A NEW LATE TYPE VARIABLE WITH H AND K EMISSION

An obvious source of candidates for variable G and K
type giants and subgiants with H and K emission is the
Michigan Spectral Type Catalogue (vols. I and II) which
covers the sky from -90° to -40°. The first star selected
from this catalogue for photometric monitoring was HD 83442,
which is classified K2 IIIp ("Ca H and K cores are quite
strongly in emission"). The observations on a modified
Strömgren system are listed in Table 1 and a few on the (RI)
system are in Table 2. Figure 1 shows the variations in V,
b-y and R. The total range in near 0.3 mag in V and appears
to be quasiperiodic with P = 65 to 70 days. The minima are
relatively narrow, judging by the last observations shown in
the figure (June 1979). The color is reddened at minima by
only one or two hundredths in both (b-y) and (R-I). Early
type stars in the region indicate a reddening of only about
E(b-y) = 0.02 mag at a distance modulus of 8.5 mag in this
direction. If we adopt a reddening of 0.02 mag, the values
of (R-I) and M_1 indicate a near solar metal abundance. The
mean value of $C_1 = 0.340$ mag indicates a lower luminosity than
that given by the spectral luminosity class but this
possibly is reflecting some spectral abnormality (e.g., CH
or BaII). Nearly identical values of the proper motion are
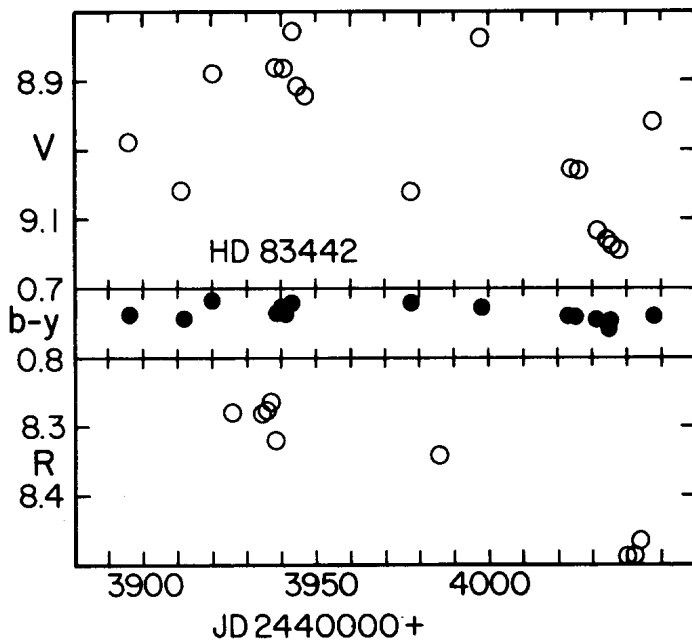
given in the Cape and Yale Zone catalogues; the mean values

on the FK4 system with precessional corrections are $(\mu_\alpha \cdot \mu_\delta) =$

$(-0''063, 0''000)$. The star is also BPM 34343 with a relative

proper motion of $0''052$ in position angle 300°. If the

luminosity is near $M_V = 0$, (U, V, W) = (+140, -14 + ρ, -126) km/sec;

the unknown radial velocity is essentially a measure of the V

velocity only. These velocity vectors indicate a halo object,

but if we lower the assumed luminosity to M_V = +2 mag, which

would be more in accordance with the value of C_1, the vectors

become (+56, -6+ρ, -50) km/sec.

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TABLE 1

Observations of HD 83442

JD244	V	b-y	M_1	C_1	(u-b)
3886.542	$8\overset{m}{.}99$	$0\overset{m}{.}740$	$0\overset{m}{.}482$	$0\overset{m}{.}298$	$2\overset{m}{.}721$
3911.562	9.06	0.743	0.504	0.322	2.799
3920.587	8.89	0.712	0.479	0.355	2.719
3938.656	8.88	0.734	0.478	0.348	2.750
3939.760	8.88	0.723	0.492	0.369	2.751
3940.750	(8.83)	0.732	0.476	0.369	2.762
3941.750	8.91	0.728	0.485	0.358	2.764
3942.615	8.92	0.720	0.508	0.311	2.752
3977.635	9.06	0.721	0.500	0.351	2.777
3997.543	8.84	0.724	0.482	0.336	2.728
4023.545	9.03	0.740	0.487	0.337	2.769
4024.521	9.03	0.742	0.484	0.329	2.759
4032.503	9.12	0.746	0.485	0.340	2.780
4035.476	9.13	0.758	0.468	0.344	2.770
4036.493	9.13	0.752	0.483	0.350	2.798
4037.465	9.13	0.745	0.494	0.326	2.785
4048.458	8.96	0.738	0.470	0.332	2.724

TABLE 2

(RI) Observations

1979	R	R-I
21 Feb.	$8\overset{m}{.}28$	$+0\overset{m}{.}392$
2 Mar.	8.28	+0.398
3 Mar.	8.27	+0.406
4 Mar.	8.26	+0.395
5 Mar.	8.32	+0.416
21 Apr.	8.34	+0.412
15 June	8.49	+0.427
16 June	8.49	+0.423
17 June	8.47	+0.425