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**PHOTOELECTRIC $V I_c$ OBSERVATIONS
AND NEW ELEMENTS FOR V399 CARINAE = HR 4110**

Arellano Ferro (1981) analyzed observations of V399 Car = HD 90772 = HR 4110, the brightest member — of spectral type A7 Ia-O (Turner 1978; see also references cited by Arellano Ferro 1981) — of the young cluster IC 2581, and found four possible periods in its power spectrum: 34.87, 40.26, 47.80, and 58.82 days. He noted that a period of 58.82 days provided the best match of his observations to those supplied by Madore (1980).

In an attempt to update the ephemeris for the star, we observed it at CTIO in September-November 1996 using the 1-m reflector. A total of 18 $V I_c$ measurements were obtained, the accuracy of the individual data being near $\pm 0^m.01$ in both filters. The observations are listed in Table 1.

The mean magnitudes of Arellano Ferro's (1981) as well as Cousins' (1966) observations were coincided with our V -band data in order to increase the sample available for a period search. We derived the following elements:

$$\begin{aligned} \text{Max } JD_{hel} &= 2450387.4 + 47.2534 \times E. \\ &\quad \pm 0.4 \quad \pm 0.0027 \end{aligned}$$

Those elements are used in Figure 1 for plotting the light curve in V , where our observations are identified by large circles and observations published by Arellano Ferro (1981) and Cousins (1966) are denoted by small circles and dots, respectively. The shorter period found here appears to be supported by the rapid change in brightness of the star detected over our observing season.

Table 1

JD_{hel}	V	$V - I_c$	JD_{hel}	V	$V - I_c$
2450000+			2450000+		
358.8828	4.684	.680	383.8107	4.636	.681
359.8730	4.693	.680	384.7948	4.650	.691
361.8785	4.705	.689	386.7912	4.651	.674
362.8819	4.694	.674	387.7955	4.640	.680
362.8887	4.702	.688	388.7856	4.643	.690
363.8822	4.699	.697	390.7897	4.643	.689
379.8201	4.661	.667	391.7781	4.657	.676
380.8109	4.635	.663	392.7720	4.635	.679
381.8093	4.665	.685	393.7821	4.645	.684

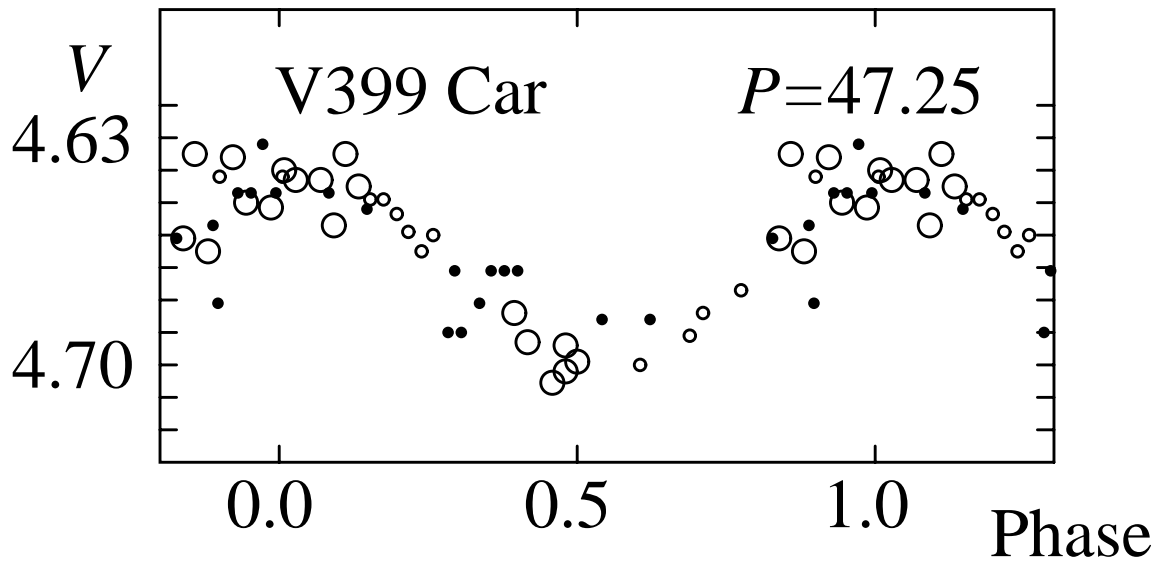


Figure 1

As a member of the cluster IC 2581, HR 4110 has an estimated luminosity of $M_V = -8.8$ (Turner 1978), placing it in the regime of the hypergiant stars. It is of interest to note that, at the period found here, HR 4110 falls almost exactly on the period-luminosity relation for pulsating B and A-type supergiants published several years ago by Maeder & Rufener (1974; see also Burki 1978).

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L.N. BERDNIKOV
Sternberg Astronomical Institute
13, Universitetskij prosp.
Moscow 119899, Russia

D.G. TURNER
Saint Mary's University
Halifax, Nova Scotia, B3H 3C3
Canada

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