Spectroscopic Analysis of Cyg OB2 O supergiants using Unified Model Atmopsheres

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We present first results of an spectroscopic analysis of 7 O supergiants in Cyg OB2 using two different model atmosphere codes (Santolaya-Rey, Puls, Herrero, 1997, A&A 323, 488; and Hillier & Miller, 1998, ApJ 496, 407). The first code has been improved including an estimation of metal line blocking effects (Puls, in prep.). The second one has been improved including a photospheric density structure (Najarro et al., in prep.). The results from both codes compare well within the observational uncertainties.

The main result of these analyses is a lower temperature scale for O supergiants as compared with previous analyses using either plane-parallel, hydrostatic or spherical, mass-lossing models (see Herrero, Puls, Villamariz, A&A 2000, 354, 193). The lower temperatures are thus an effect of the additional metal line opacity and the large mass-loss rates. In some cases, the new derived effective temperature is reduced up to 10 000 K.

As a consequence, radii and luminosities are also changed, reducing the mass discrepancy and modifying the Wind Momentum- Luminosity Relationship.