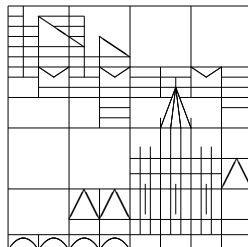


Universität Konstanz
Fachbereich
Mathematik und Statistik



Prof. Dr. Robert Denk

Prof. Dr. Heinrich Freistühler

Prof. Dr. Oliver Schnürer

Konstanz, den 30. September 2010

Im
Oberseminar Partielle Differentialgleichungen
wird am
Freitag, dem 03. September 2010,
folgender Vortrag gehalten:

Thilo Notz (FU Berlin):
”Closed Hypersurfaces Driven by their Mean Curvature and Inner Pressure“

Zeit: 14:15 Uhr

Raum: D 433

Interessenten sind herzlich willkommen!

R. Denk, H. Freistühler, O. Schnürer

Abstract: We introduce a hyperbolic equation that describes the motion of closed hypersurfaces in some Riemannian manifold. In the case of spherical surfaces this equation can be considered as an idealised mathematical model of a moving soap bubble. The equation is derived from an action integral as an Euler-Lagrange equation. In addition to the kinetic energy this action integral contains terms for the surface tension and the inner pressure, which depends on the enclosed volume. The resulting Euler-Lagrange equation is a quasilinear degenerate hyperbolic partial differential equation of second order, which describes the motion of the surface extrinsically.

We first explain basic properties of this equation and then focus on the proof of the short time existence result. We also present a continuation criterion and a stability estimate.