

Non-LTE analysis of Mg II in B stars

Dept. of Astronomy, University of Toronto - Surface abundances of light elements for a large sample of early B



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Magnesium abundances in mildly metal

O ii and N ii, have traditionally been used to determine V t for B stars, because it was supposed that the V t values in atmospheres of B stars are small compared with the thermal velocities of He i atoms.

Magnesium abundances in mildly metal

Microturbulence Following standard practice, we derived the microturbulent velocity from the Si iii triplet 4552, 4567, and 4574 Å—see upper plots in Figure as it is observed in all our analyzable spectra and because all three lines arise from the same multiplet, so that errors in the absolute oscillator strengths and non-LTE effects should be minimized. Thus the expectation is that the majority of the B stars would have preserved their initial C and N abundances before undergoing conversion to a runaway star. However, it can be expected that the Mg ii h and k line profiles at the lower part of the chromosphere are a product of a superposition of several spicules along the LOS.

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Nevertheless, the agreement between computed and observed profiles for these stars is significantly worse than for other stars, so the $v \sin i$ estimation is rather uncertain. Comparison between the observed H β left-hand panel, observed H α right-hand panel and synthetic line profiles. Such multi-slab models are used here for the first time to simulate off-limb spicules.

Infrared Emission Lines of Mg II in B Stars

As known, the rate of movement of a star along an evolutionary track during the MS phase is substantially different on different sections of the track. All the photometric parameters were calculated using the modified computer codes given by , which take into account the transmission curves of individual photometric filters, mirror reflectivity and a photomultiplier response function.

[1809.06969] NLTE line formation for and in atmospheres of B

For the runaway B stars, the Mg and Si abundances from Table are compared in Figure , which shows that Mg and Si abundances are highly correlated and that each range over 1. Two stars outside the ± 0 .

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