

## Discovery of Four New Variables

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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 J22514830+1532034	22 51 48.30, +15 32 03.4	EW	15.50	15.84	B	0.35494(4)	2455443.531(3)	min		Comm. 1	<a href="#">LC_2MASS.jpg</a>	<a href="#">FoV_2MASS.jpg</a>	<a href="#">D_2MASS.txt</a>
2		GSC 01137-00293	22 12 47.95, +08 29 57.8	EW	11.50	11.56	B	0.37799(7)	2455437.340(2)	min		Comm. 2	<a href="#">LC_GSC11370293.jpg</a>	<a href="#">FoV_GSC11370293.jpg</a>	<a href="#">D_GSC11370293.txt</a>
3		GSC 03281-01359	02 12 13.79, +45 33 14.8	EW	13.90	14.24	B	0.4386(3)	2455493.268(1)	min		Comm. 3	<a href="#">LC_GSC32811359.jpg</a>	<a href="#">FoV_GSC32811359.jpg</a>	<a href="#">D_GSC32811359.txt</a>
4		GSC 03610-00124	22 15 46.29, +48 39 05.6	EW	10.10	10.13	R	0.3466(1)	2455436.355(5)	min		Comm. 4	<a href="#">LC_GSC36100124.jpg</a>	<a href="#">FoV_GSC36100124.jpg</a>	<a href="#">D_GSC36100124.txt</a>

### Comments:

1. The system 2MASS J22514830+1532034 (indicated as V in the finding chart) is situated in the field of view of the known variable stars BG Peg and BH Peg. GSC 01698-00919 and GSC 01698-01078 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart. The given period corresponds to a W UMA type system.  $MaxI-MinI = -0.34$  mag and  $MaxI-MinII = -0.33$  mag in B filter. The tabulated magnitude at maximum is assumed to be that given for the star in the USNO-A2.0 Catalogue (Monet et al. 1998). The system was observed with a 25-cm reflector telescope ( $f/4.7$ ) equipped with the ST-8XMEI CCD and Bessell photometric filters.

2. The system GSC 01137-00293 (indicated as V in the finding chart) is situated in the field of view of the known variable star AT Peg. GSC 01137-00492 and GSC 01137-00134 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart.  $MaxI-MinI = -0.06$  mag and  $MaxI-MinII = -0.04$  mag in B filter. The tabulated magnitude at maximum is assumed to be that given for the star in the Hipparcos and Tycho Catalogues (ESA 1997). The system was observed with a 20-cm reflector ( $f/5$ ) telescope equipped with the ST-8XMEI CCD and Bessell photometric filters.

3. The system GSC 03281-01359 (indicated as V in the finding chart) is situated in the field of view of the known variable star CP And. GSC 03281-01868 and GSC 03281-01193 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart.  $MaxI-MinI = -0.32$  mag and  $MaxI-MinII = -0.25$  mag in B filter. The tabulated magnitude at maximum is assumed to be that given for the star in the USNO-A2.0 Catalogue (Monet et al. 1998). The system was observed with a 40-cm Cassegrain telescope ( $f/5.1$ ) equipped with the ST-10XMEI CCD and Bessell photometric filters.

4. The system GSC 03610-00124 (indicated as V in the finding chart) is situated in the field of view of the known variable star AU Lac. GSC 03610-00231 and GSC 03610-00685 were used as comparison (C) and check (K) stars, respectively, and they are also indicated in the finding chart.  $MaxI-MinI = -0.033$  mag and  $MaxI-MinII = -0.025$  mag in R filter. The tabulated magnitude at maximum is assumed to be that given for the star in the USNO-A2.0 Catalogue (Monet et al. 1998). The system was observed with a 40-cm Cassegrain telescope ( $f/5.1$ ) equipped with the ST-10XMEI CCD and Bessell photometric filters.

### Remarks:

In the present study we present the first photometric elements of four newly discovered variables. Their variability was detected for the first time as a by-product during our observations of other eclipsing binaries.

The observations were carried out at the Gerostathopoulion Observatory of the University of Athens during July–October 2010. Differential magnitudes were obtained for all targets using the software Muniwin v.1.1.26 (Hroch 1998).

All the targets presented in this study need more photometric and spectroscopic observations, using larger telescopes, 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:

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