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GSC 6957-00065, a New Double-Mode RR Lyrae Variable Star

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Star Name:	GSC 6957-00065, ASAS 220715-2723.8		
Coordinates (J2000):	22 07 15.43, -27 23 44.6		
Variability type:	RR(B);	**Limits, System:**	12.8 - 13.5 (R);
Period:	(see Remarks) d;	**Epoch:**	JD (see Remarks)

Remarks:

According to ASAS-3 data, GSC 6957-00065 = ASAS 220715-2723.8, listed in the ASAS catalog of variable stars (Pojmański 2002), is an RRAB variable with a period of 0.424900 d. Szczygieł et al. (2009), who consider all the stars analyzed in their paper fundamental-mode RR~Lyrae stars, give the period 0.4248986 d.

GSC 6957-00065 is actually an RR(B) star, and the above period values correspond to the first-overtone oscillation. The phased light curves plotted for the tabulated elements are given in the Figure. The period ratio $P_1/P_0 = 0.7457$ is typical of RR(B) variables. The fundamental-mode amplitude is much lower than that for the first overtone. Also identified is the period corresponding to the interaction frequency f_0+f_1.

J-H = 0.253 (2MASS).

GSC 6957-00065 = ASAS 220715-2723.8

Mode	Frequency, c/d	Semi-amplitude, V mag	Period, day	Epoch, HJD
f_0	1.75508	0.066	0.569776	2453249.320
f_1	2.35351	0.194	0.424897	2453249.301
f_0+f_1	4.10859	0.059	0.243393	2453249.278

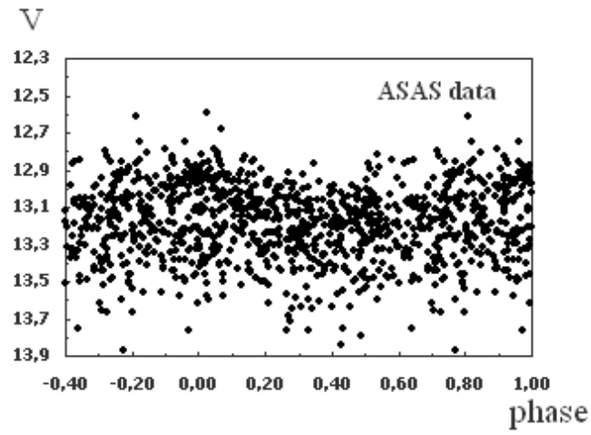
References:

Pojmański, G., 2002, Acta Astron., 52, 397
Szczygieł, D.M., Pojmański, G., Pilecki, B., 2009, Acta Astron., 59, 137

Light Curve

GSC 6957-00065 = ASAS 220715-2723.8
RR(B)

Fundamental mode, $P_0=0^d.569776$



First overtone mode, $P_1=0^d.424897$