

# TYC 3877 02198 1, a New Multiperiodic RR Lyrae Variable Star with First-Overtone and Non-Radial Pulsations

**A. V. Khruslov**

*Tula, Russia*

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

<b>Star Name:</b>	TYC 3877 02198 1, NSVS 2823967, NSVS 5215596
<b>Coordinates (J2000):</b>	16 16 30.79, +54 23 21.9
<b>Variability type:</b>	RRC; <b>Limits, System:</b> 11.65 - 12.0 (R);
<b>Period:</b>	(see Remarks) d; <b>Epoch(max):</b> JD (see Remarks)

## Remarks:

TYC 3877 02198 1 is a new multiperiodic RR Lyrae variable star. Besides clearly expressed first-overtone radial pulsations, it shows at least two non-radial modes according to ROTSE1 data (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 following light elements are used to plot the phased light curves:

Mode	Frequency, c/d	Semi-amplitude, mag (R)	Period, day	Epoch, JD
f1	3.2648	0.083	0.30630	2451420.777
f2	3.2100	0.042	0.31153	2451420.692
f3	3.3229	0.025	0.30094	2451420.843

The frequency f4 (3.2678 c/d, see the Figure) is probably spurious.

RR Lyrae variables with equidistant triplets of frequencies (two non-radial frequencies around the first-overtone mode) have been known for some time in the LMC (Alcock et al. 2000).

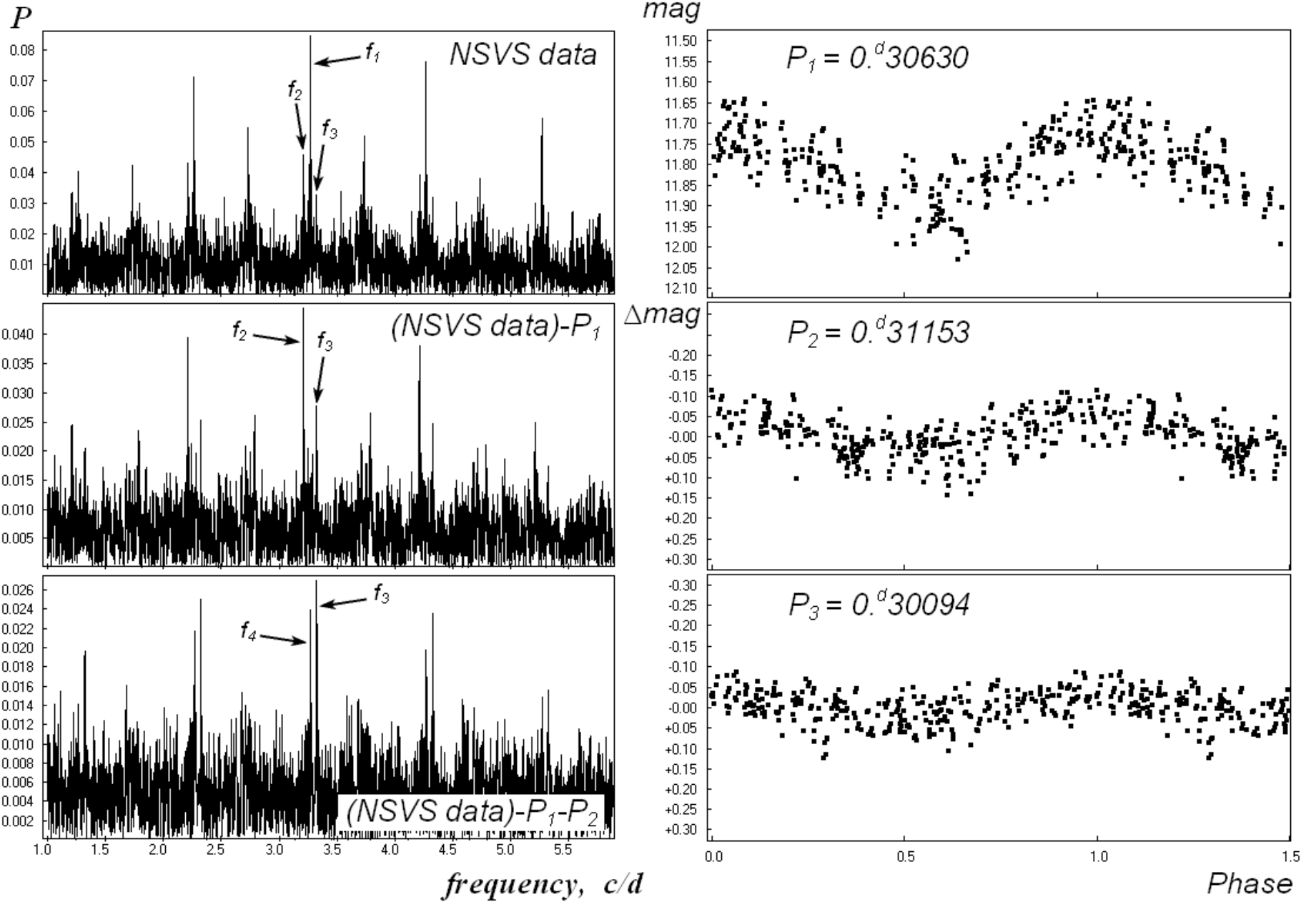
J-H = 0.084 (2MASS), B-V = 0.411 (Tycho2). The coordinates were drawn from the Tycho-2 catalog.

