Progress Report

VARIABILITY OF SI IV AND C IV BROAD ABSORPTION AND EMISSION LINES OF WOLF-RAYET STARS, CATACLYSMIC VARIABLES, HOT EMISSION STARS AND QUASARS USING GR MODEL AND ASTA SOFTWARE

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In this paper using GR model and ASTA software, built by the Astrophysical Spectroscopy Team of the University of Athens, we perform multicomponent fits and analyze the complex emission and absorption lines in the spectra of a BAL Quasar, a Hot Emission Star, a Wolf-Rayet and a Cataclysmic Variable. We are thus able to study the radial velocity, the optical depth, the FWHM and the column density of the components that compose the complex absorption and emission spectral lines. Utilizing two epoch spectra of each object we probe the kinematics, physical conditions and time variability of each individual emission and absorption component that contribute to the formation of P-Cygni profiles, ubiquitous in the UV spectra of these objects. We show that the outflows of the studied objects are far from being smooth and homogeneous but instead are clumpy and unstable. Finally, we present the ability of our model and software to resolve the complex P-Cygni profiles of different types of astronomical objects.