

Variability of GSC 9005-03474

[A. V. Khruslov](#)

Tula, Russia

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

Star Name:	GSC 9005-03474, ASAS 140947-6145.0
Coordinates (J2000):	14 09 47.76, -61 44 58.4
Variability type:	SRS:, double-mode; Limits, System: 11.62 - 12.13 (V);
Period:	(see Remarks) d; Epoch(other): JD (see Remarks)

Remarks:

According to ASAS-3 data (Pojmanski 2002), GSC 9005-03474 = ASAS 140947-6145.0, listed in the ASAS catalog of variable stars as a fundamental mode Cepheid (type DCEP-FU/EC/ESD) with the period of 16.766 days, is a double-mode pulsating variable star. I analyzed the ASAS-3 observations using the period-search software developed by Dr. V.P. Goranskij for Windows environment.

The results of the frequency analysis of ASAS-3 observations of the variable are presented in the Figure. It was found that the scatter of the light curve can be explained by superposition of two close frequencies corresponding to the following light elements:

Mode	Frequency, c/d	Semi-amplitude, V mag	Period, days	Epoch, JD(max)
f1	0.059627	0.110	16.771	2453707.5
f2	0.067132	0.078	14.896	2453706.6

Such periods are in the range characteristic of Cepheids. However, an interpretation of the star as a double-mode Cepheid is rather doubtful. Known double-mode Cepheids have shorter periods, and the period ratio $P2/P1 = 0.8882$ is unusual. The star's color ($J-H = 0.687$, $J-K = 0.933$, 2MASS) seems too red for a Cepheid, and the light curve shape is not typical of Cepheids. Thus, we tentatively consider this variable a double-mode short-period semiregular star. Its further studies are desirable.

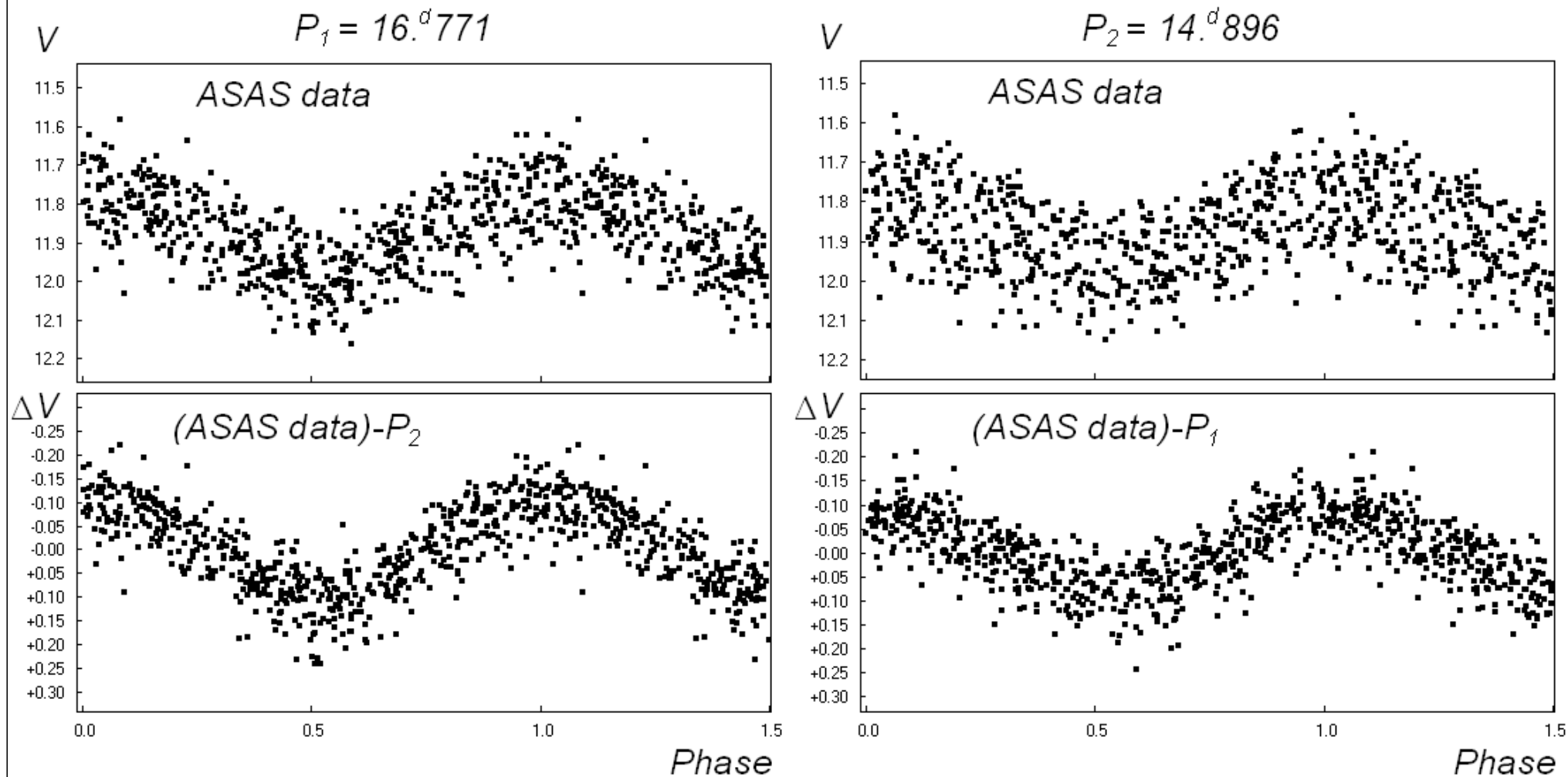
The tabulated coordinates are from the 2MASS catalog.

