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Extended continuum emission in quasars and its impact on time-delay lightcurves

The accurate photometric monitoring of lensed quasars is instrumental to high precision cosmography from time-delay measurements, and to quasar continuum source size measurements with microlensing. We report recent evidence, from the microlensing spectroscopic study of two broad absorption line quasars, that the quasar continuum emission does not only originate from a compact accretion disc as generally thought. Instead, we show that a substantial fraction of the continuum flux is light emitted in regions much larger than the compact continuum. We briefly discuss non lensing-based evidence for such an "extended continuum emission", supporting its presence in all Active Galactic Nuclei. Because the extended continuum source is less prone to microlensing than the compact emission thought to arise from the accretion disc, the microlensing signal will differ from our models that assume microlensing of a single compact region. We show that this effect distorts time delay-lightcurves in a subtle way and discuss its potential impact on time-delay measurements.

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