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**DP PEGASI: CCD LIGHT CURVE AND
ELEMENTS OF VARIATION**

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The star DP Pegasi = GSC 1675.1817 = HV 6121 (at $21^{\text{h}}22^{\text{m}}56^{\text{s}}.0$, $+22^{\circ}03'46''$, (J2000); GSC-magnitude: 13.3) was first reported by Shapley and Hughes (1934) to be variable. They classified the star as an eclipsing binary of unknown period with a photographic range of $13^{\text{m}}.3$ – $14^{\text{m}}.2$ and remarked that they had found 11 minima on their photographic plates, without giving further information. An intensive search of the Harvard College Observatory's archive by PG was not successful in locating the original data. According to the SIMBAD data base, no other source of information concerning the variability of DP Pegasi is available.

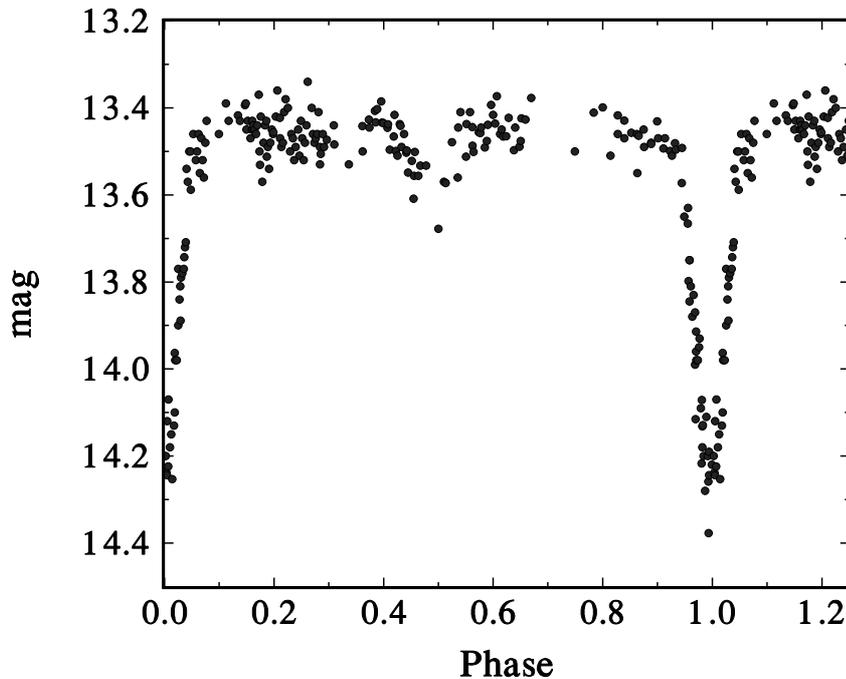


Figure 1. Phased CCD light curve of DP Pegasi (no filter)

Table 1: Times of primary minimum, DP Pegasi

HJD 2400000 +	Error \pm	Epoch	$O - C$	Observer	Method
42743.479	–	–5279	+0.140	Harvard	ptg
43050.688	–	–5094	+0.011	Harvard	ptg
43070.598	–	–5082	–0.014	Harvard	ptg
43776.627	–	–4657	–0.033	Harvard	ptg
44512.628	–	–4214	+0.018	Harvard	ptg
44934.532	–	–3960	–0.046	Harvard	ptg
45635.557	–	–3538	–0.084	Harvard	ptg
45645.573	–	–3532	–0.036	Harvard	ptg
45695.453	–	–3502	+0.006	Harvard	ptg
45939.641	–	–3355	–0.016	Harvard	ptg
51513.283	0.003	0	+0.005	Diethelm	ccd, no filter
51757.490	0.003	+147	+0.003	Diethelm	ccd, no filter
51767.457	0.003	+153	+0.002	Diethelm	ccd, no filter
51797.3607	0.0010	+171	+0.0024	Blättler	ccd, no filter

We have started an observing campaign with our CCD equipment in order to clarify these open questions. RD used the 35-cm RC-telescope and a SBIG ST-6 CCD-camera (no filter) of the R. Szafraniec Observatory, Metzeren, Switzerland, securing a total of 111 observations in 26 nights between JD 2451459 and JD 2451925. EB observed with a SBIG ST-7 CCD-camera (no filter) mounted on a 15-cm refractor at his private observatory in Wald, Switzerland. He gathered a total of 124 measurements in two nights, namely JD 2451797 and JD 2451799. All CCD exposures were dark-subtracted and flat-fielded before aperture photometry was performed. No correction for differential extinction was applied due to the proximity of the comparison stars to the variable and the limited accuracy of our photometry at the brightness level of DP Pegasi ($\pm 0^m.03$). We used GSC 1675.1720 (GSC-magnitude: 13.8) as primary comparison star, while several field stars, some not contained in the GSC, served as check stars, proving the constancy of the comparison star.

In Figure 1, we show the results of our photometry, folded with the period ($1^d.661272$) we considered to yield the best representation of our observations.

In order to improve the period value, PG searched the plate collection of Harvard College Observatory for minima of the variable. The plates of the Damon and RH patrol series yielded a number of dimmings given in Table 1 along with the CCD timings already published in the BBSAG Bulletins. The $O - C$ values are calculated from the elements:

$$\text{Min. I} = \text{HJD } 2451513.278 + 1^d.6612879 \times E. \\ \pm 0.005 \quad \pm 0.0000060$$

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Reference:

Shapley, H., Hughes, E.M., 1934, *Harvard Ann.*, **90**, No. 4