平面上凸曲线组合流

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Convex Curve Combination Flow on a Plane

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摘要 主要研究了两种新的平面凸曲率流: 一种是由保面积流和保长度流组合而成, 这种曲率流在演化过程中缩短了曲线的周长, 增大了曲线所围成的面积; 另一种是两种保长度流的"凸组合", 这种曲率流的周长是常数, 而面积不断增大. 两种曲率流都具有全局存在性, 并且当时间趋于无穷大时, 曲线在C^∞范数下收敛到有限圆.

关键词: 曲率流 $C^{\&infin}$ 范数凸曲线 撑函数

Abstract：Two kinds of convex curve flows on a plane were studies. One is combination of an area-preserving curve flow proposed and a length-preserving curve flow proposed, this flow reduces the curve length but increases the enclosed area in the evolution process, the other is convex combination of the length-preserving curve flows, it keeps the length constant and expands the area. The two curvature flows exist globally and converge to a circle in the C^∞ metric as time goes to infinity.

Keywords： curvature flow, C^∞ metric,   convex curve,   support function

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