

METALLICITY OF THE STAR III-17 IN NGC 6553

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CCD échelle spectra in the wavelength range $\lambda\lambda$ 478 - 580 nm, were obtained at the 3.6m telescope at ESO for the star III-17 of the metal-rich globular cluster NGC 6553. This cluster was chosen because it is a relatively close bulge globular cluster, and it presented the possibility to be among the most metal-rich ones in the Galaxy.

In a previous work, BVRI CCD colour-magnitude diagrams (CMDs) were presented (Ortolani et al., 1990), where it was shown that, due to the high metallicity of NGC 6553, the red giant branch appeared to turn over for the cooler stars. The star III-17 was chosen for being among its brightest stars.

A major problem encountered for the derivation of stellar parameters, was the temperature determination due to a strong and uncertain reddening, and to the imprecisions in the relations colours-temperature for metal-rich giants. We used a method to disentangle the temperature from the metallicity effect: with the use of CMDs for 47 Tuc and NGC 6553, and the use of data for solar metallicity giants for which V, (B-V) and temperature are known, we could draw lines of constant temperatures in the V vs. (B-V) diagram for several clusters of different metallicities. The gravity was derived by a classical relation, correcting for the overionization effect. The metallicity was then determined by fitting synthetic spectra computed with different metallicities to the observed spectra.

The final parameters obtained for the star III-17 are: $T_{eff} = 3850$, $\log g = 0.4$ and $[M/H] = -0.2 \pm 0.3$.

CNO abundances were preliminarily also derived: $[C/Fe] \approx 0.0$, $[N/Fe] \approx +0.6$, $[O/Fe] \approx 0.0$, indicating a possible CNO excess.

Ortolani, S., Barbuy, B., Bica, E.: 1990, A&A 236, 362