

A weak lensing measurement of the external convergence in the field of the lensed quasar HE 0435-1223

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Time delays in gravitationally lensed quasar systems have become a key probe in our attempts to measure the expansion of the Universe. They provide a new way to obtain independent estimate of the Hubble constant, which is complementary to and competitive with other probes such as the Cosmic Microwave Background or type Ia supernovae. In order to recover the cosmological information from an individual lens system with high precision and accuracy, modelling of the environment and the line of sight of the lens is required. In this talk I will present a weak gravitational lensing measurement of the external convergence along the line of sight to the quadruply lensed quasar HE 0435-1223 (Tihhonova et al. 2017, arXiv:1711.08804). This quasar is used together with other lensed systems by the H0LiCOW collaboration (H0 Lenses in COSMOGRAIL's Wellspring) to measure the Hubble constant alongside with other cosmological parameters. I will show that the estimated convergence, consistent with other independent studies of this lens, confirms that the intervening mass along the line of sight to HE 0435-1223 does not affect significantly the cosmological results inferred from the time delay measurements of that specific object, making HE 0435-1223 a valuable system for cosmography.

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