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Astrophysics > Solar and Stellar Astrophysics

## A grid of NLTE corrections for magnesium and calcium in late-type giant and supergiant stars: application to Gaia

Thibault Merle (CASSIOPEE), Frédéric Thévenin (CASSIOPEE), Bernard Pichon (CASSIOPEE), Lionel Bigot (CASSIOPEE)

(Submitted on 29 Jul 2011)

We investigate NLTE effects for magnesium and calcium in the atmospheres of late-type giant and supergiant stars. The aim of this paper is to provide a grid of NLTE/LTE equivalent width ratios W/W\* of Mg and Ca lines for the following range of stellar parameters: Teff in [3500, 5250] K, log g in [0.5, 2.0] dex and [Fe/H] in [-4.0, 0.5] dex. We use realistic model atoms with the best physics available and taking into account the fine structure. The Mg and Ca lines of interest are in optical and near IR ranges. A special interest concerns the lines in the Gaia spectrograph (RVS) wavelength domain [8470, 8740] A. The NLTE corrections are provided as function of stellar parameters in an electronic table as well as in a polynomial form for the Gaia/RVS lines.

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