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FOUR COLOUR PHOTOMETRY OF THE BRIGHT PRE-MAIN SEQUENCE SHELL STAR

V856 Sco (HR 5999)

The semi-regular variable V856 Sco (=HR 5999 = HD 144668) has recently aroused much interest as a bright probable pre-main sequence star (see, e.g. Thé and Tjin A Djie, 1978; Tjin A Djie et al., 1982). Its brightness undergoes irregular variations of a few tenths of a magnitude, interrupted on time scales of months by deep minima (~1.5 mag deep) lasting a few days or weeks. V856 Sco forms a visual binary system with HR 6000, a late B star with remarkable spectral peculiarities (Castelli et al., 1981). HR 6000 seems to be constant in light (Thé and Tjin A Djie, 1978) and radial velocity (Andersen and Nordström, unpublished).

V856 Sco was monitored in the Strömgren uvby system from February 2 through 25, 1981, using the Danish 50 cm reflecting telescope on La Silla, Chile, and the 4-channel photometer and pulse-counting equipment described by Grønbech et al. (1976). HR 6000 was used as the comparison star and appears constant

Table I: Magnitude differences V856 Sco - HR6000

H J D	y	b-y	m1	c1	b	v	u
2444638.86657	0.112	0.211	0.049	0.494	0.322	0.583	1.336
2444639.87099	0.122	0.216	0.049	0.527	0.338	0.603	1.395
2444639.87343	0.118	0.216	0.051	0.523	0.334	0.602	1.392
2444640.84274	0.239	0.229	0.048	0.484	0.469	0.746	1.507
2444640.84704	0.242	0.231	0.045	0.486	0.473	0.750	1.513
2444640.87215	0.247	0.230	0.047	0.484	0.476	0.753	1.514
2444641.87063	0.254	0.234	0.044	0.505	0.488	0.767	1.551
2444642.89446	0.419	0.242	0.058	0.503	0.660	0.960	1.764
2444643.87416	0.296	0.238	0.046	0.483	0.534	0.819	1.586
2444644.86374	0.198	0.222	0.054	0.489	0.420	0.696	1.461
2444645.88509	0.157	0.218	0.047	0.496	0.376	0.641	1.402
2444648.85685	0.129	0.220	0.046	0.507	0.349	0.616	1.389
2444649.89295	0.130	0.209	0.059	0.485	0.340	0.608	1.361
2444650.89684	0.132	0.211	0.058	0.487	0.342	0.611	1.366
2444651.88671	0.119	0.211	0.056	0.501	0.330	0.597	1.364
2444653.84944	0.114	0.211	0.043	0.495	0.325	0.578	1.327
2444654.84873	0.134	0.212	0.054	0.512	0.346	0.612	1.390
2444655.88873	0.122	0.214	0.051	0.506	0.337	0.602	1.374
2444656.90070	0.142	0.210	0.053	0.540	0.352	0.615	1.419
2444658.88793	0.240	0.214	0.055	0.517	0.454	0.723	1.509
2444659.89806	0.291	0.232	0.053	0.530	0.524	0.809	1.624

also during our observations, extinction coefficients being available from other programme stars observed the same nights. During the same period, coude spectra were obtained with the ESO 1.5 m telescope to monitor the suspected radial velocity variations of V856 Sco. The spectroscopic results will be published later.

Table I lists the observed magnitude differences in the sense V856 Sco - HR 6000 in the instrumental system. For transformation to the standard uvby system, use the coefficients given by Clausen et al. (1976) and the standard uvby indices for HR 6000 by Grønbech and Olsen (1976) - (note that HR 5999 and HR 6000 have been interchanged in this catalogue).

During the period of our observations, the brightness of V856 Sco varied through a range of 0.3 mag, but no deep minimum occurred. We plan no further photometry of this star at present.

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