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**CCD TIMES OF MINIMA OF ECLIPSING BINARIES  
AND MAXIMA OF PULSATING STARS**

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<b>Observatory and telescope:</b>
<b>T1:</b> 40cm Cassegrain telescope (f/8.1), <b>T2:</b> 25cm Newtonian reflector telescope (f/4.7), <b>T3:</b> 20cm Newtonian reflector telescope (f/5) at the University of Athens Observatory.

<b>Detector:</b>	<b>C1:</b> ST-10XME CCD camera, Peltier cooling, KAF-3200ME chip, $16' \times 11'$ and $25' \times 17'$ (using a focal reducer) FoV with T1, $2184 \times 1472$ pixels, <b>C2:</b> ST-8XMEI CCD camera, Peltier cooling, KAF-1603ME chip, $40' \times 26'$ FoV with T2, and $46' \times 32'$ FoV with T3, $1530 \times 1020$ pixels. Both CCDs are equipped with the Bessell UBVR filters.
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<b>Method of data reduction:</b>
Differential photometry with the software Muniwin v.1.1.26 (Hroch, 1998).

<b>Method of minimum determination:</b>
Kwee & van Woerden (1956).

<b>Times of maxima of pulsating stars:</b>				
Star name	Time of min. HJD	Error	Filter	Rem.
TU UMa	2455632.5084	0.0008	UBVRI	C2+T2
	2455633.6232	0.0023	UBVRI	C2+T2
	2455664.2930	0.0006	UBVRI	C2+T2

<b>Times of minima:</b>						
Star name	Time of min. HJD	Error	Type	Filter	Rem.	
DN Boo	2455666.3079	0.0005	II	BVRI	C1+T1	
	2455685.3286	0.0006	I	BVRI	C1+T1	
	2455685.5532	0.0014	II	BVRI	C1+T1	
	2455688.4609	0.0007	I	BVRI	C1+T1	
	2455691.3714	0.0003	II	BVRI	C1+T1	
	2455693.3848	0.0005	I	BVRI	C1+T1	
AV CMi	2455599.4273	0.0002	I	VI	C1+T1	
RW Com	2455643.3269	0.0002	I	BR	C1+T1	
	2455656.2618	0.0002	II	BR	C1+T1	
	2455656.3811	0.0001	I	BR	C1+T1	
	2455656.4988	0.0001	II	BR	C1+T1	
	2455659.3471	0.0001	II	VI	C1+T1	
	2455659.4665	0.0001	I	VI	C1+T1	
	2455659.5845	0.0001	II	VI	C1+T1	
	2455661.3650	0.0002	I	BR	C1+T1	
	2455661.4832	0.0001	II	BR	C1+T1	
	2455662.3145	0.0001	I	VI	C1+T1	
	2455663.3821	0.0001	II	BR	C1+T1	
	2455663.5014	0.0001	I	VI	C1+T1	
	DF Hya	2455579.3760	0.0001	I	BVRI	C1+T1
		2455579.5419	0.0001	II	BVRI	C1+T1
XY Leo	2455664.2666	0.0003	II	BVRI	C1+T1	
	2455664.4105	0.0002	I	BVRI	C1+T1	
	2455686.2868	0.0004	I	BVRI	C1+T1	
	2455688.2750	0.0002	I	BVRI	C1+T1	
	2455688.4164	0.0003	II	BVRI	C1+T1	
	2455689.2685	0.0003	II	BVRI	C1+T1	
CL Lyn	2455576.3657	0.0008	II	I	C2+T2	
	2455588.2580	0.0007	I	BVI	C2+T2	
	2455598.5568	0.0012	II	VI	C2+T2	
ER Ori	2455580.2486	0.0003	II	BVRI	C1+T1	
	2455580.4600	0.0003	I	BVRI	C1+T1	
	2455581.3063	0.0001	I	BVRI	C1+T1	
AC Tau	2455567.3731	0.0002	I	BV	C1+T1	
AW UMa	2455632.3045	0.0010	II	UBVRI	C2+T2	
	2455632.5286	0.0011	I	UBVRI	C2+T2	
	2455633.4050	0.0006	I	UBVRI	C2+T2	
	2455661.4833	0.0012	I	BVRI	C2+T2	
	2455664.3362	0.0005	II	UBVRI	C2+T2	
KZ Vir	2455326.3775	0.0006	I	BV	C1+T1	
PY Vir	2455690.3317	0.0002	II	BVRI	C1+T1	
2MASS J22514830+1532034	2455415.5027	0.0003	I	B	C1+T1	
	2455443.3424	0.0011	II	BVRI	C1+T1	
	2455443.5315	0.0015	I	BVRI	C1+T1	
	2455446.3653	0.0012	I	BV	C1+T1	
	2455446.5509	0.0013	II	BV	C1+T1	
	2455457.3707	0.0012	I	BVRI	C2+T2	

