

Skew Mean Curvature Flow

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The skew mean curvature flow or binormal flow, which originates from the vortex filament equation, describes the evolution of a codimension two submanifold along binormal direction. We show that by a generalized Hasimoto transformation, the SMCF is equivalent to a non-linear Schrödinger system. Moreover, we prove the existence of a local solution to the initial value problem of the SMCF of surfaces in Euclidean space \mathbb{R}^4 . This is a joint work with Jun Sun.