Asymptotically self-similar solutions to curvature flow equations with prescribed contact angle

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Abstract:
We study the asymptotic behavior of solutions to fully nonlinear second order parabolic equations including a generalized curvature flow equation which was introduced by W. W. Mullins in 1957 as a model of evaporation-condensation. We prove that, in the multi-dimensional half space, solutions of the problem with prescribed contact angle asymptotically converge to a self-similar solution of the associated problem. We also give estimates for the depth of the thermal groove, which is represented by the value of the self-similar solution at the boundary.