<b>Times of minima:</b>						
Star name	Time of min. HJD	Error	Type	Filter	Rem.	
2MASS J22514830+1532034	2455457.5416	0.0013	II	I	C2+T2	
	2455466.4338	0.0010	II	BVRI	C2+T2	
	2455467.3184	0.0017	I	BVRI	C2+T2	
	2455502.2785	0.0023	II	VRI	C2+T2	
	2455505.3022	0.0020	I	BVRI	C2+T2	
GSC 0770-0523	2455588.3515	0.0003	I	I	C1+T1	
	2455594.2338	0.0009	II	VI	C1+T1	
	2455594.4523	0.0006	I	VI	C1+T1	
	2455599.2493	0.0007	I	VI	C1+T1	
	2455599.4583	0.0007	II	VI	C1+T1	
	2455600.3303	0.0006	II	VI	C1+T1	
	2455601.4278	0.0006	I	VI	C1+T1	
GSC 1137-0293	2455436.5809	0.0008	I	BR	C2+T3	
	2455437.3442	0.0005	I	BR	C2+T3	
	2455437.5266	0.0009	II	BR	C2+T3	
	2455440.3694	0.0005	I	BR	C2+T3	
	2455442.4410	0.0006	II	BR	C2+T3	
GSC 3281-1359	2455447.3567	0.0004	II	BR	C2+T2	
	2455490.4174	0.0006	II	B	C1+T1	
	2455493.2672	0.0009	I	BVI	C1+T1	
	2455493.4887	0.0011	II	BVI	C1+T1	
GSC 3610-0124	2455436.3573	0.0011	I	BVR	C1+T1	
	2455436.5247	0.0012	II	BVR	C1+T1	
	2455437.5703	0.0008	II	BVR	C1+T1	
	2455438.4306	0.0008	I	BVR	C1+T1	
	2455444.3290	0.0016	I	BVR	C1+T1	
	2455448.3209	0.0009	II	BVR	C1+T1	
	2455450.3960	0.0016	II	BV	C1+T1	
	2455457.3278	0.0009	II	BVR	C1+T1	
	2455457.4986	0.0009	I	BVRI	C1+T1	
GSC 3802-1986	2455157.6268	0.0006	I	BVI	C2+T3	
	2455158.3955	0.0012	II	BVI	C2+T3	
	2455538.4643	0.0004	I	BVI	C2+T2	
	2455568.2873	0.0004	II	BVI	C1+T1	
GSC 4372-0831	2455466.5356	0.0003	I	B	C1+T1	
	2455469.5312	0.0011	II	VI	C1+T1	
	2455502.5237	0.0010	I	BVI	C1+T1	
	2455505.5377	0.0017	II	VI	C1+T1	
USNO-A2.0 0975-04721840	2455587.3472	0.0002	I	I	C1+T1	
	2455594.4133	0.0004	I	VI	C1+T1	
	2455599.4591	0.0003	I	VI	C1+T1	
	2455600.4676	0.0004	I	VI	C1+T1	
	2455601.2241	0.0004	II	VI	C1+T1	
	2455601.4771	0.0003	I	VI	C1+T1	
	2455602.2334	0.0004	II	VI	C1+T1	
	2455603.2420	0.0004	II	VI	C1+T1	

<b>Times of minima:</b>						
Star name		Time of min. HJD	Error	Type	Filter	Rem.
USNO-A2.0 1350-16136263		2455438.3775	0.0019	I	BVRI	C1+T1
		2455441.3060	0.0009	II	B	C1+T1
		2455457.3195	0.0012	I	BVRI	C1+T1
		2455537.3322	0.0012	II	VRI	C1+T1
		2455538.3158	0.0005	I	R	C1+T1

<b>Explanation of the remarks in the table:</b>
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T1, T2, T3, C1, C2 and C3 refer to the instrumentation (telescope and CCD camera) used for each case.
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<b>Remarks:</b>
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The following systems are recently discovered: GSC 0770-0523 (Liakos & Niarchos, 2010), 2MASS J22514830+1532034, GSC 3281-1359, GSC 3610-0124 and GSC 1137-0293 (Liakos & Niarchos, 2011a), GSC 4372-0831 (Liakos & Niarchos, 2011b), GSC 3802-1986 (ASAS J080731+0159.7; Pojmanski et al., 2005), USNO-A2.0 1350-16136263 (Liakos & Niarchos, 2011c), and USNO-A2.0 0975-04721840 (Liakos & Niarchos, 2011d).
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## References:

- Hroch, F., 1998, *Proceedings of the 29th Conference on Variable Star Research*, ed. J. Dusek and M. Zejda, (Observatory and Planetarium Brno, Brno), 30
- Kwee, K., van Woerden, H., 1956, *BAN*, **12**, 327, (No. 464)
- Liakos, A., Niarchos, P., 2010, *PZP*, **10**, 9
- Liakos, A., Niarchos, P., 2011a, *PZP*, **11**, 2
- Liakos, A., Niarchos, P., 2011b, *IBVS*, 5998, 11
- Liakos, A., Niarchos, P., 2011c, *IBVS*, 5998, 12
- Liakos, A., Niarchos, P., 2011d, *IBVS*, 5998, 13
- Pojmanski, G., Pilecki, B., Szczygiel, D., 2005, *AcA*, **55**, 275

### ERRATUM FOR IBVS 5674

The epoch for GSC 7194 0239 should be 2452943.87 instead of 2452043.87 .

S. Otero