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THE VARIABILITY OF HR7442

HR 7442 (GC27045, HD184786) was selected for photoelectric monitoring from a list of potentially variable stars (Hoffleit, 1979). This bright star ($V=6^m.2$) has a spectral type of M4.5 III (Buscombe, 1977) and is well placed for Northern hemisphere observers (1950: R.A. $19^h32^m19^s$, Dec. $49^{\circ}9'2$).

This star was observed during the second half of 1979 from two observatories. The observations consist of 119 delta magnitudes in the V band, taken on 28 nights scattered over this time interval. The nightly averages are plotted in Figure 1, and they show an irregular variability on time scales of tens of days, with an amplitude of about two tenths of a magnitude. Between JD2444192 and JD2444223 the comparison star (GC27078) was measured differentially with respect to GC26990 on five nights, and was found constant to 0.01 magnitude.

Since this was a search for variability, the data have not been reduced to the standard UBV system. One observer (DRS) used a 1P21 photomultiplier and standard V filter, and this instrumental system is quite close to the UBV standard. The other observer (TGM) used a silicon photodiode detector and filter, and this instrumental system had a sufficiently different response so that $0^m.13$ had to be subtracted from its delta magnitudes to bring them into agreement with the 1P21 data.

The variations in HR 7442 seem to have cycle length that range from 29 to 45 days, and this would lead to a tentative classification of SRb (Hoffleit, 1980). The SRb class is defined as having semiregular periods of 20 to 50 days, amplitudes under $0^m.5$, and spectral classes M3.5 III to M5 III. An Lb star, such as Gamma Ret, also bears a strong resemblance to HR 7442, so the SRb classification remains tentative.

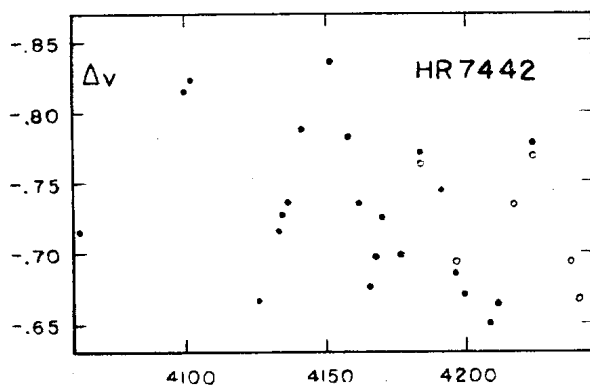


Figure 1. Observations of HR 7442 plotted as nightly averages of instrumental delta V magnitudes vs. Julian day (+2440000). Filled circles are measurements taken by DRS and open circles are measurements taken by TGM.

One of us (TGM) has observed this star again in May and June of 1980, and finds that HR 7442 continues to vary, with characteristics similar to those noted last year.

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