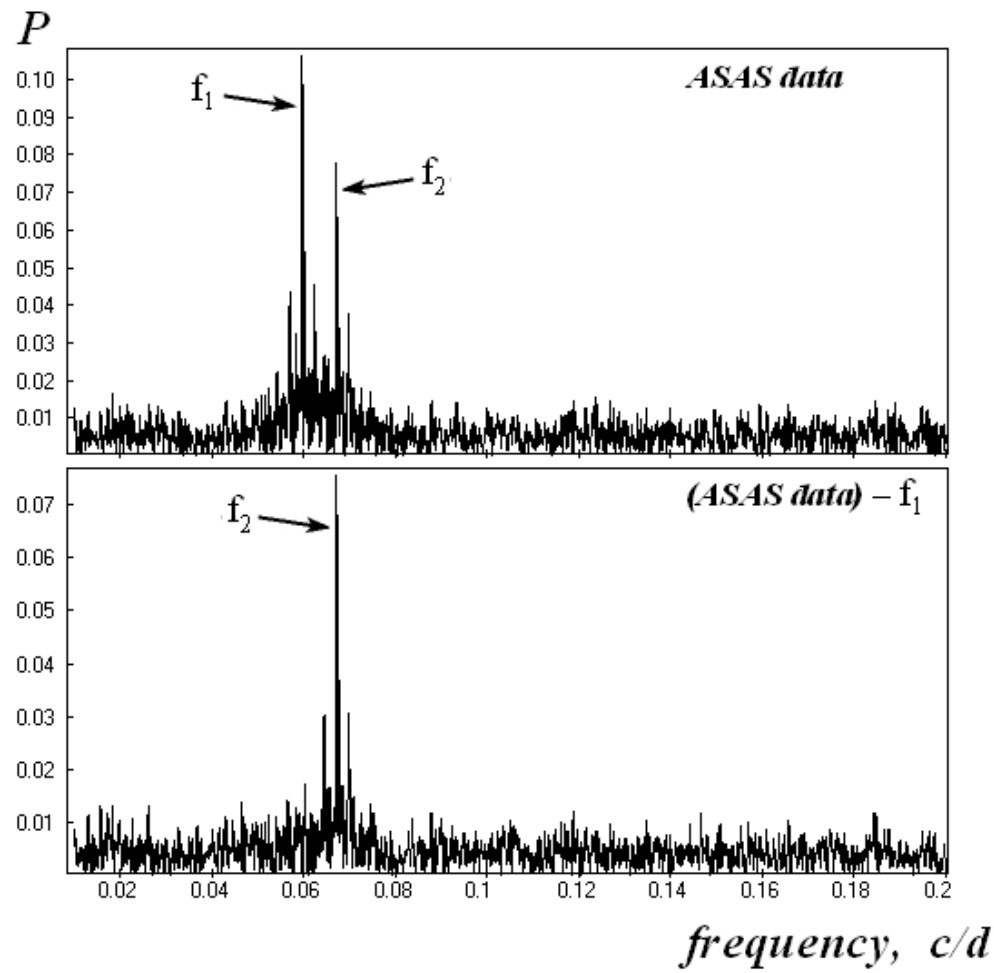
References:

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

Light Curve

GSC 9005-03474 = ASAS 140947-6145.0





The phased light curves. Top panels: ASAS-3 data folded with the periods P1 and P2. Bottom panels: the same curves after prewhitening the other oscillation.