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Titel of the Lecture: Conformal Geometry versus Riemannian Geometry

Abstract. Riemannian and conformal geometry are classical topics of differential geometry. Even though both kinds of geometries are much related and have many common questions and features, they are very different in nature. In fact, conformal geometry is a special kind of parabolic geometry, i.e., a geometry of 2nd order. In my talk I will explain basic notions of conformal geometry from the viewpoint of parabolic geometry. Then I will feature some interesting topics and compare these with Riemannian geometry. In particular, I will discuss conformal holonomy and geodesics, and I will introduce a notion of conformal Einstein manifolds.