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Mass reconstruction in disc like galaxies using strong lensing and rotation curves: The Gallenspy package

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Two methods for mass profiles reconstruction in disc-like galaxies are presented in this work, the first is done with the fit of the rotation curve based on the data of circular velocity which are obtained observationally in a stars system, while the other method is focused in the Gravitational Lensed Effect (GLE). For these mass reconstructions, two routines developed in the language of programming python were used: one of them is Galrotpty, which was built by members of the Galaxies, Gravitation and Cosmology group from the Observatorio Astronómico Nacional of the Universidad Nacional de Colombia and whose funtionality is applied in the rotation curves, the other routine is Gallenspy which was created in the development of this work and it is focused in the GLE. It should be noted that both routines perform a parametric estimation from the Bayesian statistics, which allows obtaining the uncertainties of the estimated values. Finally is shown the great power of combining galactic dynamics and GLE, for this purpose the mass profiles of the galaxies SDSSJ2141-001 and SDSSJ1331+3628 were reconstructed with Galrotpty and Gallenspy where these results obtained are compared with those reported by other authors regarding these systems.

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