

Global geometry under isotropic Brownian flows

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Abstract

We consider global properties of a codimension one manifold embedded in Euclidean space, as it evolves under an isotropic and volume preserving Brownian flow of diffeomorphisms. In particular, we obtain expressions describing the expected rate of growth of the Lipschitz-Killing curvatures, or intrinsic volumes, of the manifold under the flow. These results shed new light on some of the intriguing growth properties of flows from a global perspective, rather than the local perspective, on which there is a much larger literature.

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Published on: September 7, 2006

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Electronic Communications in Probability. ISSN: 1083-589X