

## **Variability of the lens quasar QJ0158 : microlensing or reverberation ?**

Microlensing of strongly lensed quasars offers a unique window into AGN structure and its connection to the physical mechanisms behind quasar variability. The extrinsic variability it adds to the different images can, for example, give constraints on the radius of the accretion disk.

The current state-of-the-art light curve fitting method of Kochanek 2004 tends to overlook high frequency signals present in microlensing light curves even though they contain information about the source structure. In my talk, I will present a new way to analyse microlensing light curves using their power spectrum. The aim of this method is to measure the radius of the quasar's accretion disk by taking into account the full range of frequencies present in the light curves.

I applied this new approach to the microlensing light curve of the doubly lensed quasar QJ0158-4325, using the full range of frequencies available in the monitoring signal, which yielded a measurement of the accretion disk radius of  $2.67e14$  cm, 10 times lower than previous results. I show that a plausible explanation for the observed high frequency signal is an additional reverberated and unmicrolensed signal from the Broad Line Region. This effect, in turn, allows one to measure the radius of the BLR in agreement with previous measurements.

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