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Linear Stability of the self-similarly shrinking lens

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When performing a parabolic blowup analysis of singularities in 2D multiphase mean curvature flow, one is led to the notion of self-similar shrinker: Networks whose evolution by mean curvature is given by shrinking homotheties. It can be shown that they are critical points of an entropy given by the interface length functional with a suitable Gaussian weight.

Furthermore, this entropy is decreased during the flow. Hence the dynamic stability of the shrinkers can be studied via their stability with respect to the entropy, a matter that is complicated by the existence of, generically, four unstable modes arising from dilation, translation, and rotation. In the talk, I will demonstrate how to perform a linear stability analysis of self-similar shrinkers for the example of the lens.

Presenter: SIMON, Theresa (Universität Münster)