



New variable stars in the Milky Way found in the summer and autumn of 2017Sergey I.¹1) Mira Str.40-2, Molodechno, 222307, Belarus, seriv76@tut.by

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Abstracts: *This article presents 6 new eclipsing and 1 pulsation stars, which were discovered in a search for new variables on the basis of a private astronomical observatory in Molodechno, Belarus.*

Introduction:

During a programme to search for new variable stars (www.aavso.org/vsx) 7 new variables have been found, which are presented in this work. These objects are new to my knowledge (not included in AAVSO VSX and GCVS (Samus, N., Durlevich, O. & Kazarovets, E., 2017)).

Observations:

The unfiltered observations were made using a 200 mm Newton telescope (1:5) and a Canon 400D digital SLR camera on the basis of a private astronomical observatory near Molodechno; Belarus. The chosen exposure parameters were 30 seconds, ISO 400, and the CR2 format. The program Maxim DL decoded the frames into a fits format. All pictures were calibrated using a special script.

Data analysis:

The photometry was performed by the programme VAST. To improve the accuracy of the period determination, the own observations were combined with ASAS-SN data (Kochanek et al., 2017). The search for the period was done with the CSS programme by the method of Lafler-Kinman.

Results:

The resulting 7 new variables from this search are presented in the table below. The coordinates of the stars are taken from the UCAC-4 catalog. Times of Min(I) were calculated for eclipsing variables, times of maxima for the pulsating stars. The folded light curves are shown in Fig. 1 - 7. The result observations of the eclipsing stars were sent to the database of the Czech Astronomical Society (<http://var2.astro.cz/brno/>).

Nr	Name	RA2000	DEC2000	TYPE	Epoch 245...	Period	Max	Min	Light curve
1	SERIV 101	01 58 11.74	+55 42 18.69	HADS	7011.816	0.196116	11.22	11.51	Fig.1
2	SERIV 102	01 57 02.58	+55 59 28.27	EW	7719.920	0.3198544	14.90	15.40	Fig.2
3	SERIV 103	02 00 57.92	+55 27 19.24	EW	7043.725	0.2736566	15.10	15.80	Fig.3
4	SERIV 104	01 48 31.77	+55 26 56.70	EB	7942.068	0.467308	14.90	15.40	Fig.4
5	SERIV 105	01 51 41.87	+55 16 09.12	EW	7746.854	0.3568705	13.50	13.85	Fig.5
6	SERIV 106	01 51 02.31	+54 39 47.68	EW	7236.518	0.400518	15.40	15.90	Fig.6
7	SERIV 107	04 08 17.72	+43 40 39.14	EW	8019.440	0.313253	11.50	11.90	Fig.7

