Wintersemester 2014/15

Oberseminar
Geometrische Analysis und Mathematische Relativitätstheorie

Am Donnerstag, den **18.12.2014** spricht um **16 Uhr c. t.** im Raum N16

Dr. Ye Sle Cha
(University of Oxford)

über das Thema

Mass-Angular momentum-Charge inequality in General Relativity

We consider the axisymmetric initial data of the Einstein-Maxwell equations, with a simply connected Riemanninan manifold having two ends, one asymptotically flat and the other either asymptotically flat or asymptotically cylindrical. Penrose's heuristic arguments relate the ADM mass, charge, and the angular momentum of the initial data via the mas-angular momentum-charge inequality. This has been proven when the initial data is maximal.

Here we show how to reduce the general formulation for the non-maximal initial data, to the known maximal case, whenever a geometrically motivated system of two elliptic equations admits a solution. This procedure is based on a certain deformation of the initial data which preserves the relevant geometry, while achieving the maximal condition and its implied inequality for the scalar curvature. Each equation in the system is analyzed in detail individually, and it is shown that the appropriate existence/uniqueness of results holds with the solution satisfying the desired asymptotics. This is a joint work with Marcus Khuri.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken