EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Mathematisch-
Naturwissenschaftliche
Fakultät
Fachbereich Mathematik
AB Geometrische Analysis und
Mathematische Relativitätstheorie

Wintersemester 2015/16

Oberseminar
Geometrische Analysis und Mathematische Relativitätstheorie

Am Donnerstag, den 04.02.2016 spricht um **14 Uhr c. t.** im Raum N8, Hörsaalzentrum,

Prof. Neshan Wickramasekera
(University of Cambridge)

über das Thema

Regularity of stable CMC hypersurfaces

I will describle joint work with Costante Bellettini (Cambridge) in which we develop a regularity theory for a class of hypersurfaces of a smooth Riemannian manifold that are stationary and stable for area with respect to volume preserving ambient deformations. The hypersurfaces (codimension 1 integral varifolds) in this class are required to satisfy two structural conditions: (1) they have no classical singularities. A classical singularity is a point about which there is a neighborhood in which the hypersurface is supported on three or more embedded sheets coming smoothly and transversely together along a common boundary. (2) if y is a touching singularity—i.e. a point where the hypersurface locally is supported on two distinct $C^{1,alpha}$ graphs touching at that point—then there is a neighborhood of y in which the set of points with density equal to the density at y has zero n-dimensional Hausdorff measure, where n is the dimension of the hypersurface. We show that such a hypersurface, away from a closed set of codimension at least 7, locally is supported on a smooth graph or two smooth graphs touching. Easy examples show that (1) and (2) are necessary. If the hypersurface is the boundary of a Caccioppoli set, then (2) is automatically satisfied. We also show that a collection of such hypersurfaces satisfying uniform volume and mean curvature bounds is compact in the varifold topology.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken, Chr. Nerz