

**PHOTOELECTRIC OBSERVATIONS AND NEW ELEMENTS  
 OF THE ECLIPSING BINARY TY Pup**

We used HD 60265 as a comparison star for photoelectric observations of the Cepheid X Pup. Later it was ascertained that it was the known eclipsing variable TY Pup.

TY Pup was observed with 60-cm reflectors of Mt. Maidanak observatory (five  $UBVR_c$  measurements in 1984) and CTIO (22  $BV(RI)_c$  measurements in 1995). The accuracy of the individual data is near 0.01 mag in all filters. Our observations listed in Table 1 do not satisfy the light elements published in the recent paper by Gu et al. (1993); apparently there is miscalculation in the number of epochs in the above publication. Therefore we have gathered all published observations of this star, which are photoelectric ones only (Huruhata et al., 1957; Gu et al., 1993), and analysed them as well as our CTIO measurements with Hertzsprung's method; the derived epochs of minima (in filter  $V$ ) are given in Table 2. These four epochs of minima were introduced into a linear least-squares solution (with weights being inversely proportional to error squares) to obtain the following improved ephemeris formula:

$$\begin{aligned} MinJD_{hel} = 2441955.6816 + 0.81924123 \times E \\ \pm .0012 \pm .00000023 \end{aligned}$$

This ephemeris was used in calculating the  $O - C$  values in Table 2 and for plotting our observations in Figure 1.

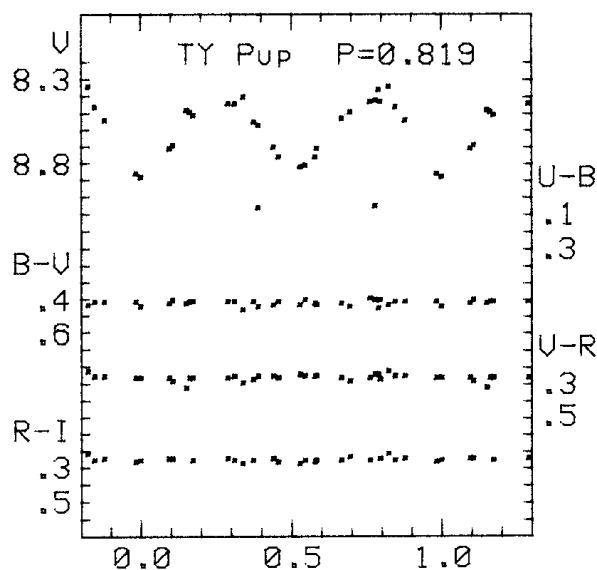


Figure 1

Table 1

JD hel 2400000+	Phase	$V$	$U - B$	$B - V$	$(V - R)_c$	$(R - I)_c$
45676.4960	0.781	8.417	0.045	0.393	0.239	–
45687.4492	0.151	8.480	–	0.413	0.311	–
45692.3750	0.164	8.485	–	0.401	0.254	–
45693.3828	0.394	8.569	0.053	0.438	0.248	–
45704.3593	0.792	8.352	–	0.450	0.239	–
49803.6727	0.585	8.705	–	0.429	0.246	0.247
49804.6877	0.824	8.340	–	0.424	0.218	0.215
49807.6640	0.457	8.757	–	0.403	0.254	0.263
49808.6779	0.695	8.482	–	0.437	0.273	0.228
49809.6214	0.846	8.458	–	0.409	0.246	0.249
49810.6558	0.109	8.690	–	0.397	0.279	0.245
49811.6242	0.291	8.435	–	0.408	0.255	0.237
49812.6412	0.532	8.813	–	0.426	0.234	0.268
49814.6520	0.987	8.850	–	0.401	0.258	0.257
49815.6236	0.173	8.503	–	0.401	0.252	0.246
49816.6092	0.376	8.547	–	0.406	0.265	0.255
49817.5942	0.578	8.754	–	0.412	0.242	0.264
49818.5939	0.799	8.425	–	0.399	0.269	0.237
49819.5807	0.003	8.873	–	0.433	0.253	0.253
49821.5777	0.441	8.699	–	0.429	0.249	0.243
49822.5837	0.669	8.526	–	0.411	0.257	0.254
49823.5746	0.878	8.532	–	0.402	0.249	0.237
49824.5733	0.097	8.705	–	0.412	0.253	0.244
49825.5680	0.311	8.433	–	0.404	0.244	0.254
49825.5916	0.340	8.397	–	0.457	0.287	0.274
49826.5810	0.548	8.808	–	0.397	0.248	0.246
49827.5766	0.763	8.425	–	0.384	0.259	0.247

Table 2

Min JD hel 2400000+	Error	$E$	$O - C$	Number of observations	Author
34092.6040	0.0009	–9598	–0.0004	279	Huruhata et al., 1957
34416.2056	0.0008	–9203	0.0010	184	Huruhata et al., 1957
46100.2230	0.0002	5059	0.0000	597	Gu et al., 1993
49817.1362	0.0013	9596	0.0157	20	This paper

Radial velocity measurements of TY Pup (Struve, 1950) satisfy the above elements: the sine fitted to Struve's data and  $\gamma$ -axis are intersecting near phase 0.

The research described in this publication was made possible in part by grants No. NDD000 and No. NDD300 from the International Science Foundation and Russian Government as well as by grant No. 95-02-05276 from the Russian Foundation of Basic Research to LNB and by funds awarded through the Natural Sciences and Engineering Research Council of Canada (NSERC) to DGT.

L.N. BERDNIKOV,  
Sternberg Astronomical Institute  
13, Universitetskij prosp.  
Moscow 119899, Russia

D.G. TURNER  
St. Mary's University  
923 Robie st.  
Halifax, NS B3H 3C3, Canada

References:

- Gu S., Yang Yu., Liu Q., and Zhang Zh., 1993, *Astrophys. and Space Sci.*, **203**, 161  
 Huruhata M., Kitamura M., Nakamura T., and Tanabe H., 1957, *Ann. Tokyo Astron. Obs. Second Series*, **5**, 31  
 Struve O., 1950, *Astrophys. J.*, **112**, 184