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On the convexification of functionals associated with the mean-curvature equation

Industrial crystallization processes are very particular examples of solid-liquid phase transitions, since the free-boundary is expected to be graph-like. Moreover it is very desirable in all crystal growth techniques to control the shape of the interface up to second order quantities (main curvatures). On the base of the Simon-Trudinger estimates, we present a class of smooth surfaces of prescribed mean-curvature that are accumulation points of a sequence of smooth graphs, if the ambient mean-curvature function and the angle of contact on the boundary are Lipschitz continuous. We briefly discuss coupling to the stationary heat equation (Stefan-problem with surface tension).