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PHOTOELECTRIC PHOTOMETRY OF TZ BOÖTIS

The W UMa system, TZ Boötis, has exhibited several period changes since its discovery in 1926. The most recent change occurred during 1977-78, at which time the period suddenly shortened by 0.6 s (Gröbel, 1). Observations of period changes may help solve light curve irregularities in TZ Boötis as reported by Hoffmann (2, 3), and may increase our understanding of interactions between close binary systems.

BV differential photometry was conducted on TZ Boötis during two nights in April, 1989, with Lowell Observatory's 107 cm reflector on Anderson Mesa. Comparison stars were the same as used by Hoffmann (2). Primary (transit) minimum was observed on JD Hel 2447640.6925 ± 0.0005. Using Gröbel's (1) ephemeris of

$$\text{JD Hel Min}_{tr} = 2443655.5278 + 0.29715665\ E$$

for observations after JD 2443300 an O-C of -0.0031d was obtained. Thus, there is no evidence for a significant change in the period of TZ Boötis since 1978.

Hoffmann (3) found that the primary and secondary minima alternate in depth with a period of approximately 3.5 years. As can been seen in Fig. 1, the minima were nearly equal in depth with the primary minimum only slightly deeper than the secondary minimum. This is consistent with Hoffmann's prediction that the system should have been changing from a stage with a deep primary minimum (1988.8) to a stage with equal minima (1989.6).

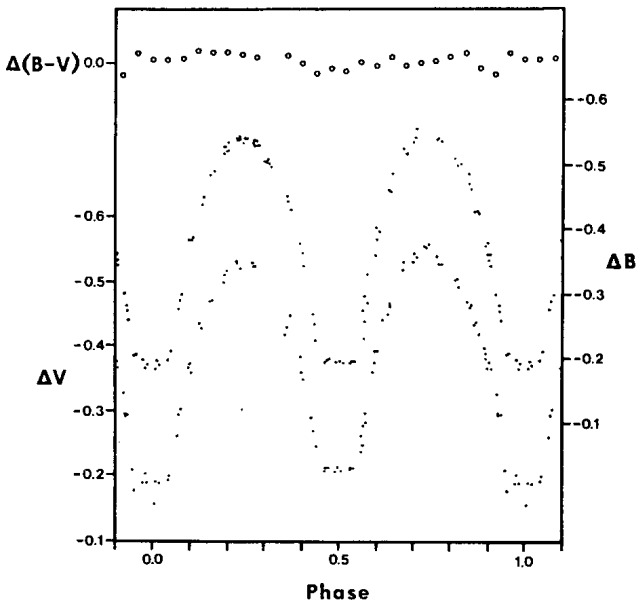

Fig. 1 B and V light curves of TZ Boötis, April 1989. The Δ(B - V) curve is based on normal points with bin widths of 0P.04.

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