



Sommersemester 2016

**Oberseminar
Geometrische Analysis, Differentialgeometrie und Relativitätstheorie**

Am Freitag, den 27.05.2016 spricht um 15.30 Uhr im Raum N14

Dr. Armando Cabrera
(University of Miami)

über das Thema

**Asymptotically flat extensions with non-negative scalar curvature of
positive scalar metrics on the 3-sphere**

Asymptotically flat Riemannian manifolds with non-negative scalar curvature arise naturally as initial data sets for the time-symmetric Cauchy problem for the Einstein equations in general relativity. In this talk, we will describe a geometric procedure to construct an asymptotically flat manifold with non-negative scalar curvature whose ADM mass is arbitrarily close to the optimal value determined by the Riemannian Penrose inequality, while the geometry of its horizon is “far away” from being rotationally symmetric.

Specifically, our main result asserts that any metric g of positive scalar curvature on the 3-sphere can be realized as the induced metric on the outermost apparent horizon of a 4-dimensional asymptotically flat manifold with non-negative scalar curvature, such that its ADM mass can be arranged to be arbitrarily close to the optimal value. If time permits, we will discuss some higher dimensional analogous constructions. This talk is based on joint work with Pengzi Miao.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken