Mathematisch-
Naturwissenschaftliche
Fakultät
EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Promotionsvortrag am
13.11.20, 14 Uhr

Gebäude: C-Bau **Raum: N14**

Stephen Lynch

Hypersurfaces moving by concave functions of curvature

Berichterstatter 1: Prof. Dr. Gerhard Huisken
Berichterstatter 2: Prof. Dr. Simon Brendle

Kurze Zusammenfassung des Vortrags

Evolution processes that deform geometric objects by their curvature arise naturally in many contexts, and have been used to solve difficult problems lying at the intersection of analysis, geometry and topology. Here we discuss the evolution of embedded hypersurfaces in a Euclidean or Riemannian background space with normal speed given by a concave function of the principal curvatures. Our focus is on the application of PDE methods to obtain insights into the singularities formed by such flows in case the initial embedding is highly non-convex. In particular, we find new flows that preserve natural curvature conditions in a Riemannian background space, and whose almost-singular regions are modeled on convex ancient solutions. We expect these results to play a role in future efforts to understand the interplay between curvature and the topology of hypersurfaces.