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PHOTOMETRY OF STARS IN THE FIELD OF BI ANDROMEDAE

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BI Andromedae ($2^{\text{h}}25^{\text{m}}54^{\text{s}}34; +38^{\circ}07'22''.2$ [2000]) is a chemically-peculiar AGB variable of type S7.5 Zr6Ti4 (Åke 1979). The star is an interesting one, and although fairly well-studied in the infrared, has not been followed in the visible. The period of variation (if any) is not well determined. The most recent work in this regard appears to be by Götz (1956), who found a period of 159^d.5 with a photographic-blue range from 11^m.0 to 13^m.3.

As a check on the AAVSO standard chart comparison sequence, I made $V/(b - y)$ measurements of stars in the field. I worked from the AAVSO ‘special’ (e)-scale chart issued March 1958 but redrafted more recently (AAVSO 2000). The stars were observed on a single night (21 January 1996 UT) using the Lowell 53-cm photometric telescope, Strömgren b and y filters, and a 29" diaphragm. I also measured fifteen primary and secondary standards whose *rms* residuals from linear fits were 0.009 and 0.005 mag. in V and $b - y$, respectively. Since the field was observed at low airmass, mean extinction values (Lockwood & Thompson 1986) were applied in the reductions. The match with HD 15025 in common with Perry & Johnston (1982) and Olsen (1983) is satisfactory, so the results for the other stars should be adequate for most purposes.

Table 1 shows the results for the stars in order of decreasing brightness. An asterisk by the star name indicates a note following the table. The positions are from Tycho-2 (Høg *et al.* 2000). The sequence covers the known range of the variable in roughly half-magnitude increments. The spectral types in lower-case and parentheses are *estimates* based on the $b - y$ colors along with the assumption of near-zero reddening.

The magnitudes on the 1958 AAVSO chart have a lot of scatter: some are accurate, others off by 0.5 mag.

Table 1: Photometry of stars in the field of BI Andromedae

Name	RA (2000)	Dec	V	$b - y$	spec
HD 15025*	2 ^h 26 ^m 24 ^s .17	+38°13'51".1	8.065	0.132	F0
BD+37°550	2 25 29.92	+37 50 35.2	9.453	0.619	K0
BD+37°553*	2 26 05.90	+38 25 30.3	9.932	0.345	(f8v)
GSC 2831-0144	2 24 30.53	+38 15 01.8	10.332	0.244	(f2v)
BD+37°551*	2 25 38.29	+38 18 40.6	10.667	0.587	(g8iii)
GSC 2831-1586	2 26 13.72	+38 20 32.8	10.995	0.331	(f8v)
GSC 2831-0298	2 25 46.06	+38 15 31.8	11.393	0.351	(f8v)
GSC 2831-0702	2 25 49.20	+38 07 15.5	12.201	0.355	(f8v)

Notes

HD 15025 $V = 8.08$, $b - y = 0.132$ (Perry & Johnston 1982); $V = 8.075$,
 $b - y = 0.142$ (Olsen 1983).

BD+37°553 GSC 2831-2395.

BD+37°551 GSC 2831-0278.

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