

GSC 6558-01290, a New Double-Mode RR Lyrae Variable Star

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Star Name:	GSC 6558-01290, ASAS 075842-2536.1		
Coordinates (J2000):	07 58 42.16, -25 36 00.9		
Variability type:	RR(B);	Limits, System:	11.8 – 12.3 (V);
Period:	(see Remarks) d;	Epoch(max):	JD (see Remarks)

Remarks:

The variability of GSC 6558-01290 = ASAS 075842-2536.1 was discovered by Pojmanski (2002). The ASAS-3 catalog lists the variable as an RRC star with the period of 0.41013 d.

I reinvestigated the star using the currently available ASAS-3 data and found it an RR(B) star, pulsating in the first and second overtone modes (an extension of the GCVS RR(B) type, which is defined as fundamental-mode and first-overtone pulsators). The phased light curves plotted for the tabulated elements are shown in the Figure.

Mode	Frequency, c/d	Semi-amplitude, V mag	Period, day	Epoch, HJD
f ₁	2.43827	0.158	0.410127	2453600.253
f ₂	3.04768	0.033	0.328118	2453600.318

The period ratio $P_2/P_1 = 0.8000$ is typical of double-mode variables pulsating in the first and second overtone modes. The tabulated coordinates of the variable were drawn from the Tycho2 catalog. $J-H = 0.231$ (2MASS). The star is in a close pair with the much fainter GSC 6558-00870; the combined brightness was measured,

thus the actual amplitude can be somewhat larger.

References:

Pojmanski, G., 2002, Acta Astron., 52, 397

Light Curve

GSC 6558-01290 = ASAS 075842-2536.1

$$P_1 = 0.^{\text{d}}410127$$

$$P_2 = 0.^{\text{d}}328118$$