## References:

Alcock, C., Allsman, R., Alves, D.R., et al., 2000, *Astrophys. J.*, 542, 257  
Wozniak, P.R., Vestrand, W.T., Akerlof, C.W., et al., 2004, *Astron. J.*, 127, 2436

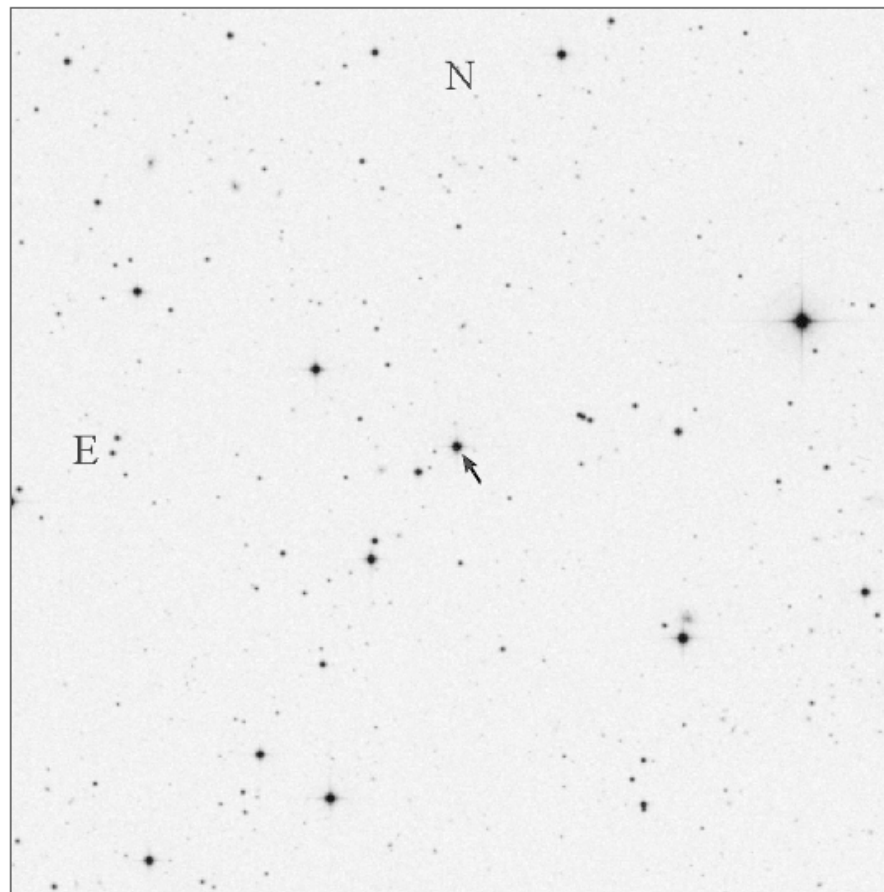
## Light Curve

TYC 3877 02198 1 = NSVS 2823967



Finding Chart

TYC 3877 02198 1



POSS II red

15'x 15'