Curvature and Injectivity Radius Estimates for Einstein 4-Manifolds

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Abstract: We will discuss joint work with Gang Tian which sheds light on how Einstein metrics in dimension 4 can degenerate. Roughly speaking, if the Einstein constant is negative, we rule out collapsing. We also show that even when collapsing occurs (as can happen if the Einstein constant vanishes) the curvature stays uniformly bounded away from at most a definite number of points, at which the curvature blows up at most quadratically.