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Jeremy S LeCrone* (jlecrone@richmond.edu) and **Gieri Simonett**. *Stability of cylinders in surface diffusion flow under general perturbations.*

The surface diffusion flow is a geometric evolution equation which prescribes the normal velocity of points on immersed, oriented manifolds to equal the Laplace-Beltrami operator acting on the mean curvature at the point. Given a parameterization for the manifold, the morphological evolution of the parameterization is expressed by a fourth-order, quasilinear, parabolic pde. In this talk, I will discuss results regarding well-posedness of surface diffusion under weak regularity assumptions on initial data and stability of unbounded cylinders (as stationary solutions to surface diffusion flow) under general perturbations with periodicity along the cylindrical axis. (Received February 13, 2018)