Ann. Sc. Norm. Super. Pisa Cl. Sci. (5)
Vol. XXIII (2022), 15-48

Convergence of the Ricci flow on asymptotically flat manifolds with integral curvature pinching

ERIC CHEN

Abstract. We prove a curvature pinching result for the Ricci flow on asymptotically flat manifolds: if an asymptotically flat manifold of dimension $n \geq 3$ has scale-invariant integral norm of curvature sufficiently pinched relative to the inverse of its Sobolev constant, then the Ricci flow starting from this manifold exists for all positive times and converges to flat Euclidean space. In particular our result implies that the initial manifold must have been diffeomorphic to $\mathbb{R}^n$.

Mathematics Subject Classification (2020): 53C44 (primary); 58J35 (secondary).