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UBV PHOTOMETRY OF BM Cas

The supergiant eclipsing binary BM Cassiopeiae (P = 197^d3) is of considerable interest, especially since Thiessen (1956) has suggested that one component is a classical Cepheid (P = 27^d).

In the fall of 1967 fourteen UBV observations were obtained which covered the rising branch of primary eclipse. Because no further observations of BM Cas are planned at this observatory, the results are presented here for others to use. According to the IAU Program Notes for Eclipsing Binaries, Numbers 9 and 18, respectively, Chao at Harvard and Kalv at Tallinn have been observing BM Cas photoelectrically.

The three-color observations, obtained with the Dyer Observatory 24-inch reflector and a refrigerated 1P21 photomultiplier, were made differentially with respect to the comparison star BD +63°101. The differential magnitudes were corrected for differential extinction and transformed differentially to the UBV system in the usual way. The results are presented in Table I, where the first column lists the heliocentric Julian date and the last three columns list ΔV , $\Delta(B-V)$, and $\Delta(U-B)$, respectively.

Table I
 Differential UBV Magnitudes
 (BM Cas minus BD +63°101)

JD (hel.) 2,439,000+	ΔV	$\Delta(B-V)$	$\Delta(U-B)$
783.847	+0.885	+0.898	+0.598
.858	.889	.899	.594
784.947	.839	.915	.567
785.780	.815	.902	.612
.791	.815	.909	.603
791.826	.625	.923	.561
.839	.623	.899	.557
797.608	.483	.858	.534
799.577	.452	.861	.521
800.816	.437	.849	.483
802.875	.453	.849	.471
803.841	.437	.856	.497
804.767	.432	.859	.493
807.911	+0.421	+0.878	+0.481

The comparison star BD +63°101 was tied in to the
UBV system, the resulting magnitudes being $V = 8^m45 \pm 0^m02$,
 $B-V = +0^m18 \pm 0^m01$, and $U-B = +0^m14 \pm 0^m02$. This makes it
possible to convert the differential magnitudes in Table I
to actual magnitudes.

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Reference:

Thiessen, G. 1956, Z. Astrophys. 39, 65.