

Turkish Journal of Mathematics

Turkish Journal

Perelman's Monotonicity Formula and Applications

of

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Mathematics

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Abstract: This article relies on [15] that the author wrote with Gang Tian and Xiaodong Wang. In view of Hamilton's important work on the Ricci flow and Perelman's paper on the Ricci flow where he develops the techniques that he will later use in completing Hamilton's program for the geometrization conjecture, there may be more interest in the area. We will also discuss the author's theorem which says that the curvature tensor stays uniformly bounded under the unnormalized Ricci flow in a finite time, if the curvatures are uniformly bounded. We will prove that in the case of a Kähler-Ricci flow with uniformly bounded Ricci curvatures, for each sequence of flows $g(t_i + t)$ for $t_i \rightarrow \infty$ there exists a subsequence of metrics converging to a solution to the flow outside a set of codimension 4.

Key Words: Ricci flow, smooth convergence

Turk. J. Math., **28**, (2004), 11-22.

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