

BLR size and R-L relation in realistic FRADO model

The effective size of Broad Line Region (BLR), so-called the BLR radius, in galaxies with active galactic nuclei (AGN) scales with the source luminosity. Therefore by determining this location either observationally through reverberation mapping or theoretically, one can use AGNs as an interesting laboratory to test cosmological models. Focusing on the theoretical side of BLR based on the Failed Radiatively Accelerated Dusty Outflow (FRADO) model and simulating the dynamics of matter in BLR through a realistic model of radiation of accretion disk including the shielding effect, as well as incorporating the proper values of dust opacities, we investigate how the BLR geometry depends on the Eddington ratio and blackhole mass, and modeling of shielding effect. We show that assuming a range of Eddington ratios and shielding we are able to explain the H-beta time-delays in a most recent sample of reverberation-measured AGNs.

Primary author: Mr NADDAF, Mohammad (CFT/CAMK)

Co-authors: Prof. CZERNY, Bozena (CFT); Prof. SZCZERBA, Ryszard (CAMK)

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