**UNIVERSITÄT DES SAARLANDES**
**Naturwissenschaftlich-Technische Fakultät I**
**Fachrichtung 6.1 Mathematik**

# Mathematisches Kolloquium

Am Freitag, dem 24. Juli 2015 spricht um 14 Uhr c. t. im Hörsaal IV
der Fachrichtung Mathematik (Gebäude E2 4)

# Prof. Dr. Verena Bögelein
# Universität Salzburg

über das Thema:

## Parabolic equations and the bounded slope condition

*Abstract:* In this talk we discuss the existence of Lipschitz-continuous solutions to the Cauchy Dirichlet problem of evolutionary partial differential equations

$$\begin{cases} \partial_t u - \operatorname{div} Df(Du) = 0 & \text{in } \Omega \times (0, T), \\ u = u_o & \text{on } (\partial\Omega \times (0, T)) \cup (\overline{\Omega} \times \{0\}). \end{cases}$$

One prominent example which is included in this framework is the time dependent minimal surface equation. More generally, the only assumptions needed are the convexity of the generating function $f \colon \mathbb{R}^n \to \mathbb{R}$, and the classical bounded slope condition on the initial and the lateral boundary datum $u_o \in W^{1,\infty}(\Omega)$. We emphasize that no growth conditions are assumed on $f$ and that – an example which does not enter in the elliptic case – $u_o$ could be any Lipschitz initial and boundary datum, vanishing at the boundary, and the boundary may contain flat parts, for instance $\Omega$ could be a rectangle in $\mathbb{R}^n$.

Der Gast wird von PD Dr. Darya Apushkinskaya betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik (Erdgeschoss, Raum 1.03)

## Die Dozenten der Mathematik