Geometry Seminar

Four-dimensional gradient shrinking Ricci solitons

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Abstract. In this talk, we will discuss 4-dimensional complete (not necessarily compact) gradient shrinking Ricci solitons. We will show that a 4-dimensional complete gradient shrinking Ricci soliton satisfying a pointwise condition involving either the self-dual or anti-self-dual part of the Weyl tensor is either Einstein, or a finite quotient of either the Gaussian shrinking soliton R^4, or $S^3 \times R$, or $S^2 \times R^2$. In addition, we will present some curvature estimates for 4-dimensional complete gradient Ricci solitons. Some open problems will be also discussed. This is a joint work with Huai-Dong Cao (Lehigh University) and Detang Zhou (UFF).