Neckpinch dynamics for asymmetric surfaces evolving by mean curvature flow

We study surfaces evolving by mean curvature flow (MCF). For an open set of initial data that are $C^3$-close to round, but without assuming rotational symmetry, we show that MCF solutions become singular in finite time by forming neckpinches, and we obtain detailed asymptotics of that singularity formation. In particular, we show that MCF solutions become asymptotically rotationally symmetric near a neckpinch singularity.