

The restless nature of AGN: 10 years later



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Investigating high- λ_{Edd} accretion with X-HESS: a new XMM-Newton sample of serendipitous highly accreting AGN

The Eddington ratio λ_{Edd} , is the key parameter that describes the accretion mode of active galactic nuclei (AGN). Among the different modes, high- λ_{Edd} accretion is particularly fascinating because of its implications in the context of accretion physics, as well as AGN feedback. However, due to their relative paucity in the local Universe ($z < 0.1$), only a limited number of AGN accreting in the high- λ_{Edd} regime can benefit of currently available dedicated observations, especially at higher z . To tackle this issue we exploit the vast database of XMM-Newton serendipitous observations to create a new, large sample of highly accreting AGN named as XMM-Newton High-Eddington Serendipitous AGN Sample (X-HESS). X-HESS includes 143 observations of 61 AGN, $\sim 40\%$ of which disposing of multi-epoch observations, disclosing the unprecedented possibility to study not only the spectral but also variability features of high- λ_{Edd} AGN in much broader intervals of redshift, black hole mass, bolometric luminosity and λ_{Edd} with respect to the bulk of pre-existing AGN samples. Approximately two-thirds of the X-HESS observations are complemented with simultaneous OM measurements. Thanks to the high-quality XMM-Newton observations we probe a large variety of correlations between the X-ray spectral, variability, optical/UV and physical properties of high- λ_{Edd} AGN, extending the dynamical range of previously reported relations towards poorly explored intervals.

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