Title:	Finding singularities in gravitational lensing
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Abstract:	The number of strong lens systems is expected to increase significantly in ongoing and upcoming surveys. With an increase in the total number of such systems, we expect to discover many configurations that correspond to unstable caustics. In such cases, the instability can be used to our advantage for constraining the lens model. We have implemented algorithms for detection of different types of singularities in gravitational lensing. We apply our approach on a variety of lens models and then go on to test it with the inferred mass distribution for Abell 697 as an example application. We propose to represent lenses using A3-lines and singular points (A4 and D4) in the image plane. We propose this as a compact representation of complex lens systems that can capture all the details in a single snapshot.
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