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HD 37847: A NEW VARIABLE STAR

Because Bidelman and MacConnell (1973) reported Ca II H and K emission, we suspected HD 37847 might be an RS CVn binary and therefore might show the photometric wave characteristic of most stars of that type. According to their table VII, $m_v = 7^m.0$ and the spectral type is G8 III + F.

Henry, observing with the 24-inch Cassegrain at Dyer, obtained data on 8 nights between JD 2444605.7 and 2444688.5. Henry and Sherlin, observing with the 48-inch Newtonian at Cloudcroft, obtained data on 7 nights between JD 2444959.9 and 2445022.6. All observations were made in V with BD $-20^\circ 1150$ as the comparison star. The individual differential magnitudes, corrected for differential extinction and transformed differentially to V of the UBV system, have been sent to the I.A.U. Commission 27 Archive for Unpublished Observations of Variable Stars (Breger 1979), where they are available as file no. 106.

Examination of our data showed immediately that HD 37847 is variable, with an amplitude of $\Delta V = 0^m.32$. A period-finding program based on an approach similar to that of Lafler and Kinman (1965) yielded a period of $28^d.22$, with an uncertainty of only about $\pm 0^d.01$. The figure below is a plot of the nightly means, where ΔV is in the sense variable minus comparison. The pluses are for Dyer, the circles for Cloudcroft. Phase is computed with the ephemeris

$$JD = 2444652.0 + 28^d.22\ n,$$

where the initial epoch is a time of minimum light. Because of the gap between $0^P.4$ and $0^P.8$ in phase, we cannot be certain if the point near $0^P.4$ represents the full maximum brightness.

Additional photometry should be obtained to define the entire light curve, although the period seems well determined. We have been in communication with Luis Balona and T. Lloyd Evans of the South African Astronomical Observatory, who tell us they have been obtaining spectroscopic and photometric observations of this star (and all of the stars in table VII

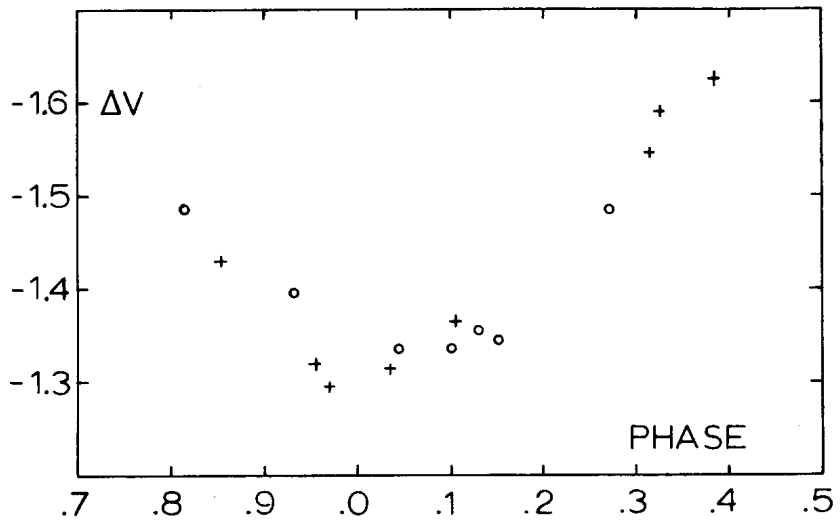

Figure 1

of Bidelman and MacConnell). If radial velocity measures indicate that HD 37847 is a binary system with an orbital Period around 28 days, then it would be a long-period RS CVn binary by the definition of Hall (1976).

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