

STUDYING THE COMPLEX BAL PROFILES OF C IV IN 30 BALQSO SPECTRA

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As we know, HiBALQSOs present broad and very complex absorption lines. Although in our days we accept that these lines are the synthesis of independent absorption lines which are created in different absorbing clouds known as Broad Line Region Clouds, a thorough study of the absorbing regions has not yet been accomplished. This lies on the fact that the radiative transfer equation for a complex atmospheric plasma region (comprised of many clouds) was not solved. Danezis et al. [1] solved the radiative transfer equation for such a complex structure and proposed the GR model [2] for the study of complex spectral line profiles. In this work, using the GR model, we study the UV absorption lines of C IV in the case of 30 HiBALQSOs. Based on our spectral analysis we succeeded in reproducing theoretically the complex absorption profiles and calculating a series of physical parameters for the absorbing clouds (radial and rotational velocities of plasma clouds, random velocities of ions inside the plasma clouds, absorbed energy, FWHM of the corresponding spectral lines, column density, optical depth). Last but not least, by correlating all of these physical parameters we managed to extract general conclusions about the physical structure and kinematics of plasma clouds that create the UV absorption lines of C IV in HiBALQSOs.

References

- [1] Danezis, E. et al.: 2003, *Astrophys. Space Sci.*, **284**, 1119.
- [2] Danezis, E. et al.: 2007, *Publ. Astr. Soc. Japan*, **59**, 827.