

The restless nature of AGN: 10 years later



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Self-Consistent Modelling of AGN

Large scale surveys such as the Legacy Survey of Space and Time will soon discover and monitor 1000's of new strongly lensed Active Galactic Nuclei (AGN). These surveys offer the potential to extract the rich structural information encoded in the intrinsic fluctuations of these quasars via reverberation mapping. However, to fully realize this potential we need more realistic and detailed simulations of AGN variability. We present a new model for continuum and broad-line reverberation through a physically motivated but flexible model of AGN structure and kinematics. This model incorporates all relativistic effects, including lensing by the SMBH, a flexibly parameterized accretion disk and broad-line flow, continuum reprocessing by disk, secondary scattering by the broad line region, and arbitrary geometry and time-dependence for the variability source. The resulting transfer functions contain nuanced detail about the AGN central engine, and can be derived without explicit integral evaluations, enabling a highly flexible simulation of intrinsic variability.

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