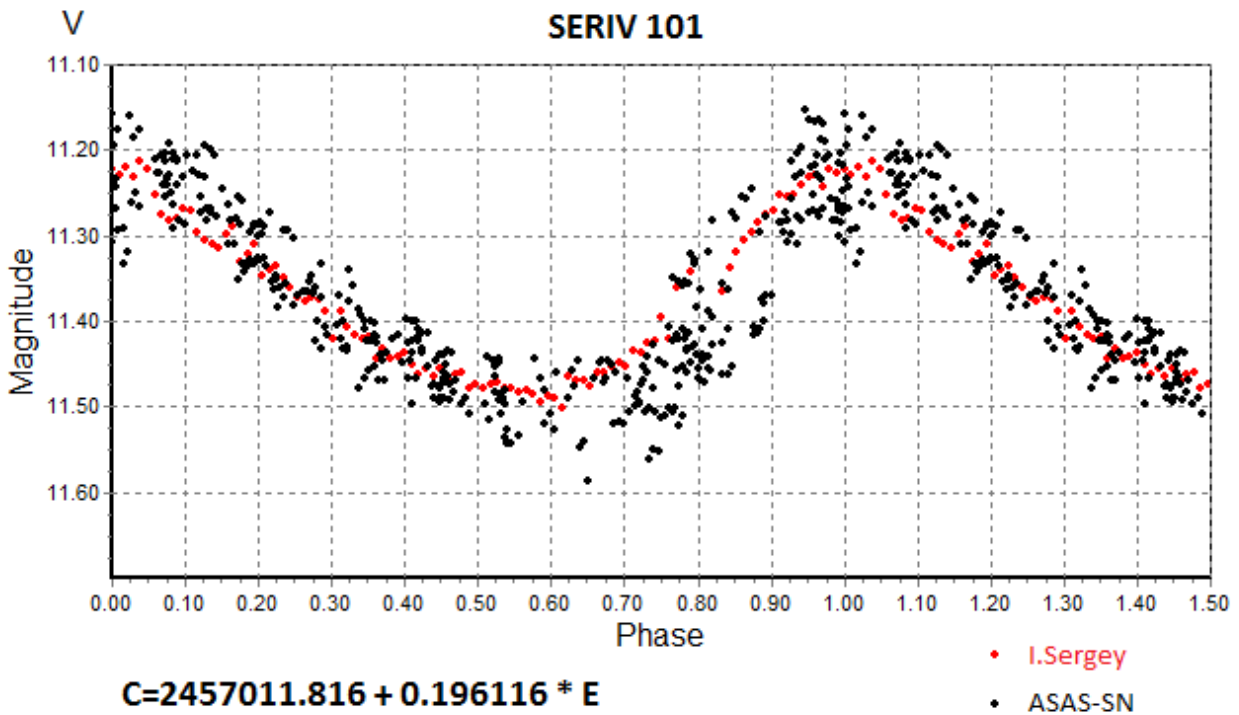


Fig.1 Lightcurve for SERIV 101

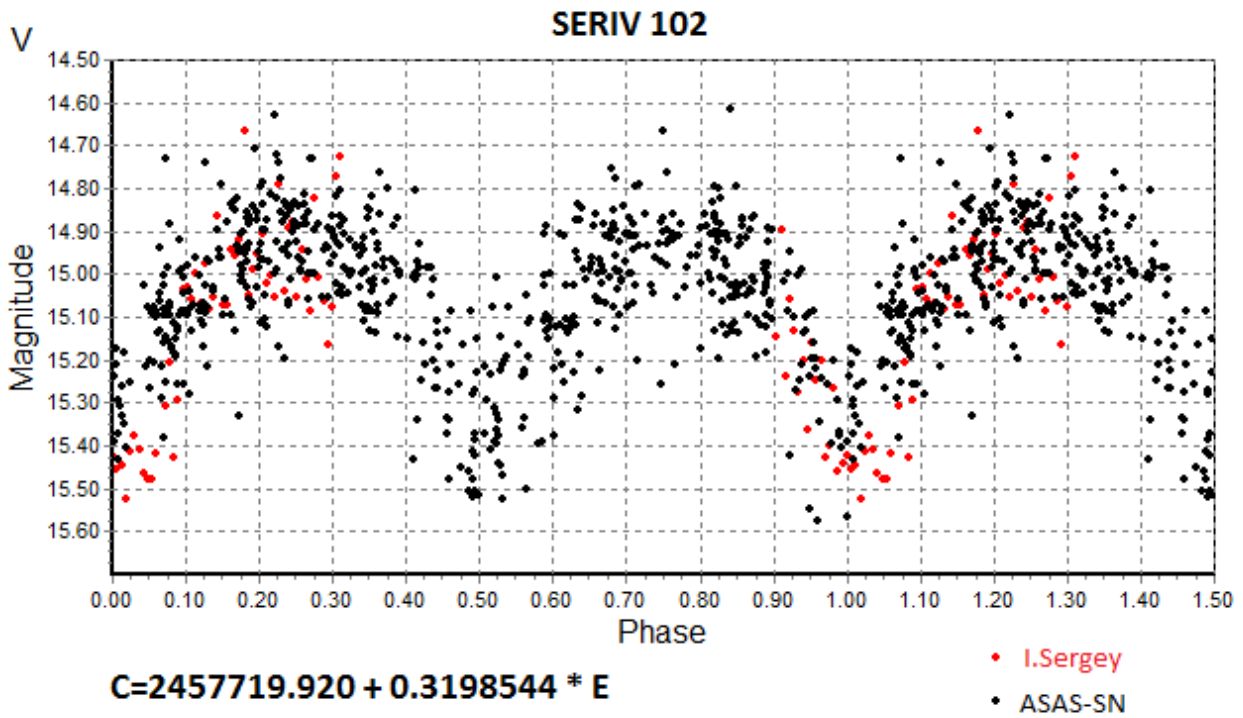


Fig.2 Lightcurve for SERIV 102

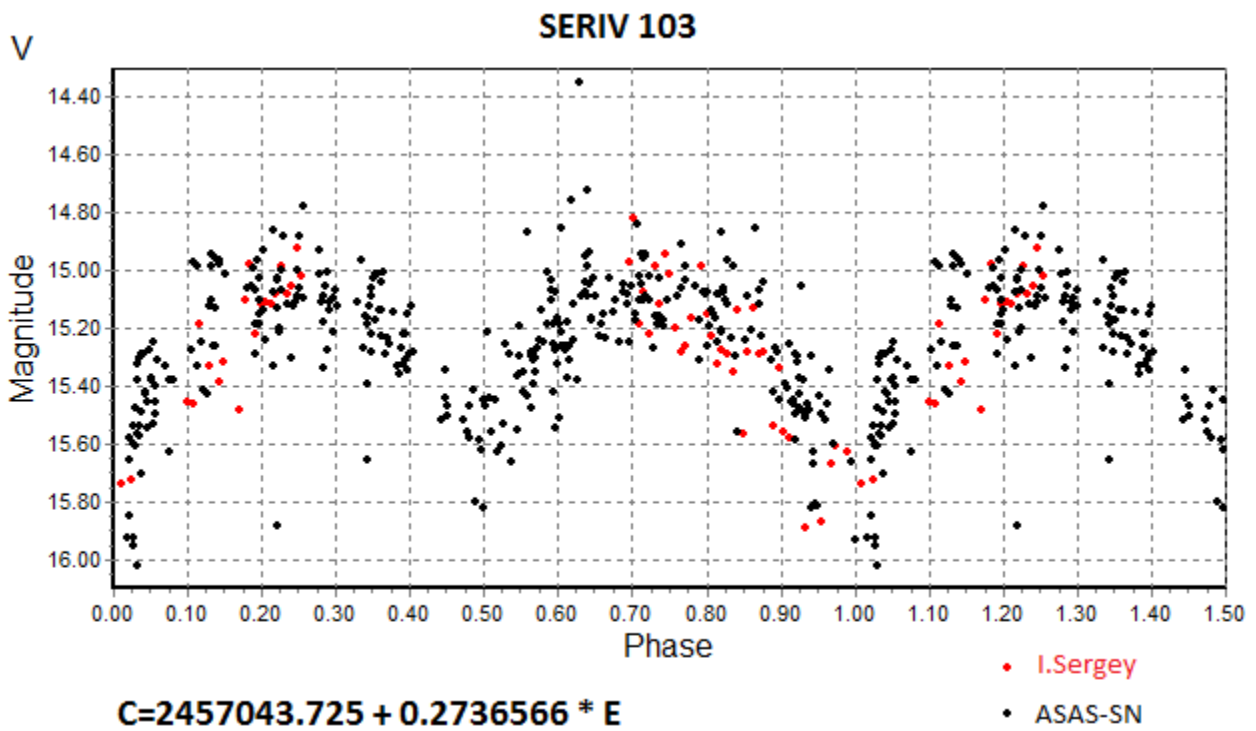


