New Ricci flow invariant curvature conditions in large dimensions

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Abstract

This is a report on work in progress joint with Christoph Böhm. I will start by giving a brief introduction on Hamilitons maximum principle for the Ricci flow and report on various very recent convergence results. The maximum principle is a tool that often allows to decide whether a curvature condition is invariant under the Ricci flow.

We then consider a very simple curvature condition: Given constant c and a dimension n we say that a manifold (M,g) satisfies the condition (c,n) if the scalar curvature is bounded below by c times the norm of the Weyl curvature. We show that in each large even dimensions there is precisely one constant c=c(n)>0 such that this condition is invariant under the Ricci flow.

I then present two very different and simple constructions which allow to produce examples of such manifolds.