

Photometric Elements for Five Newly Discovered Variable Stars

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		2MASS J00511854+5022580	00 51 18.55, +50 22 58.1	EW	14.4	15.1	R	0.30408(1)	2455140.2630(3)	min		Comm. 1	LC_2MASSJ00511854.jpg	FOV_2MASSJ00511854.jpg	2MASSJ00511854.txt
2		GSC 04516-02121	02 45 36.28, +79 13 35.4	EW	14.5	15.1	R	0.48404(3)	2455149.3084(10)	min		Comm. 2	LC_GSC_4516-2121.jpg	FOV_GSC0451602121.jpg	GSC0451602121.txt
3		2MASS J07083972+1214429	07 08 39.73, +12 14 43.0	EW	14.4	14.6	R	0.371038(1)	2454115.5345(17)	min		Comm. 3	LC_2MASSJ07083972.jpg	FOV_2MASSJ07GSC0770.jpg	2MASSJ07083972.txt
4		GSC 00770-00523	07 09 20.83, +12 12 14.0	EW	12.8	12.9	R	0.435898(1)	2454107.6042(12)	min		Comm. 4	LC_GSC_0770-0523.jpg	FOV_2MASSJ07GSC0770.jpg	GSC0077000523.txt
5		GSC 01025-01841	18 42 15.60, +08 51 23.8	EB	12.6	12.7	B	0.68932	2455014.5046	min		Comm. 5	LC_GSC_1025-1841.jpg	FOV_GSC0102501841.jpg	GSC0102501841.txt

Comments:

1. The new variable star 2MASS J00511854+5022580 (indicated as V in the finding chart) is inside the field of view of the known variable star V364 Cas. GSC 3270-01412 and GSC 3270-00210 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart. MaxI - MinI = -0.67 and MaxI - MinII = -0.6 in R filter.
2. The new variable star GSC 04516-02121 (indicated as V in the finding chart) is inside the field of view of the known variable star V405 Cep. GSC 4516-01706 and GSC 4516-01124 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart. MaxI - MinI = -0.55 and MaxI - MinII = -0.4 in R filter.
3. The new variable star 2MASS J07083972+1214429 (indicated as V1 in the finding chart) is inside the field of view of the known variable star AV CMi. GSC 0757-00435 and GSC 0757-00134 were used as comparison (C1) and check (K1) stars, respectively, and they are also indicated in the finding chart. MaxI - MinI = -0.20 and MaxI - MinII = -0.20 in R filter.
4. The variable star 2MASS GSC 00770-00523 (indicated as V2 in the finding chart) is inside the field of view of the known variable star AV CMi. GSC 0770-00929 and GSC 0770-00911 were used as comparison (C2) and check (K2) stars, respectively, and they are also indicated in the finding chart. MaxI - MinI = -0.1, MaxI - MinII = -0.09 and MaxII - MinII = -0.08 in R filter.
5. The new variable star GSC 01025-01841 (indicated as V in the finding chart) is inside the field of view of the known variable star V456 Oph. GSC 1025-01618 and GSC 1025-00331 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart. MaxI - MinI = -0.08 and MaxI - MinII = -0.05 in B filter.

Remarks:

In this study we present the first photometric elements of five newly discovered variables. Their variability was detected for the first time as by-product during our observations of other eclipsing binaries, except for the case of GSC 00770-00523 for which only one time of minimum has been published by Zejda et al. (2006), but no other information of its variability exists so far.

The observations were carried out at the Gerostathopoulou Observatory of the University of Athens from 2007 to 2009, using a 40-cm Cassegrain telescope equipped with ST-8XMEi and ST-10XME CCD cameras and the BVRI Bessell photometric filters. Differential magnitudes were obtained for all systems using the software Muniwin v.1.1.26 (Hroch 1998).

All the systems presented in the present study need follow-up observations in order to confirm the type of their variability, while more photometric and spectroscopic observations, using larger telescopes, are needed in order to obtain more accurate light curves and determine their spectral characteristics. Then, it would be possible to obtain absolute elements of the systems and enrich the bibliography of this type of stars.

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References:

Hroch, F., 1998, Proceedings of the 29th Conference on Variable Star Research, Brno, Czech Republic; eds.: Dušek, J. and Zejda, M., p. 30
Zejda, M., Mikulasek, Z., Wolf, M., 2006, IBVS, 5741, 1