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Theorem (Llarull, 1998)

Let M^n be a closed spin Riemannian manifold and let S^n be the round n -sphere of radius 1. Suppose there exists $f : M^n \rightarrow S^n$ with non-zero degree and $dil_2(f) \leq 1$ (f is area-decreasing.) Then either at some point M^n has scalar curvature less than $n(n-1)$ (the scalar curvature of S^n) or f is an isometry.