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A NOTE ON BZ ERIDANI

In this communication, first photoelectric photometry of the system BZ Eridani in three colours and some tentative results have been presented.

Observations were carried out through the 38-cm reflector, employing 1P21 photomultiplier thermoelectrically cooled to -20°C , the UBV filters of Johnson and Morgan system and d.c. techniques.

A total of ten nights of observations have been secured during the period December 1975 to March 1976, using BD-6^o 840 and BD-6^o846 as comparison and check stars, respectively. Instrumental magnitudes have been standardized with the observations of four standard stars (ω Eri, μ Eri, ν Eri and ϵ Eri). Accuracy of individual observation in U, B and V filters are respectively, $\pm 0^{\text{m}}.035$, $\pm 0^{\text{m}}.032$, and $\pm 0^{\text{m}}.024$.

During the course of our observations two primary and one secondary minima have been obtained with a graphical accuracy of $\pm 0^{\text{d}}.001$ in time.

Using the epoch, JD 2425558.445 (Meinunger, 1966), a new period of $0^{\text{d}}.6641701$ has been determined which is not significantly different from that of Meinunger (1966), $0^{\text{d}}.6641704$. Kippenhahn (1955) has given a slightly different epoch, JD 2425558.456, from that of Meinunger (1966).

From the light-curves (Figure 1), we find that:

- (1) The depth of primary minimum is nearly half of that given by Hoffmeister (1934) and Meinunger (1966).
- (2) The duration of eclipse is nearly half of the value given by Meinunger (1966).
- (3) The depth of secondary minimum is nearly half that of the primary.

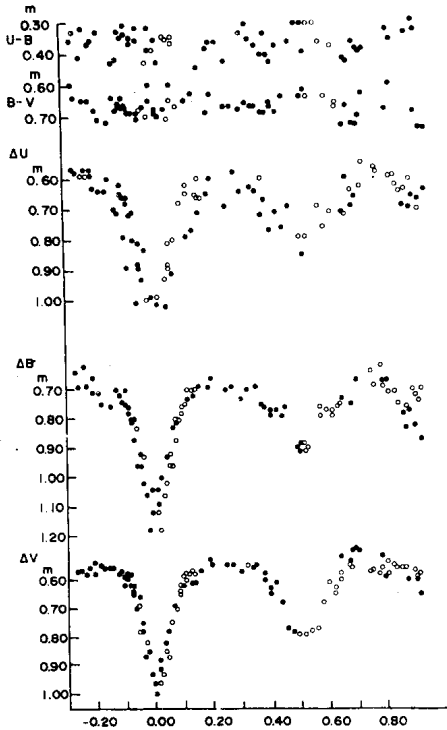


Fig.1. Light and colour curves of BZ Eridani
(Filled and open circles represent direct
and reflected points, respectively)

The secondary eclipse seems to be a total (occultation) with a duration of totality about 1^h.2.

The colours of both the components of the system have been obtained. These, on comparing with Arp's (1958) colour-sequences, indicate that the primary and the secondary components belong to G0III and G2III spectral types, respectively. The systemic colour is of G1III type, which is considerably different from that given by Götz and Wenzel (1961), F2.

In order to decide on the type of light curve, present light curve characteristics have been compared with those listed by Strohmeier (1972). It is found that our light curve shows some similarity with that of W UMa type light curve, but on the whole it is closer to Algol type as suggested by Hoffmeister (1934).

Summary of results

Amplitude of primary minimum	: $0^m.42$ (U), $0^m.48$ (B), $0^m.44$ (V)
Amplitude of secondary minimum	: $0^m.20$ (U), $0^m.21$ (B), $0^m.23$ (V)
Times of primary minima	: JD 2442836.164 (± 0.001) JD 2442840.155 (± 0.001)
Time of secondary minimum	: JD 2442835.172 (± 0.001)
Duration of eclipse (D)	: $7^h.2$ (U), $5^h.6$ (B), $5^h.6$ (V)
Duration of totality (d)	: $1^h.6$ (U), $0^h.8$ (B), $1^h.1$ (V)
Spectral type of primary component	: G0III (B-V= $+0^m.644$, U-B= $+0^m.326$)
Spectral type of secondary component	: G2III (B-V= $+0^m.682$, U-B= $+0^m.513$)
Combined spectral type of both the components	: G1III (B-V= $+0^m.664$, U-B= $+0^m.336$)
Spectral type of comparison star (= $-6^{\circ}840$)	: F6I (B-V= $+0^m.524$, U-B= $+0^m.436$)

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