

Black Hole Masses and Accretion Rates in Nearby AGN

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Abstract. We present results from a survey of the properties of the central black holes in nearby AGN. This shows that AGN radiating near Eddington are on average less massive now than at $z \sim 1$.

Keywords. galaxies: active; galaxies: nuclei; accretion, accretion disks

We observed the CaII triplet lines near 8550 \AA in a representative sample of ~ 150 AGN with $z < 0.017$. These data were used to derive stellar velocity dispersions (e.g., Nelson & Whittle 1995) and hence black hole masses (Tremaine *et al.* 2002). We derived accretion rates for 107 of these with measured $25 \mu\text{m}$ fluxes, using mid-infrared luminosity as a proxy for the luminosity of the AGN (cf. Lumsden & Alexander 2001). The fastest accreters are those with the lowest mass black holes, and black holes with $M_{\text{BH}} > 10^8 M_{\odot}$ are now all relatively “quiescent” (Figure 1) unlike at $z \sim 1$ (McLure & Dunlop 2004). The results provide evidence for downsizing when compared to those from the Sloan Digital Sky Survey over a similar range of black hole masses.

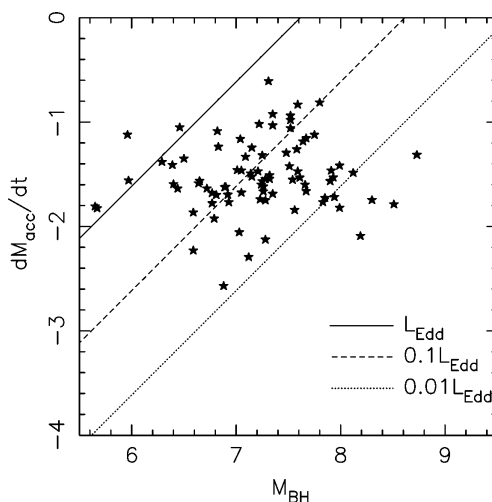


Figure 1. Accretion rate versus black hole mass for the subset of the sample with $21 \mu\text{m}$ luminosity. Only those objects with $M_{\text{BH}} < 10^{6.5} M_{\odot}$ are near or above Eddington.

References

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