

The restless nature of AGN: 10 years later



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Variability of Local X-ray Selected AGN

Investigations into the connections between the variability parameters and the central engine over the past decades have generally relied on large ensemble samples of distant (10^8 - 10^{10} M \odot) quasars or intense high-cadence monitoring of a very limited sample of local AGN. Here we systematically characterize the optical variability for the more modest supermassive black holes (10^6 - 10^8 M \odot) among the BASS AGN sample using ZTF g and r bands, and compare this to samples of more massive central engines to study correlations between fundamental parameters (e.g black hole mass, accretion rate, wavelength dependence, accretion disk size). We model the variability with several metrics including CARMA(2,1) DHO models [Brockwell+01]. After obtaining best-fit parameters and error distributions, we retrieve characteristic time scales and amplitudes of the variability, evaluate them with the Monte Carlo Markov chain and study their correlation with the black hole mass. We compare our results with wavelet analysis to test the ranges of the said features.

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