

Singular set and curvature blow-up rate of the level set flow

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Abstract

Under certain conditions such as the 2-convexity, a singularity of the level set flow is of type I (in the sense that the rate of curvature blow-up is constrained before and after the singular time) if and only if the flow shrinks to either a round point or a C^1 curve near that singular point. Analytically speaking, the arrival time is C^2 near a critical point if and only if it satisfies a Łojasiewicz inequality near the point.