The Properties of Fe II Emission Region in AGN

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Abstract

Numerous optical Fe II lines in 4400-5400 Å range make one of the most interesting features in Active Galactic Nuclei (AGN) spectra. Their extreme emission can not be explained by standard photoionization models and geometrical place of the Fe II emission region in AGN structure is still open question. In order to investigate the properties of the Fe II emission region, we calculated the Fe II template, using the 70 Fe II emission lines, identified as the strongest, in 4400-5400 Å range. The 59 lines are separated in the four groups (^{4}F, ^{6}S, ^{4}G and ^{6}D) according to their lower level of transition, and we calculated relative line intensities in each line group. The rest of 11 lines of template have high energy of excitation, and they probably arise by Lyα pumping or self-flourescence proceses. Their intensity ratio is taken from 1 Zw 1 object. We found that our template fit very well the AGN spectra from the sample. We compare it with other numerical and empirical templates.

Ways of Creation of SACs and DACs in the Plasma around Quasars

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Abstract

Some of the AGNs spectra present peculiar profiles that result from dynamical processes such as accretion and/or ejection of matter from these objects. We can explain these complex profiles with DACs and SACs phenomena, which indicate the existence of layers of matter with different physical conditions. In order to explain and reproduce theoretically these complex line profiles we use the GR model (Gauss-Rotation model).

In this paper we examine the form of GR line function if the density regions of matter that produce the satellite absorption or emission components are independent but not successive. Then we apply the two forms of GR line function in the the Lya, Si IV, C IV and N V spectral lines of a sample of Quasars in order to compare the values of kinematical parameters and the total absorption energy, extracted from both cases (successive and not successive density regions).