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uvby OBSERVATIONS OF SV CEPHEI

The irregular variable SV Cephei ( = BD + 72°1031 = IRAS 22205+7325) belongs to a group of evolutionarily young stars called emission-line stars of the Orion Population. Their properties are described in detail in the corresponding catalogue compiled by Herbig and Bell (1988). A comprehensive collection of observational data for SV Cephei can be found in a paper by Friedemann et al. (1992) together with a model of the circumstellar dust shell which gives a consistent explanation of both the optical and infrared data.

For SV Cephei and two nearby comparison stars we obtained uvby photometry with the 90 cm telescope of the Jena University Observatory. The observations were carried out on 14 nights from January to September 1991. On each night the atmospheric extinction coefficients and the zero points of the transformation equations were determined from a sample of about 15 standard stars. All of them were taken from the original list of uvby standards published by Crawford and Barnes (1970) including revisions by Perry et al. (1987). The two comparisons b and c in the paper by Friedemann et al. (1992) which contains an identification chart too, are identical with the comparison stars a and b in the list of Wenzel (1969). Both stars were measured on each night and finally taken as secondary local standards. Their magnitudes and colour indices together with its r.m.s. errors (in mag) and the number of observations are given in Table I.

Table I. Magnitudes of comparison stars

Star	y = V	r.m.s.	b-y	r.m.s.	m1	r.m.s.	c1	r.m.s.	n
b	10.734	0.006	0.248	0.005	0.151	0.006	0.956	0.006	15
c	11.107	0.008	0.437	0.006	0.124	0.009	0.727	0.008	24

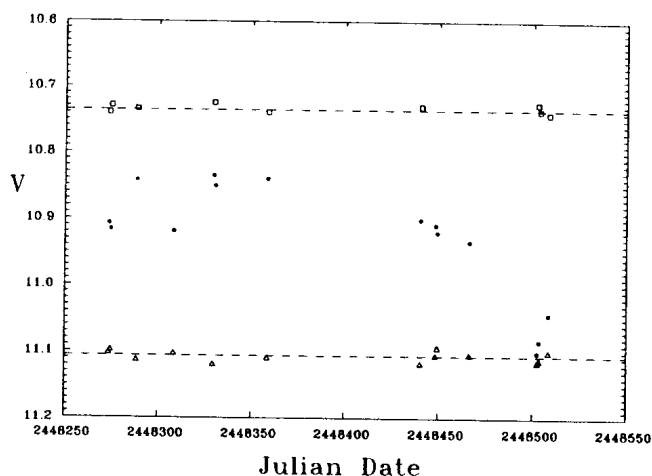
A full description of technical details of the used equipment, the reduction procedure, and the transformation equations is given by Reimann et al. (1989). The final photometric results for SV Cephei are collected in Table II. The r.m.s. errors of the photometric data for SV Cephei have been estimated to be  $\pm 0.012$ ,  $\pm 0.006$ ,  $\pm 0.009$ , and  $\pm 0.013$  mag in V, b-y, m1, and c1, respectively, using the internal agreement of the individual results for the comparison stars obtained in different nights.

Table II. Observations of SV Cephei = BD +72°1031

Julian date	y = V	b-y	m1	c1
2448273.454	10.907	0.257	0.071	1.085
2448274.407	10.916	0.267	0.070	1.084
2448288.375	10.842	0.259	0.054	1.032
2448308.377	10.919	0.265	0.076	1.087
2448329.455	10.835	0.270	0.035	1.031
2448330.425	10.851	0.284	0.038	1.020
2448358.527	10.840	0.279	0.046	1.046
2448440.468	10.901	0.303	0.042	1.031
2448448.430	10.909	0.304	0.034	1.033
2448449.405	10.920	0.291	0.058	1.048
2448466.515	10.934	0.294	0.060	1.055
2448502.504	11.101	0.293	0.109	1.106
2448503.512	11.084	0.312	0.103	1.100
2448508.411	11.044	0.290	0.097	1.076

During the time interval covered by our observations SV Cephei exhibited irregular variability only in the order of 0.3 mag with a shallow minimum around JD 2448502.5. From a closer

inspection of the colour indices we conclude that during the observed time interval intrinsic stellar colour and brightness changes of the order of 0.1 mag were superimposed on circumstellar cloud obscurations of the order of 0.3 mag of nearly neutral character. The light curve and the magnitudes of the comparison stars are shown in Figure 1.



Using the uvby calibrations by Crawford (1975, 1979) and Reimann (1982) for F, A, and B stars, respectively, we deduced for the variable from our observational data a spectral type of B9-9.5, a colour excess  $E(b-y) = 0.300$  mag, and a photometric distance of about 715 pc assuming the luminosity class V.

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