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PHOTOELECTRIC PHOTOMETRY OF BF PAVONIS †

BF Pavonis has been discovered by Shapley et al. (1939). They classified it as W UMa type eclipsing binary and gave a preliminary period of $0^d.170$. Such a short period has not been confirmed for a W UMa star so far. Therefore it has been checked photoelectrically with the two channel photometer at the 1m ESO telescope (La Silla/Chile) in B and V in July 1980. Comparison star has been CD-59^o6951.

It turned out that the period has to be changed to $0^d.3056$. With this period and by using the minimum time

JD hel. 2444438.7611

the light curves in Figs. 1 and 2 have been plotted. They do not show larger irregularities. It is not quite clear if the minimum at phase 0.0 is in fact the deeper one, for the other minimum is not completely covered by observations and there may be minor systematic errors at its branches because of inferior weather conditions.

A determination of preliminary orbital elements has been attempted. The atlas of theoretical light curves by Anderson and Shu (1979) yields a mass ratio $q \sim 0.8$ and an

† Based on observations made at the European Southern Observatory (La Silla/Chile).

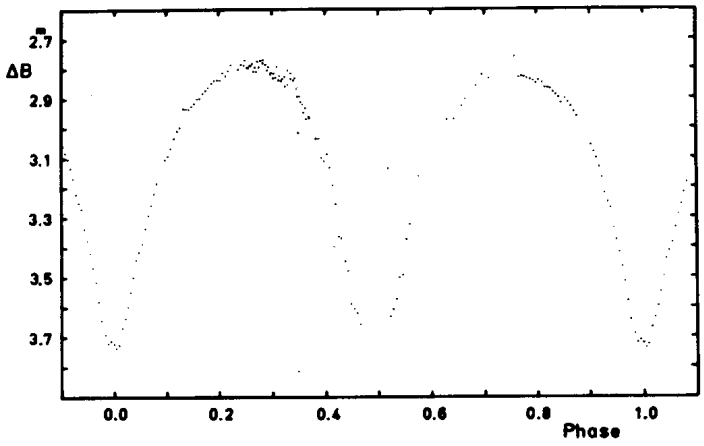

Fig. 1 B observations of BF Pav

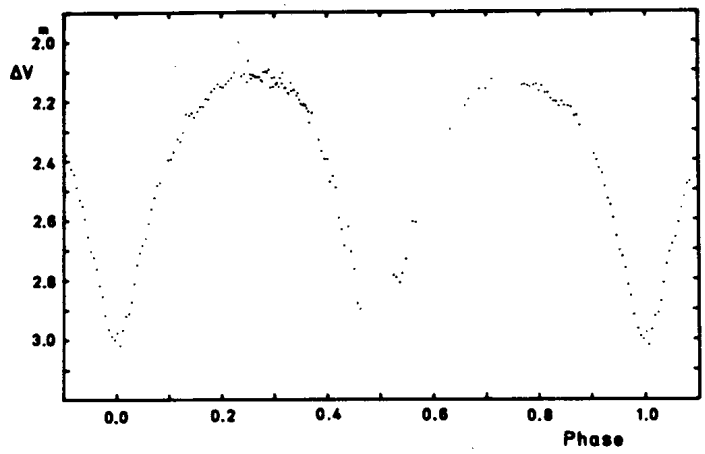

Fig. 2 V observations of BF Pav

inclination $i>80^{\circ}$. This would indicate a ratio of the radii $k\sim0.9$. The Russell-Merrill method has been applied to the well observed minimum at phase 0.0. It has been checked if that minimum is a transit or an occultation. The former possibility is in better accordance with the shape relations but it yields a ratio of the radii k of only 0.70 ($i=88^{\circ}$); the latter has its best fit at k=0.82. Unless the observations are repeated, it can only be concluded that the ratios of the masses and the radii are not far from unity which is demonstrated by the unusually large amplitude of $0\overset{m}{.}9$.

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