Singular Ricci solitons and their stability under the Ricci flow

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We will introduce certain spherically symmetric singular Ricci solitons and study their dynamical behavior under the Ricci flow. The solitons in question exist for all dimensions n > 2 and all have a point singularity where the curvature blows up. An interesting feature of their evolution is that they smooth out instantaneously. In the second part of the talk we will discuss the local existence problem for the Ricci flow of small spherically symmetric perturbations of these solitons and we will see that the opening up of the singularity persists in their evolution as well.