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# VARIABLE STARS IN THE GLOBULAR CLUSTER NGC 4372

The globular cluster NGC 4372 ($C1223-724, l = 301\overset{\circ}{.}0, b = -9\overset{\circ}{.}9$) has a low concentration (CC XII) and relatively low metallicity. Estimates of the latter range from $-1.66$ (Bica & Pastoriza, 1983) to $-2.16$ (Frogel et al., 1983). The integral spectral class, F5 (Hesser & Shawl, 1985), favours the former value. The cluster has an apparent radius $r = 9\overset{'}{.}3$ (Kukarkin, 1974) and tidal radius $r = 31\overset{'}{.}6$ (Webbink, 1985).

In the first two editions of Catalogue of Variable Stars in Globular Clusters (Sawyer, 1939, 1955) with reference to a communication from H. Shapley there are 3 unpublished and 11 suspected variables in the cluster. However no data are given for these stars. In a search for variables (Fourcade et al., 1966) two (type unknown) were discovered at a considerable distance from the cluster center ($r > 11'$). A further search (Kaluzny & Krzeminski, 1993) detected 19 short-period SX Phe type variables and close binaries. In the present study the search for RR Lyr type variables was made in the area $r < 4\overset{'}{.}5$ using the same $V$ and $B$ observations (Brocato et al., 1996) in four overlapping fields with 3-6 consecutive exposures and applying the same method of search for variable stars as in our previous papers (Kadla et al., 1996a,b).

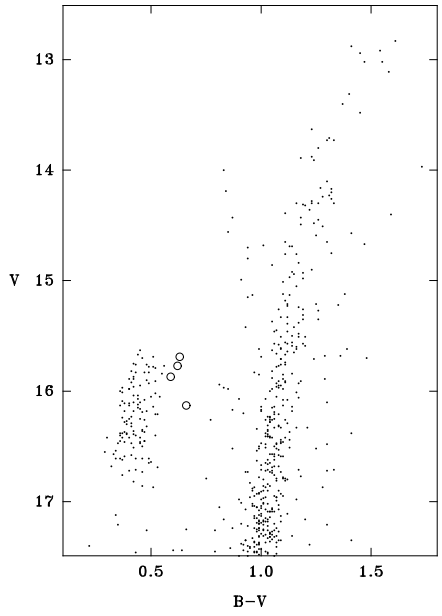


Figure 1. The color – magnitude diagram for the globular cluster NGC 4372. The suspected RR Lyrae stars are denoted by ○

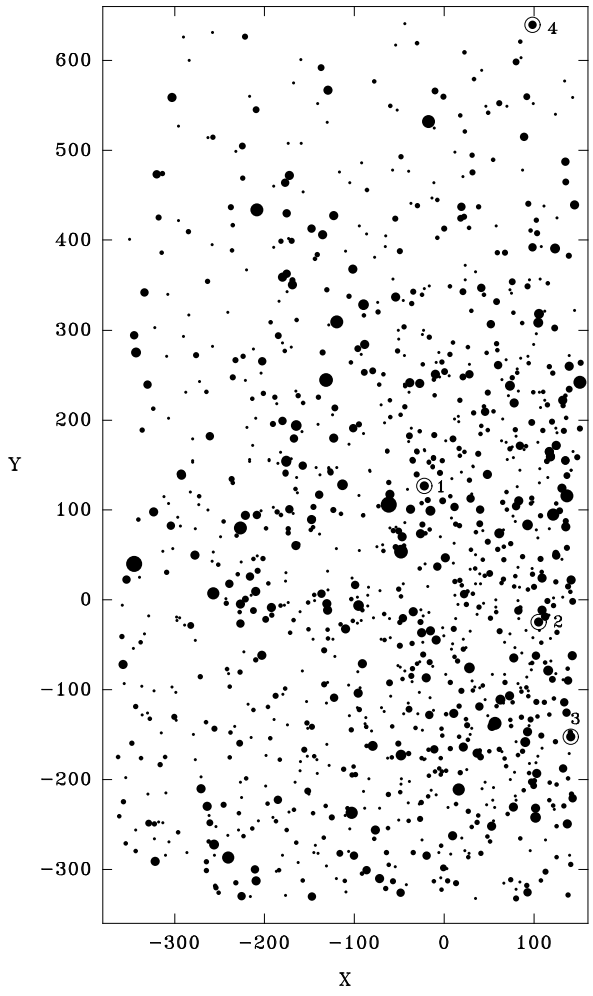


Figure 2. Chart of the western part of the cluster. Variable stars are denoted by ◯

Table 1. Positions and photometric data for suspected variables stars

| $N$ | $X$ (arcsec) | $Y$ (arcsec) | $V$ | B−V |
|---|---|---|---|---|
| 1 | −76.06 | 33.38 | 16.13 | 0.66 |
| 2 | −20.97 | −46.72 | 15.77 | 0.62 |
| 3 | −7.17 | −98.01 | 15.87 | 0.59 |
| 4 | −6.15 | 268.59 | 15.69 | 0.63 |

A comparison of the CMDs for the four fields revealed that the absorption in the southern part of the investigated area is less than in the northern part, E(B−V) = 0.1. The resulting CMD corrected for differential absorption is shown in Figure 1. Data for the four stars in the instability strip, which are suspected RR Lyr variables, are given in Table 1. Their positions are determined using as a reference frame the coordinate system given in the paper by Kaluzny & Krzeminski (1993) and are shown in the finding chart (Figure 2). $V$ and $B-V$ values for V4 are corrected for differential absorption. The short duration of the observations, less than 35 min in each color for each field, did not permit the confirmation of the variability of these stars.

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