

GLaD: Gravitational Lensing and Dynamics combined analysis to unveil properties of high-redshift galaxies. (Giulia Chirivì)

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Recent advances in Integral-Field Units and dynamical modelling of the stellar kinematics provide a powerful way to unveil the structure of galaxies in the local Universe, while gravitational lensing is nature's cosmic telescope to explore the properties of galaxies beyond the local Universe. We present a new approach that is able to unify the great tools of dynamical modelling of galaxies with the magnification power of strong gravitational lensing, to reconstruct the dynamical properties of high-redshift galaxies. We use axisymmetric Jeans modelling to create a dynamical model of the source galaxy assuming a mass model and a surface brightness, and then predict how the source's surface brightness and kinematics would look like when lensed into arcs. We reconstruct the distorted kinematic data by comparing to the observed arcs of real strong gravitational lensing systems, and we present how well we are able to recover the lens and source mass and surface brightness parameters exploiting the combination of lensing and dynamics.

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