

6 New Short-Period Pulsating Variables

[A. V. Khruslov](#)

Russia, Tula

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(E-mail for contact: khruslov@bk.ru)

#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		GSC 1763-00477	01 54 58.04, +29 47 37.1	DSCT	12.15	12.35	R	0.070037	2451513.544	max		Comm. 1	1.PNG	chart1.PNG	NSVS 6505675
2		TYC 2318 00978 1	02 16 06.23, +34 37 49.2	RRC	12.75	13.0	R	0.22246	2451496.891	max		Comm. 2	2.PNG	chart2.PNG	NSVS 6546685
3		GSC 4532-01249	05 53 25.03, +79 45 01.0	RRC	13.75	14.2	R	0.25155	2451514.596	max		Comm. 3	3.PNG	chart3.PNG	NSVS 585349 NSVS 627385
4		TYC 3029 00738 1	13 37 22.08, +41 34 37.8	RRC	11.05	11.2	R	0.284485	2451426.808	max		Comm. 4	4.PNG	chart4.PNG	NSVS 5086363
5		GSC 4409-00231	14 13 20.45, +73 53 46.1	RRAB	14.2	14.8	R	0.61215	2451456.72	max		Comm. 5	5.PNG	chart5.PNG	NSVS 974935
6		GSC 4181-00046	15 21 34.64, +61 29 22.8	DSCT(B)	13.0	13.45	R	(see Comments)	(see Comments)	max		Comm. 6	6.PNG	chart6.PNG	NSVS 2774742 NSVS 2786964

Comments:

- M-m = 0.36 P. J-H = 0.135 (2MASS).
- M-m = 0.40 P. The color index B-V = 1.379 (Tycho2) is probably wrong (the star is at the faint limit for the Tycho2 catalog). J-H = 0.251 (2MASS) is in agreement with the RRC type.
- M-m = 0.40 P. J-H = 0.214 (2MASS).
- M-m = 0.48 P. B-V = 0.505 (Tycho2).
- M-m = 0.18 P. J-H = 0.239 (2MASS). There is a companion star (15.7 R) in 10" to the NW. The ROTSE data with photometric correction flags (usually rejected) were kept for the analysis. The use of these data considerably increases the number of available observations without deteriorating quality and allows us to determine the period more accurately.
- According to ROTSE-I data (Wozniak et al., 2004), GSC 4181-00046 is a high-amplitude double-mode Delta Scuti star. J-H = 0.128 (2MASS). The following light elements are used to plot the phased light curves: $HJD(max) = 2451407.680 + 0.0944226 \times E$ (fundamental mode) and $HJD(max) = 2451407.688 + 0.0730446 \times E$ (first overtone mode). The period ratio $P1/P0=0.7736$ is typical of high-amplitude double-mode Delta Scuti stars (Petersen and Christensen-Dalsgaard, 1996). In the phased light curves, top panels are NSVS data folded with the fundamental-mode and the first overtone periods. Bottom panels are the same curves after prewhitening the other oscillation. Small dots are the NSVS data with $err. > 0.05$ mag. These observations were removed from the bottom curves.

Remarks:

I present the discovery of 6 new short-period pulsating variables. A search for variables was carried out in the publicly available data of the Northern Sky Variability Survey (NSVS, Wozniak et al., 2004, also see <http://skydot.lanl.gov/nsvs>). These observations were analyzed using the period-search software developed by Dr. V.P. Goranskij for Windows environment. The coordinates were drawn either from the Tycho-2 or from the 2MASS catalogs.

References:

- Petersen, J.O., Christensen-Dalsgaard, J., 1996, *Astron. and Astrophys.*, 312, 463
Wozniak, P.R., Vestrand, W.T., Akerlof, C.W. et al., 2004, *Astron. J.*, 127, 2436