

Complete Einstein metrics on open manifolds

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Abstract

These lectures will survey several issues on Einstein metrics on open manifolds which have a simple structure at infinity. Asymptotically, the simplest structures are those of constant curvature. After briefly surveying the asymptotically flat case, most of the emphasis of the talks will be on the asymptotically hyperbolic or conformally compact case.

We will discuss large classes of examples of such metrics, mostly found by physicists, and then focus on general questions of existence and uniqueness for such metrics. The asymptotic expansion of Fefferman-Graham will be presented, as well as some of its applications to conformal geometry. Some aspects of the AdS/CFT correspondence in physics, relating string theory with gauge theory will also be discussed.