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AN ULTRAVIOLET PHOTOELECTRIC LIGHTCURVE OF THE ECLIPSING
BINARY BB Peg

The W UMa type eclipsing binary BB Peg (Spectral Type F8) has a period of $8^{\text{h}}41^{\text{m}}$. Photoelectric lightcurves in three colors (U, B and V) were performed by Cerruti Sola and Scaltriti during Summer 1978, mainly at Catania Astrophysical Observatory; the details concerning the employed equipment and the observational routine can be found elsewhere (Cerruti Sola and Scaltriti 1980). In that paper a study of the period and approximate geometric elements were derived, using the B and V lightcurves only. A refined analysis was made subsequently by Cerruti Sola et al. (1981) applying the Wilson-Devinney computer code; an unusual high degree of overcontact was obtained.

In this note we present the ultraviolet lightcurve of BB Peg. Due to the faintness of the star, the ratio signal to noise was very small, even with the largest gain in photoelectric equipment; moreover, the scatter in a single deflection was higher than usual. The resulting lightcurve was rather noisy; this is the reason why we have not used it in our previous papers. However, it seems advisable to us to publish our observing results in U filter for a direct comparison with B and V runs.

The scatter in a single Δm measurement may be estimated about ± 0.02 mag; therefore we have formed normal points with steps of 0.02 in phase (except few cases). The average number of single Δm 's forming a normal point is about 6 for

phases relative to primary minimum and to first maximum, whereas poorer coverage of secondary minimum and of maximum around phase 0.75 reduces that number to half its value.

The U lightcurve we have obtained is shown in Figure 1 (where the Δm_U 's (var-comp) are plotted against phases calculated with the ephemeris given by Cerruti Sola and Scal-

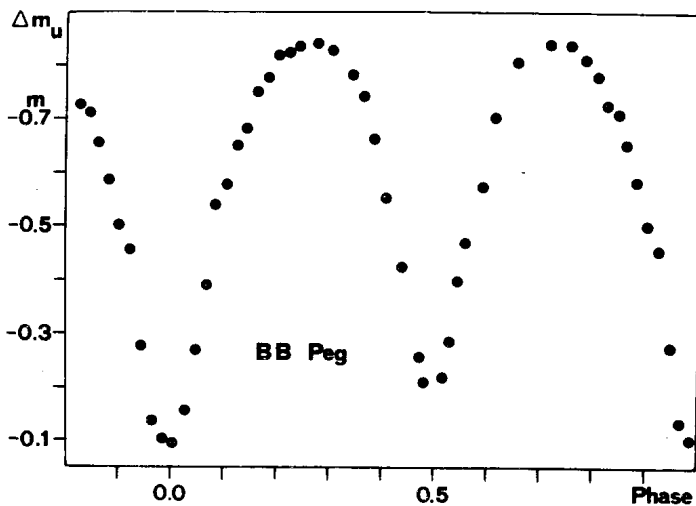


Figure 1- Ultraviolet lightcurve of BB Peg (normal points are plotted).

triti (1980)). The maxima have practically the same level, whereas the second maximum is less luminous (by few hundredths of magnitude) than the first one in B and V lightcurves; the level difference between the minima appears to be about 0.1 mag, larger than that found in B and V filters. Also the total luminosity range grows from V (~ 0.68 mag) to U (~ 0.75 mag).

From the U runs it was possible to derive epochs of primary and secondary minima, bisecting chords at different light levels in a free-hand drawing through the observed single Δm 's; we have obtained: $\text{Min}_I(\text{Hel.}) = 2443750.594$ and $\text{Min}_{II}(\text{Hel.}) = 2443754.389$, in very good agreement with the times found from B and V runs. The estimated errors of those minima amount to ± 0.002 for both.

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