

The restless nature of AGN: 10 years later



Contribution ID : 75

Type : **Contributed talk**

Investigating the high-luminosity end of the H beta size-luminosity relation based on the 6-year Seoul National University Monitoring Project (SAMP)

martedì 27 giugno 2023 10:15 (15)

Reverberation mapping (RM) of Active Galactic Nuclei (AGNs) is the primary method to measure AGN broad line region (BLR) sizes and black hole (BH) masses. Most objects in the current H β RM sample are low-to-intermediate luminosity AGNs with only a few objects having $L_{5100} \geq 10^{44.5}$ erg/s. Here we present the latest results from our 6-year Seoul National University AGN Monitoring Project (SAMP). With hundreds of nights of regularly sampled spectroscopic/photometric observations, we successfully obtain reliable H β lags and BH masses for 24 objects in the luminosity range of $L_{5100} = 10^{44.1 \sim 45.6}$ erg/s. The BLR sizes of these objects are generally smaller than the expectation from Bentz et al. relation. By applying an uniform lag analysis to literature H β RM light curves and selecting reliable lag measurements to combine with SAMP measurements, we find the current H β size-luminosity relation has a slope of 0.41 ± 0.02 with an intrinsic scatter of 0.19 dex. We confirm that the accretion rate / UV-optical spectral energy distribution is related to this shallower slope. In addition, we will present the H β velocity resolved lag measurements for ~ 20 AGNs and discuss the implication of these results on the BLR properties.

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Session Classification : Emission Line variability