	V	Kis/BART1
	54618.5160	13	I	R, V, B	Bír+Gre/Ba50
	54650.5498	30	II	R, V, B	Gre/Ba50
	54653.3886	13	II	R, V, B	Gre/Ba50
	54699.4777	14	I	R, V, B	Gre/Ba50
SW Lac	53589.4576	4	II	V	Bor+Kla/Pi100
	55442.4180	1	I	R	Bor/Ba50
UV Leo	54927.4883	5	I	V	Bor/Ba50
V404 Lyr	55358.4775	3	I	–	Bor/Ba50
FT Ori	54809.4344	1	II	V	Bor/Ba50
β Per[b]	54696.5458	4	I	$V + N$	Bor+Reg/Pi50
	54828.4502	7	I	$(V, R) + N$	Reg/Pi50
	54831.3157	2	I	$(V, R) + N$	Reg+Bor/Pi50
V1123 Tau	54366.6209	1	II	V	Bor/BART1
DW UMa	54910.3522	1	I	V, R	Bor/Ba50
	54910.4889	1	I	V, R	Bor/Ba50
	54910.6254	1	I	V, R	Bor/Ba50
LP UMa	54910.3169	13	I	V, R	Bor/Ba50
	54910.4685	11	II	V, R	Bor/Ba50
	54910.6286	15	I	V, R	Bor/Ba50

Explanation of the remarks in the table:

[Observer(s)]/Instrument

[a]: V994 Her A,B: This is an (at least) quadruple system, composed of two eclipsing pairs in a hierarchical configuration. In labeling the two eclipsing subsystems (both of them revolve on slightly eccentric orbits) we follow the notation of Lee et al., 2008.

Note also, that the minimum at HJD 2453206.365 published as an unidentified type in one of our previous compilation (Bíró et al., 2007) is found to be a secondary minimum of V994 Her B.

[b]:β Per: Due to the brightness of the system we had to use an additional neutral filter (denoted by N)

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References:

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Kwee, K. K. & van Woerden, H., 1956, *Bull. Astron. Inst. Neth.*, **12**, 327
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