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Ricci flow of partially even metrics

Both the general variational theory and the Ricci flow theory of compact Riemannian manifolds have been widely studied. The noncompact case, however, raises many open issues. A nice place to start is with the conformally compactifiable, asymptotically hyperbolic metrics. These have enough structure at infinity to permit the definition of renormalized curvature integrals, which may then admit a variational theory and may also provide possible monotonic quantities for Ricci flow. We consider the "partially even" metrics. These are conformally compactifiable and asymptotically hyperbolic, and admit a Fefferman-Graham expansion whose first few terms are even. If such a metric also obeys a certain trace condition, it is volume renormalizable. We show that normalized Ricci flow preserves the partially even and volume renormalizable properties, and we obtain a formula for the change in renormalized volume along the flow. This is joint work with Eric Bahuaud and Rafe Mazzeo.