

The atmospheres and spectra of X-ray illuminated stars: Line formation

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Abstract

The formation of lines in X-ray illuminated atmospheres and in close binary systems with X-ray sources is studied. It is shown that there are three groups of lines: "cool" (absorption lines), "normal" (absorption lines with emission cores), and "hot" (emission lines). The effect of the parameters of the irradiative X-ray flux and the observing conditions on the formation of lines of different groups is analyzed. The method of gray approximation has been found to be applicable to the synthesis of the profiles of cool and normal lines. The method of constructing synthetic spectra for close binary systems has been developed, and the possibility of determining the parameters of the systems from an analysis of lines of different groups is shown.
