

Influence of X-ray radiation on the non-LTE wind models of O-type stars

Jiří Krτίčka

Institute for Theoretical Physics and Astrophysics, Faculty of Sciences, Masaryk University,
Kotlarska 2, CZ – 611 37 Brno, Czech Republic
email: krticka@physics.muni.cz

Abstract. We study the influence of shock X-ray emission on the structure of non-LTE wind models of O-type stars.

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We study the influence of shock X-ray emission on the structure of non-LTE wind models of O-type stars. For this purpose we use our own non-LTE wind code with an artificial X-ray source to understand the influence of X-rays on the wind ionization structure and, consequently, on the basic wind parameters of O-type stars (mass-loss rate and the terminal velocity). The inclusion of X-ray sources into wind models enables to obtain wind ionization structure which is more consistent with the observed one. However, the presence of strong X-ray radiation does not significantly influence the mass-loss rate, but it may influence the terminal velocity for cooler O-type stars. Wind models with constant X-ray filling factor are able to roughly explain the observed relation between the X-ray luminosity and the total luminosity. Star exhibiting so-called ‘weak wind problem’ produce X-rays apparently more efficiently than the ‘normal’ stars. We discuss the implications of wind models with X-ray emission on the current problems of hot star wind research, namely the discrepancy between wind properties derived from observation and theoretical wind models. (*Poster Presentation.*)