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Non-negatively curved cohomogeneity one manifolds.

Non-negatively or positively curved manifolds play an important role in global Riemannian geometry. Though there are many examples of non-negative curved manifold, the construction methods are few. Recently Grove-Ziller discovered many new examples in cohomogeneity one manifolds, i.e., it admits an isometric action by a compact Lie group with one dimensional orbit. However not every cohomogeneity one manifold supports non-negatively curved invariant metric. The first examples were discovered by Grove-Wilking-Verdiani-Ziller.

I will present more examples of obstructions to negatively curved metric in cohomogeneity one manifold which generalize the earlier results. I will also show some new manifolds with cohomogeneity one action which have a small family of invariant metrics. (Received September 09, 2009)