Wintersemester 2019/20

Oberseminar
Geometrische Analysis und Mathematische Relativitätstheorie

Am Donnerstag, den **24.10.2019** spricht um **14 Uhr c. t.** im Raum C9A03

Stephen Lynch
(Universität Tübingen)

über das Thema

A fully nonlinear flow of three-convex hypersurfaces

We will discuss a geometric flow of compact embedded three-convex hypersurfaces, where the normal speed at each point of the solution is given by a function of the second fundamental form. Three-convexity means that at each point, the sum of the smallest three principal curvatures is positive. This property is preserved by the flow if the speed is a concave function which vanishes on the boundary of the cone of three-convex second fundamental forms. For any such flow, the curvature of compact solutions becomes unbounded in finite time, and it is natural to ask whether solutions satisfy a convexity estimate, which implies that high-curvature regions are approximately convex. Convexity estimates are known to hold for mean-convex mean curvature flow, and for a large class of fully nonlinear flows of two-convex hypersurfaces. In the three-convex case, however, the concavity of the speed function is a serious impediment to establishing this kind of result. We will introduce here a new speed which, in a sense, strikes a balance between being concave and convex, and thus allows us to overcome this difficulty. The construction is quite general, and can be adapted to the k-convex setting.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken