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PHOTOELECTRIC BVI_c OBSERVATIONS FOR THE RS CVn STAR GR NORMAE

GR Nor is classified in GCVS-IV as a Cepheid (CEP type) with the elements

$$MaxJD_{hel} = 2444145.82 + 1.960002 \times E.$$

GR Nor was included in our program of photoelectric observations for Cepheids because there are few published observations for the star, and hence it is impossible to construct a good light curve for it. We observed the star at CTIO during the period September – November 1996 using the 1.0-m reflector. A total of 25 BVI_c measurements were obtained (Table 1), the accuracy of the individual data being near $\pm 0\overset{m}{.}01$ for all filters.

The observations are plotted in Figure 1a using the above elements. A comparison of our observations with published data by Walraven *et al.* (1958), Harris (1980) and Diethelm (1986) — Figures 1b–1d — suggests that GR Nor cannot be a Cepheid because the shape of the light curve is not stable. A search of the literature revealed that Lloyd Evans (1984) had previously drawn attention to the spectroscopic peculiarities of the variable, which suggest that it has characteristics of RS CVn variables.

Table 1

JD_{hel} 2450300+	V	B−V	V−I_c	JD_{hel} 2450300+	V	B−V	V−I_c
48.5571	12.677	1.193	1.466	62.5489	12.797	–	1.483
51.5472	12.693	1.218	1.474	63.5646	12.682	1.273	1.442
52.5659	12.744	1.217	1.473	79.5314	12.674	1.236	1.470
53.5198	12.691	–	1.464	80.5306	12.809	–	1.495
54.5314	12.736	1.240	1.471	81.5101	12.684	1.302	1.448
55.4986	12.648	1.238	1.446	82.5126	12.829	1.166	1.508
57.5729	12.681	1.230	1.460	83.5116	12.692	1.263	1.460
58.5404	12.738	1.269	1.448	85.5076	12.685	1.219	1.456
59.5306	12.671	1.243	1.441	86.5184	12.765	1.223	1.489
59.5668	12.682	1.229	1.461	87.5121	12.673	1.248	1.435
60.5384	12.788	1.236	1.481	88.5068	12.774	–	1.495
60.5654	12.829	1.328	1.443	89.5174	12.623	1.235	1.437
61.5469	12.703	1.243	1.468				

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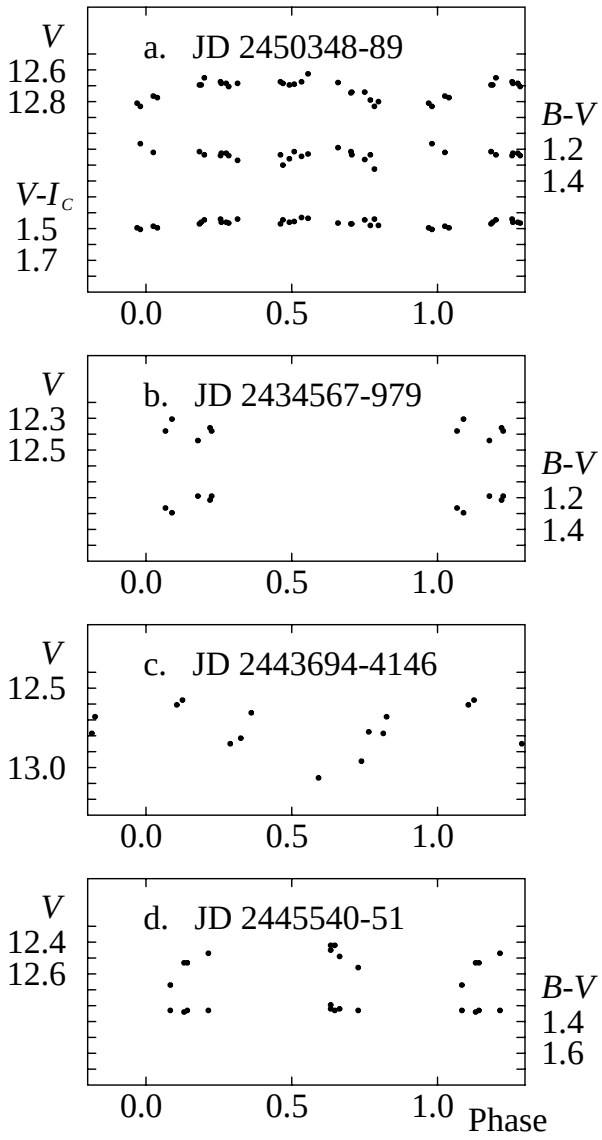

Figure 1

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