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Title:	Exotic image formation in strong gravitational lensing by clusters of galaxies – II. Uncertainties
Authors:	Kumar Meena, Ashish (/jspui/browse?type=author&value=Kumar+Meena%2C+Ashish) S Bagla, Jasjeet (/jspui/browse?type=author&value=S+Bagla%2C+Jasjeet)
Keywords:	Exotic image formation strong gravitational lensing clusters of galaxies Uncertainties
Issue Date:	2021
Publisher:	Oxford Academic
Citation:	Monthly Notices of the Royal Astronomical Society, 506(1),1526–1539
Abstract:	Due to the finite amount of observational data, the best-fitting parameters corresponding to the reconstructed cluster mass have uncertainties. In turn, these uncertainties affect the inferences made from these mass models. Following our earlier work, we have studied the effect of such uncertainties on the singularity maps in simulated and actual galaxy clusters. The mass models for both simulated and real clusters have been constructed using GRALE. The final best-fitting mass models created using GRALE give the simplest singularity maps and a lower limit on the number of point singularities that a lens has to offer. The simple nature of these singularity maps also puts a lower limit on the number of three image (tangential and radial) arcs that a cluster lens has. Hence, we estimate the number of galaxy sources giving rise to the three image arcs, which can be observed with the James Webb Space Telescope (JWST). We find that we expect to observe at least 20–30 tangential and 5–10 radial three-image arcs in the Hubble Frontier Fields cluster lenses with the JWST
Description:	Only IISER Mohali authors are available in the record.
URI:	https://doi.org/10.1093/mnras/stab1807 (https://doi.org/10.1093/mnras/stab1807) http://hdl.handle.net/123456789/4459 (http://hdl.handle.net/123456789/4459)
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