Abstract

I will present the latest results on our analysis of the non-linear X-ray to UV relation in a sample of ~550 optically selected quasars from SDSS DR7 cross matched with the latest XMM-Newton catalogue 3XMM-DR6. I will show that this correlation is not only very tight, but can be potentially even tighter by including a further dependence on the emission line full-width half maximum. We interpreted this new relation through a very simple, ad-hoc model of accretion disc corona.
Our results imply that the L_X-L_UV relation is the manifestation of an ubiquitous physical mechanism, whose details are still unknown, that regulates the energy transfer from the accretion disc to the X-ray emitting corona in quasars.

Finally, I will discuss what are the perspectives of AGN in the context of observational cosmology. I will introduce a novel technique able to test the cosmological model using quasars as “standard candles” by employing the non-linear X-ray to UV relation as an absolute distance indicator.