- **Mäder-Baumdicker, Elena: The free boundary setting of the area preserving curve shortening flow (205)**
Under the area preserving curve shortening flow (APCSF), a convex simple closed plane curve converges smoothly to a circle with the same enclosed area as the initial curve. Note that an embedded circle is the solution of the isoperimetric problem in the plane. Corresponding to the outer isoperimetric problem for a convex domain we present results about the APCSF with Neumann free boundary conditions outside of a convex domain. Under certain conditions on the initial curve the flow does not develop any singularity, and it subconverges smoothly to an arc of a circle sitting outside of the given convex domain and enclosing the same area as the initial curve. On the other hand, there are many examples of convex initial curves developing a singularity in finite time. In all these cases, the curvature blows up with a certain rate. In contrast to the behavior in the closed setting, we suspect that some curves developing a singularity stay embedded under the flow.