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SEVEN YEARS OF PHOTOMETRY FOR HR 8752 = V509 Cas

The hypergiant HR 8752 = V509 Cas has been observed photometrically at the Corralitos Observatory for the past seven observing seasons. Some of this work has been previously published (Halbedel 1985, 1986, 1988). This communication reports on the observations obtained since the last of these papers.

HR 8752 has been previously known to be variable in both spectrum and magnitude. Observed spectral types have ranged from F6 (observed in 1985 by Mantegazza 1988) to K2-5 Ia (Lambert & Luck 1978). Photometrically, the star seems to vary semi-regularly: Percy & Welch (1981) suggest a period of about a year, Ferro (1985) 385 days, and Sheffer & Lambert (1987) 415 days. The most recently published data show that while the star does undergo these semi-periodic changes, the maxima are getting progressively fainter and the star bluer (Halbedel 1988).

HR 8752 has been observed photometrically at the Corralitos Observatory for the past 7 observing seasons with its 0.6-m. telescope and uncooled EMI 9924A tube-based photon-counting photometer. Comparison stars utilized were HR 8761 ($V=6.20$; $B-V=+1.50$) and HR 8778 ($V=6.43$; $B-V=+0.90$). Over the time period of observation, these two stars were stable to within 0.015 in V and 0.016 in B-V.

The thusfar unpublished Corralitos magnitudes appear in Table 1 and graphically in Figure 1. It may be seen that the trend towards fainter maxima and bluer color has continued.

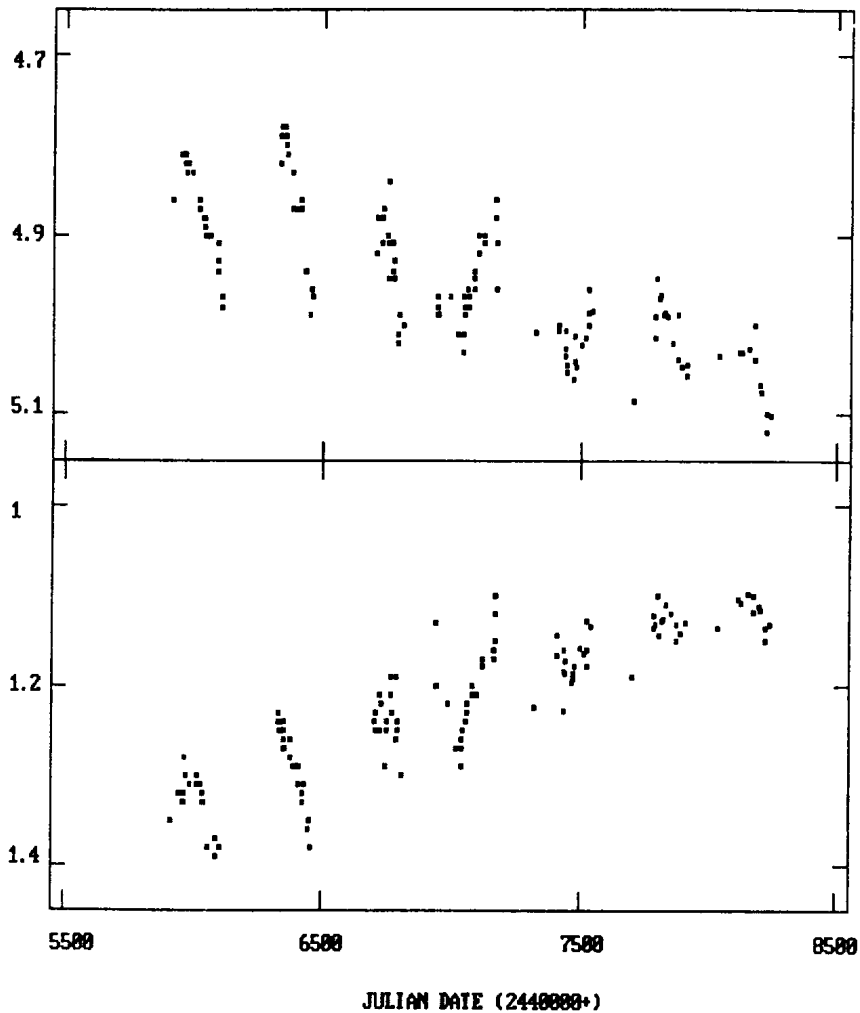


FIGURE 1: MAGNITUDES AND COLORS FOR HR 8752. THE TOP DIAGRAM SHOWS V MAGNITUDE, THE BOTTOM B-V.

The star is fainter now than at any time in the past 7 years. It is also possible that there has been a reduction in the range of each individual cycle, though this may be an effect of time incompleteness of observation. A period search over all 7 years of data utilizing the Minimum Phase

TABLE 1: MAGNITUDES FOR HR 8752

JD (2440000+)	V	B-V	JD (2440000+)	V	B-V
7320.93260	5.009	+1.225	7806.77917	4.971	+1.100
7411.84791	5.000	1.166	7810.74028	4.967	1.145
7412.77708	5.006	1.144	7818.73472	4.989	1.128
7435.82986	5.035	1.184	7827.73819	4.986	1.126
7436.74236	5.006	1.229	7835.69891	4.991	1.111
7437.70763	5.028	1.161	7859.64861	5.021	1.121
7440.73888	5.053	1.173	7878.62638	4.990	1.151
7441.71388	5.044	1.187	7880.58889	5.039	1.133
7470.67777	5.062	1.196	7896.59583	5.046	1.142
7472.68124	5.014	1.186	7915.59236	5.044	1.131
7475.64374	5.041	1.193	7917.58889	5.057	1.130
7477.62847	5.046	1.179	8041.92777	5.036	1.136
7501.66181	5.023	1.158	8122.77986	5.030	1.106
7516.59236	5.015	1.164	8133.82083	5.031	1.109
7525.60972	4.988	1.178	8159.74236	5.028	1.099
7526.58472	5.002	1.129	8176.67778	5.000	1.119
7527.59236	4.962	1.162	8178.71181	5.039	1.101
7540.57777	4.984	1.135	8201.67083	5.068	1.112
7703.91181	5.086	1.191	8204.60833	5.075	1.116
7788.76874	4.991	1.136	8225.61667	5.099	1.136
7790.74028	5.015	1.122	8228.63819	5.120	1.151
7793.80694	4.950	1.133	8244.61806	5.101	1.134

Dispersion Technique of Stellingwerf (1978) finds a best overall period of 409 days, in keeping with previous determinations.

In view of the interesting behavior of this star and the possibility of long-term variations upon which the >1 year long cycles are superimposed, it will continue to be observed at the Corralitos Observatory in the future.

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REFERENCES

- Ferro, A. 1985, MNRAS, 216, 571
Halbedel, E.M. 1985, IBVS No. 2718
Halbedel, E.M. 1986, IBVS No. 2876
Halbedel, E.M. 1988, IBVS No. 3170
Lambert, D.L. & Luck, R.E. 1978, MNRAS, 184, 405
Mantegazza, L. 1988, IBVS No. 3269
Percy, J.R. & Welch, D.L. 1981, PASP, 93, 367
Sheffer, Y. & Lambert, D.L. 1987, PASP, 99, 1277
Stellingwerf, R.F. 1978, ApJ, 224, 953