Fig.3 Lightcurve for SERIV 103

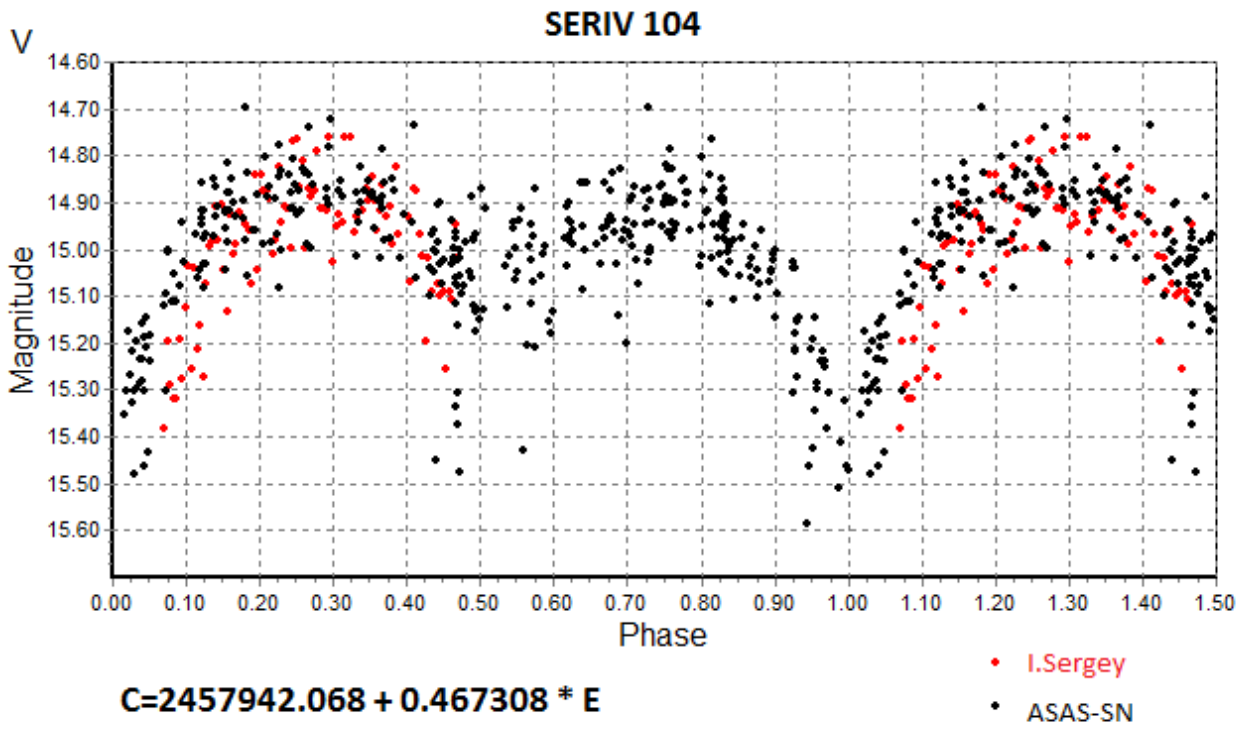


Fig.4 Lightcurve for SERIV 104

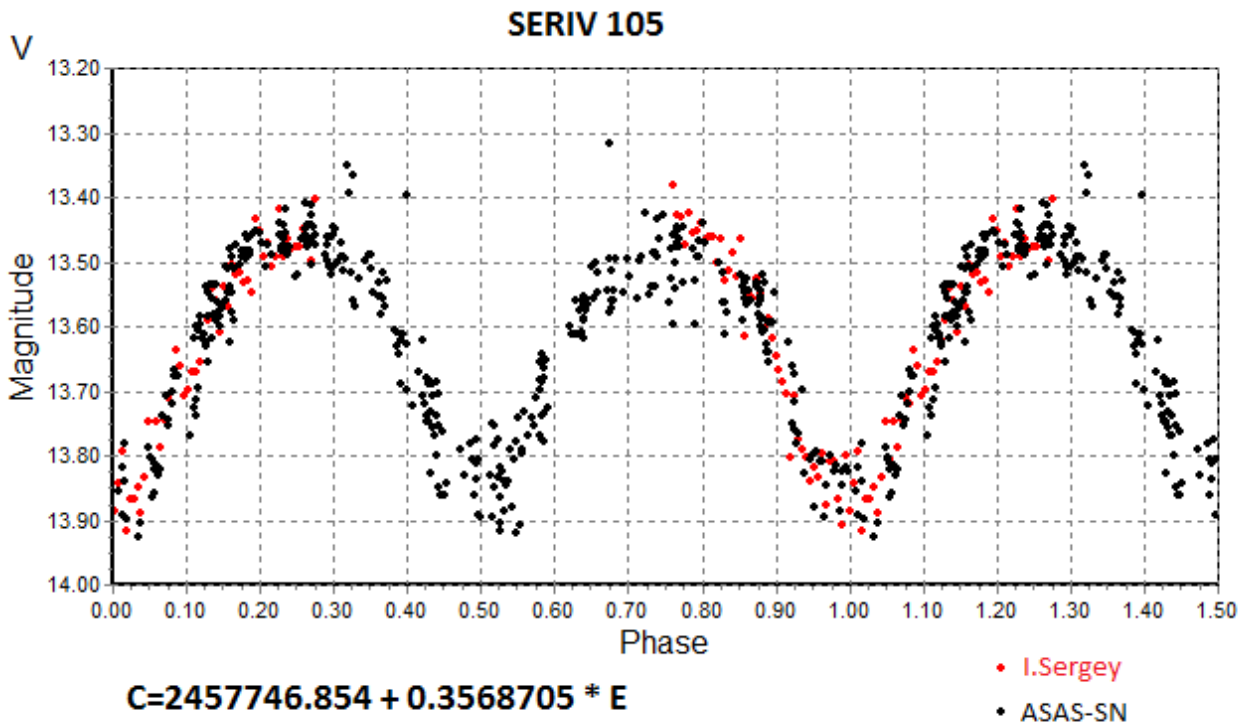


Fig.5 Lightcurve for SERIV 105

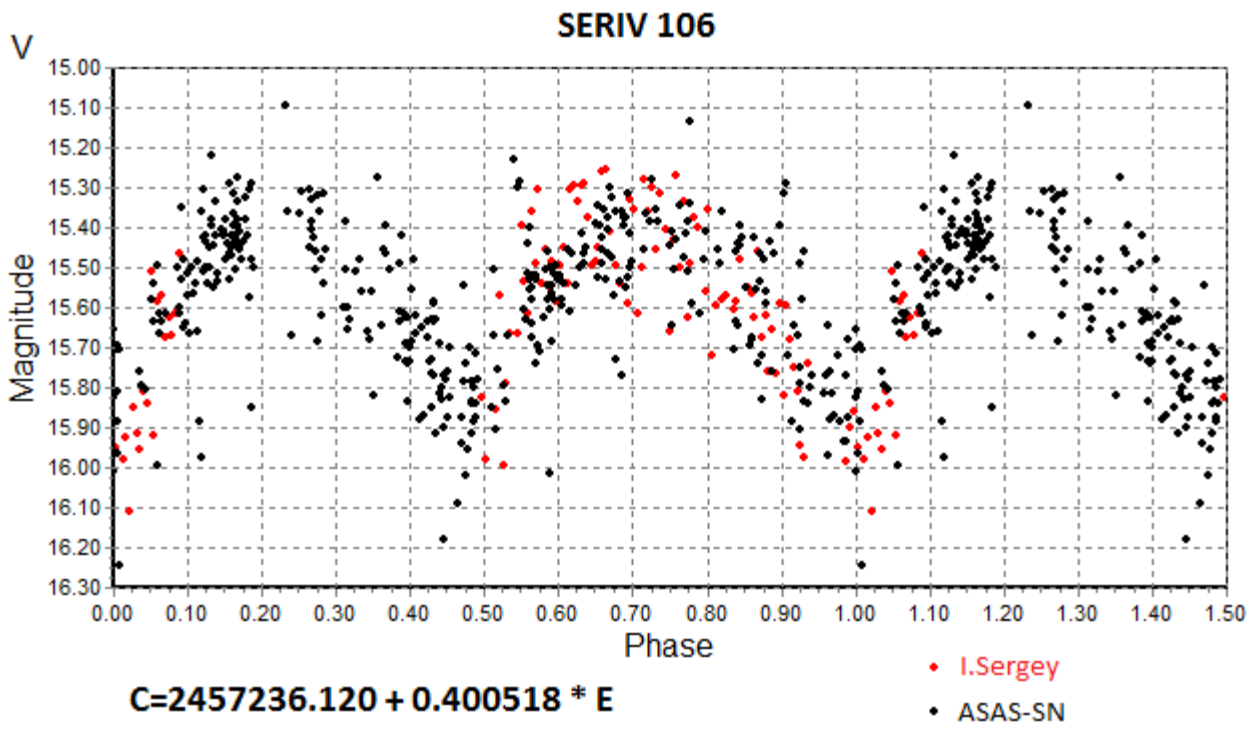


