

THE INVESTIGATION OF THE ATMOSPHERE OF THE
MERCURY-MANGANESE STAR α AND

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ABSTRACT

A model atmosphere analysis of the chemically peculiar star α And (Hg - Mn) was fulfilled on the basis of 7 spectrograms with 2.4 A/mm dispersion. The effective temperature $T_e = 13700 \pm 500$ K and the surface gravity $\log g = 3.75 \pm 0.25$ were determined. The analysis of chemical composition was carried out by a comparison of two different model atmospheres with the following parameters $T_e / \log g$: 13700/3.75 and 11300/3.50. It is shown that the ionization equilibrium for Fe I - Fe II and Mn I - Mn II lines is maintained only for the second, more cool model. Out of 10 considered elements the largest overabundance was found for Mn (2.0 dex), Ga (4.5 dex) and Hg (5.5 dex). A number of synthetic spectra were calculated, which lead to a conclusion that the blend on 3984 A is completely due to Hg II λ 3983.96 line. Hence it follows also that Y and Ce overabundance cannot exceed 2.5 dex. It is noted that the discrepancy in T_e values inferred from the energy distribution in the visual region and from the ionization equilibrium might be a consequence of the binary nature of the star. The parameters of the components and some orbital elements are roughly estimated.