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B AND V PHOTOMETRY OF VZ Psc

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An observing history of the 0.261 day system VZ Psc can be found in Poretti (1984). The system's short period and late spectral type (K2-K5) make it an important late type contact system.

The system was observed on 4 nights between JD 2444808 and 2444813 with the #4 0.4-m telescope at KPNO using a dry ice cooled GaAs detector, BD + 4°5016 was selected as the comparison star. Each star was measured in the sequence VBBV, followed by a single V and B measurement of the sky. The comparison star was observed after every two variable star measurements. BD + 4°5009 was observed at least once each night as a check on the non-variability of the comparison star.

Phases were computed using the ephemeris of Eggen (1967). The light curve is shown in Figure 1. Calculations of times of minimum light were performed with the RAO's PHIMIN code which uses essentially the method of Kwee and van Woerden (1956). The resulting phases of minimum light are:  $0^{\text{P}}5226 \pm .0032$  in V, and  $0^{\text{P}}5097 \pm .0112$  in B, giving a weighted mean value of  $0^{\text{P}}5216 \pm .0034$ . Based on the light curve presented here, the minimum observed by Poretti appears to be the secondary, as he suspected.

Fourier analysis of the light curves showed that they could be accurately represented by a five term fit of the form:

$$l = A_0 + A_1 \cos \theta + A_2 \cos 2\theta + B_1 \sin \theta + B_2 \sin 2\theta$$

The coefficients of the V and B full light curves, normalized to the weighted mean of the maxima are given in Table I, where the uncertainties in units of the last place are given in parentheses. The error of the fit, in magnitudes, is given in the last column.

The results of analyses on the full light curve, the maxima outside  $\pm 0.1$  of the minima, and the maxima outside  $\pm 0.15$  of the minima are not greatly different. This is what is to be expected for the light curve of an ellipsoidal variable.

# VZ PSC

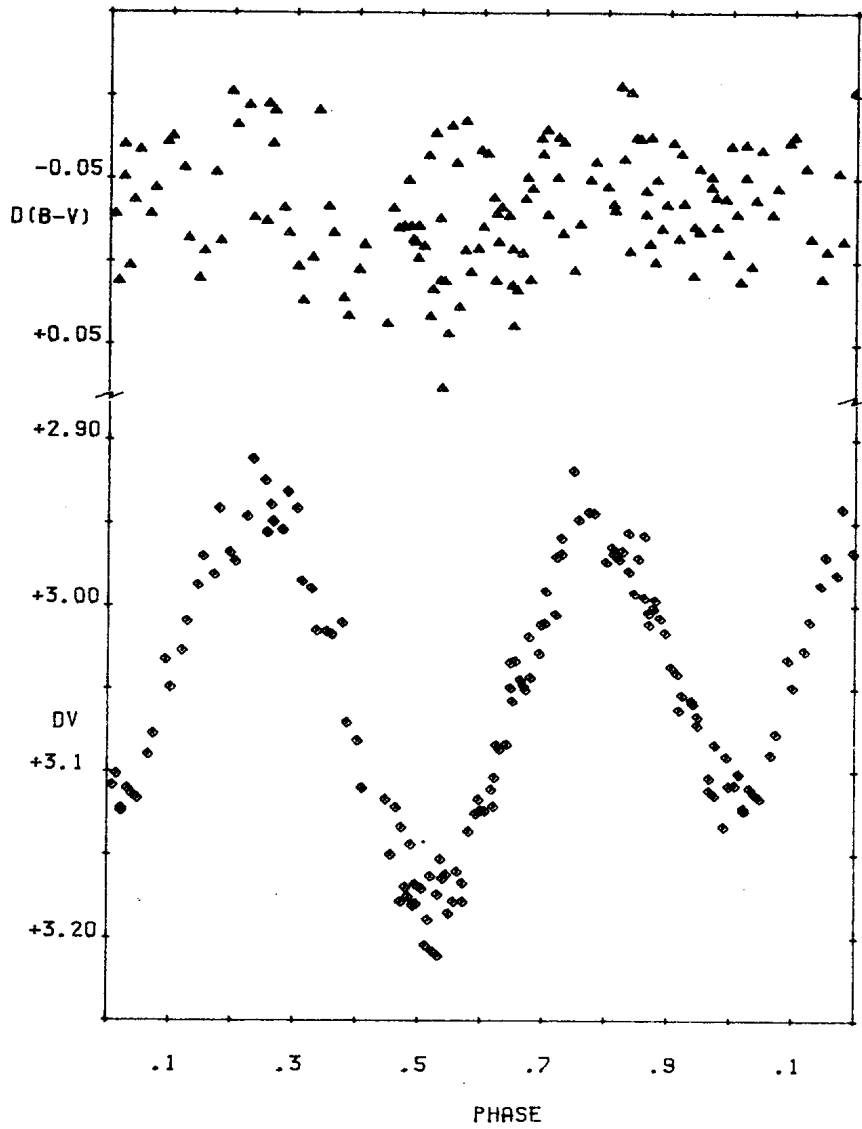


Figure 1

Table I

VZ Psc Fourier Coefficients - July 1981 Full Light Curves

	A <sub>0</sub>	A <sub>1</sub>	A <sub>1</sub>	A <sub>2</sub>	A <sub>2</sub>	e
V	0.918(1)	-0.030(2)	-0.006(2)	-0.083(2)	+0.006(2)	±0.016
B	0.912(2)	-0.041(3)	-0.004(3)	-0.091(3)	+0.010(3)	±0.029

The system displays a marginal O'Connell effect (Davidge and Milone 1984) of  $0.016 \pm 0.012$  in V and  $0.039 \pm 0.011$  in B, based on means of the data in each maximum.

A detailed discussion of this and more recent photometry will appear elsewhere, and Hrivnak and Milone are preparing a radial velocity study for publication.

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