Fig.6 Lightcurve for SERIV 106

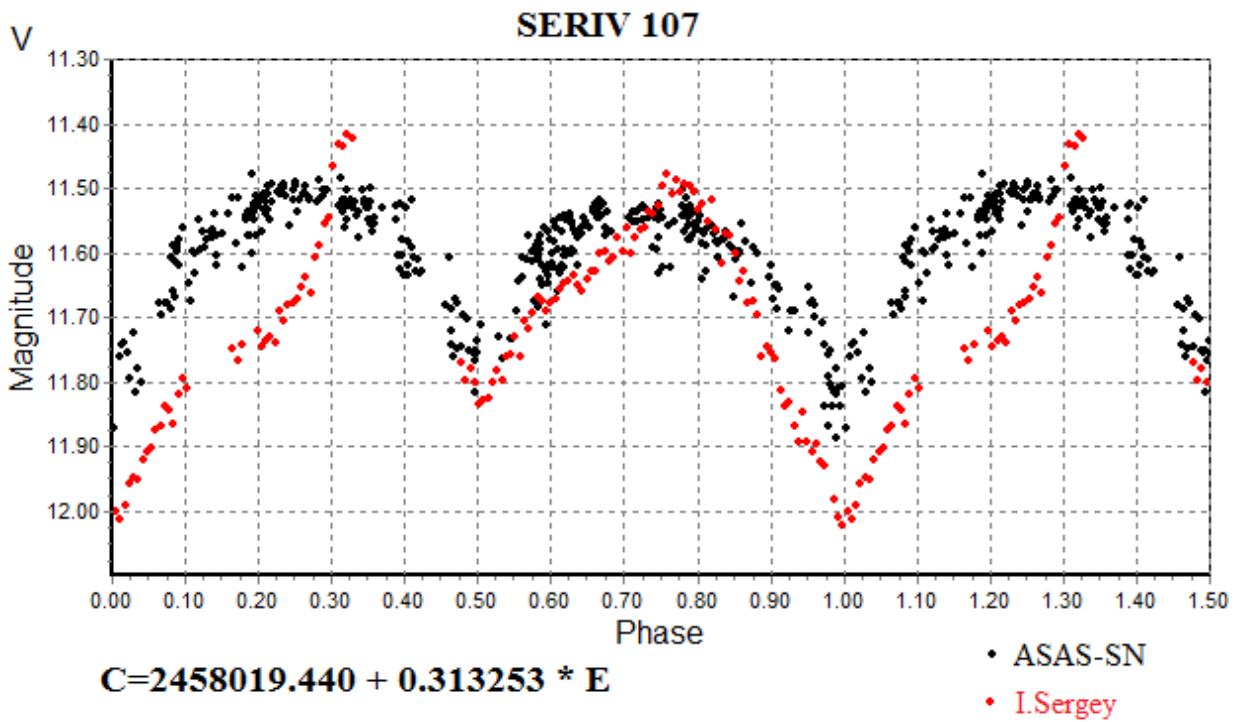


Fig.7 Lightcurve for SERIV 107

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This research has made use of the International Variable Star Index (VSX) database, operated at AAVSO, Cambridge, Massachusetts, USA.

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References:

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C. S. Kochanek; et al., 2017, The All-Sky Automated Survey for Supernovae (ASAS-SN) Light Curve Server v1.0 , <http://adsabs.harvard.edu/abs/2017arXiv170607060K>