ROBERT JERRARD, University of Toronto

Some remarks on binormal curvature flow

We study a class of weak solutions of the geometric evolution problem of binormal curvature flow. Classically, a smooth map $\gamma : S^1 \times [0,T] \to \mathbb{R}^3$ defines a binormal curvature flow if $|\gamma_s| = 1$ and $\gamma_t = \gamma_s \times \gamma_{ss}$. We define a class of weak, measure-theoretic solutions that need only have the regularity of integral currents, and we prove that if a weak solution in this sense agrees at time $t = 0$ with a smooth embedded curve, then it coincides with the corresponding smooth binormal curvature flow until the first time when that flow develops self-intersections. This is joint work with Didier Smets.