

Microlensing in lensed quasars

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“The observation of gravitationally microlensed quasars provides direct measurements of the accretion disk structure. The flux variations of the quasar images, induced by the source crossing through the microlens caustics, produce variations on timescales of years. There are two techniques to measure those variations: photometric monitoring and single epoch spectroscopy/photometry.

The first one measures the magnification changes by comparing the light curves of the lensed images after correcting by the time delay between the images. The second one uses emission lines (or a smooth macrolens model) as a reference to estimate the microlensing variability. These techniques have been successfully applied to investigate the inner structure of a few dozen of systems, improving the analysis of systematic uncertainties. In the upcoming decade, with the discovery of thousands of new systems, quasar microlensing could offer a comprehensive view of the accretion disk structure.”

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