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**Clouds in AGN**

In the one of the most iconic picture of the Active Galactic Nuclei (AGN) unification scheme (the illustration from Urry & Padovani work) we see "clouds". Those clumps of matter are placed above accretion disk and dusty torus, spread around supermassive black hole. It suppose to vaguely outlines the region where the spectral features observed at X-ray, UV and optical bands may come from rather than constrains their appearance. Decades of observations, simulations and theoretical works lead us to a general understanding of how AGN disk and line producing clouds are connected.

The important milestone explaining origin of Broad Line Region (BLR) clouds was Failed Radiatively Accelerated Dusty Outflow (FRADO), which unambiguously connected line emitting clouds with the accretion disk. Exploring consequences of this scenario we developed radial structure of the line emitting medium. Simulating radially extended emission line region we reached an agreement with the observed spectral properties of AGNs. The key to our success was to incorporate accretion disk's distribution of matter as the line region medium property. We found that medium responsible for emission lines must be radially extended and there are naturally emerging gaps in this distribution. We also found out that the opposite approach: detailed modeling of the observed spectroscopic emission line profiles lead to similar extended distribution of matter emissivity. Results suggest that the BLR form a structure to some extent parallel to the disk. This way we developed a new approach to study disk-clouds interplay and we can use them both ways. Supplementing research with the X-ray spectroscopy we may cross-check properties of medium above the disk. Clouds when are situated on the line between the inner accretion disk and an observer causes absorption line spectrum. In case of Mrk 509 it was possible to test this medium and inner disk properties with our novel Constant Total Pressure (CTP) photoionization model. It allows us to probe the BLR part extended in the direction perpendicular to the disk. X-ray spectra modeling demand us to disentangle illumination continuum and thus we may probe the inner accretion disk structure. Described works allowed us better understand inner structure of AGN and tune the AGN picture, while inferring more information from the observations.

Serdecznie zapraszam,

Miguel Figueira Sebastiao, on behalf of the SOC