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DISCOVERY OF AN SX Phe STAR IN NGC 5897

NGC 5897 is a globular cluster of low concentration in which both Sarajedini (1992) and Ferraro et al. (1992) have located many blue straggler (BS) candidates. The present paper reports on the results of a search for variable blue stragglers in the central region of the cluster carried out using 62 B and 35 V CCD frames obtained on four nights in 1989 with the Las Campanas 1 m Swope telescope. One new variable was identified, an SX Phe star which is the ninth known variable in the cluster.

The position of this star V9 as well as that of V2, an RR Lyrae star are shown in Figure 1. The numbers used to identify other stars in the figure are those from the paper by Sandage and Katem (1968) in which a chart of the entire cluster can be found. Both variables fall just outside the region surveyed by Ferraro et al. so no cross identification can be made with their observations. X and Y coordinates for V9 relative to the cluster center as shown by Sandage and Katem and on the system of the Third Catalogue of Variable Stars in Globular Clusters (Sawyer Hogg, 1973) are $X = -55''$, $Y = -118''$.

B and V magnitudes for both V2 and V9, determined using DAOPHOT (Stetson 1990) and calibrated with the photometry of Sarajedini, are given in Tables 1 and 2. A period for V9 of 0.05062 day was found using a periodogram program.

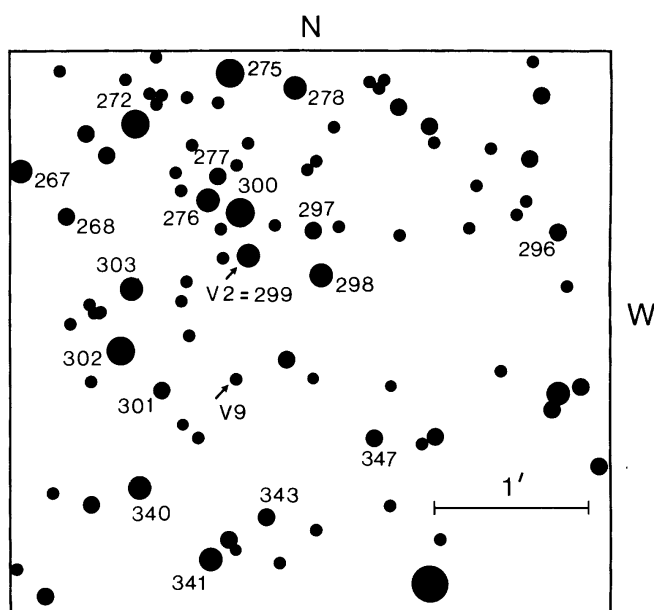


Figure 1. Finding chart for V9 in NGC 5897

Table 1. B magnitudes for V2 and V9

JD 2400000+	V2	V9	JD 2400000+	V2	V9
47682.554	16.51	19.32	47684.623	16.88	19.44
47683.577	16.62	19.16	47684.634	16.88	19.37
47683.584	16.62	18.83	47684.647	16.82	19.01
47683.602	16.76	19.30	47684.659	16.75	19.18
47683.622	16.90	19.52	47684.665	16.77	19.34
47683.634	16.84	18.77	47684.671	16.78	19.41
47683.670	16.90	19.32	47684.679	16.72	19.42
47683.682	16.85	18.98	47684.686	16.70	19.32
47683.701	16.90	19.35	47684.693	16.70	18.92
47683.715	16.78	19.39	47684.699	16.70	18.78
47683.721	16.79	19.27	47684.705	16.67	19.13
47683.727	16.76	19.06	47684.711	16.64	19.27
47683.739	16.77	18.96	47684.718	16.62	19.38
47683.745	16.79	19.13	47684.726	16.61	19.39
47683.752	16.87	19.35	47684.733	16.62	19.39
47683.758	16.72	19.42	47684.745	16.59	18.93
47684.610	16.86	19.24	47684.751	16.59	18.97
47684.616	16.80	19.36	47686.556	16.58	19.32

Table 2. V magnitudes for V2 and V9

JD 2400000+	V2	V9	JD 2400000+	V2	V9
47682.564	16.11	18.70	47682.682	16.24	18.65
47682.576	16.11	18.56	47682.693	16.26	18.91
47682.582	16.13	18.72	47682.699	16.28	18.95
47682.588	16.13	18.87	47682.705	16.30	18.97
47682.594	16.13	18.93	47682.711	16.29	18.90
47682.600	16.13	18.93	47682.718	16.32	18.66
47682.613	16.14	18.85	47682.724	16.31	18.46
47682.619	16.15	18.65	47682.730	16.30	18.59
47682.625	16.14	18.62	47682.736	16.31	18.78
47682.632	16.17	18.71	47682.742	16.34	18.91
47682.639	16.16	18.85	47684.599	16.33	18.60
47682.645	16.19	18.96	47686.529	16.21	18.67
47682.651	16.18	18.94	47686.536	16.19	18.82
47682.658	16.22	18.96	47686.542	16.18	18.91
47682.668	16.22	18.68	47686.548	16.18	18.92
47682.675	16.24	18.53			

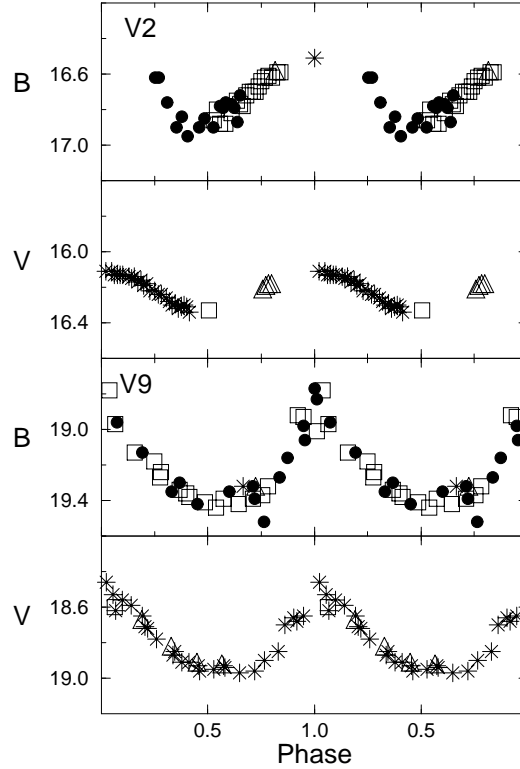


Figure 2. The B and V light curves for V2 and V9 in NGC 5897 constructed from the CCD observations made on four nights in June, 1989

Light curves in B and V for both variables are shown in Figure 2. The period used for V2 is that given by Wehlau (1990). The various symbols used in the plots represent observations on each of the four nights. The epochs of maximum were chosen from the present data so that the folded light curves of V2 are plotted with the ephemeris:

$$\text{HJD of maximum} = 2447682.554 + 0.45393 \times E \quad (1)$$

and those for V9 with the ephemeris:

$$\text{HJD of maximum} = 2447683.634 + 0.05062 \times E \quad (2)$$

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