Oberseminar
Geometrische Analysis und Allgemeine Relativitätstheorie

Am Donnerstag, den 10.04.2014 spricht um **14 Uhr c.t.** im Raum **N16**

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über das Thema

On the positive mass theorem for
asymptotically hyperbolic initial data

In this talk, we will discuss asymptotically hyperbolic initial data for the Einstein equations modeling asymptotically null slices in asymptotically Minkowski spacetimes. Such initial data consists of a Riemannian manifold (M,g) whose geometry at infinity approaches that of hyperbolic space, and a symmetric 2-tensor K representing the second fundamental form of the embedding into spacetime, such that K->g at infinity. Just like in the asymptotically Euclidean setting, positive mass conjecture for asymptotically hyperbolic initial data can be proven by spin techniques in all dimensions. However, without spin assumption only partial results are available, even in the important particular case K=g, where the conjecture merely states that an asymptotically hyperbolic manifold whose scalar curvature is greater or equal to that of hyperbolic space must have positive mass unless it is a hyperbolic space. Having reviewed the available results, we will present a non-spinor proof of positive mass theorem for asymptotically hyperbolic initial data sets in dimension 3. The argument uses the Jang equation to reduce the proof to the application of the celebrated Riemannian positive mass theorem for asymptotically Euclidean manifolds and can potentially be extended to all dimensions less than 8.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken