Mathematics > Differential Geometry

Uniqueness of compact tangent flows in Mean Curvature Flow

Felix Schulze

(Submitted on 22 Jul 2011 (v1), last revised 6 Sep 2011 (this version, v2))

We show, for mean curvature flows in Euclidean space, that if one of the tangent flows at a given spacetime point consists of a closed, multiplicity-one, smoothly embedded self-similar shrinker, then it is the unique tangent flow at that point. That is the limit of the parabolic rescalings does not depend on the chosen sequence of rescalings. Furthermore, given such a closed, multiplicity-one, smoothly embedded self-similarly shrinker Σ, we show that any solution of the rescaled flow, which is sufficiently close to Σ, with Gaussian density ratios greater or equal to that of Σ, stays for all time close to Σ and converges to a possibly different self-similarly shrinking solution Σ'. The central point in the argument is a direct application of the Simon-{\L}ojasiewicz inequality to Huisken's monotone Gaussian integral for Mean Curvature Flow.

Comments:	Abstract reworded; some references corrected. 9 pages
Subjects:	**Differential Geometry (math.DG)**; Analysis of PDEs (math.AP)
MSC classes:	53C44, 35B35
Cite as:	**arXiv:1107.4643v2 [math.DG]**

Submission history

From: Felix Schulze [view email]
[v1] Fri, 22 Jul 2011 23:11:14 GMT (10kb)
[v2] Tue, 6 Sep 2011 13:59:33 GMT (10kb)

Which authors of this paper are endorsers?