Bennett Chow* (benchow@math.ucsd.edu), Department of Mathematics, University of California, San Diego, La Jolla, CA 92093, and Peng Lu. Some results on the geometry near infinity of shrinking gradient Ricci solitons. Preliminary report.

Let \((M^n, g, f)\) be a complete noncompact shrinking gradient Ricci soliton (GRS). Then \(Rc + \nabla^2 f = \frac{1}{2}g\), where \(Rc\) and \(\nabla^2\) denote the Ricci tensor and Hessian, respectively. Assuming that the potential function \(f\) is normalized, we have \(R + |\nabla f|^2 = f\), where \(R\) is the scalar curvature. The work of H.-D. Cao and D.-T. Zhou on a qualitatively sharp lower bound for \(f\) as well as at most Euclidean volume growth leads on to believe that shrinking GRS should have some sort of rigidity. Recent results on the geometry near infinity by O. Munteanu and J. Wang, B. Kotschwar and L. Wang, and others strongly support this belief. In this talk we discuss some consequences of these and other works in this area. (Received July 19, 2015)