



Mathematisches Kolloquium

Am Freitag, dem 29. Juli 2016 spricht um 14 Uhr c. t. im Hörsaal IV
der Fachrichtung Mathematik (Gebäude E24)

Dr. David Lloyd
University of Surrey (Großbritannien)

über das Thema:

Continuation and Bifurcation of Grain Boundaries in the Swift-Hohenberg Equation

Abstract: Grain boundaries (GBs) separate regions of differently orientated patterns. For instance one can readily observe GBs in the wood top of a desk. While they are extensively studied in many aspects of material science, they also arise in pattern-forming systems such as Rayleigh-Benard convection which will be the focus of the talk. Despite the long history of work on GBs, several open questions remain e.g. what happens when the orientation of the patterns is varied? what are the most energetically preferred GBs?

In this talk, I will review the history of GBs and more recent results. In particular, I will present a novel way to set up a boundary value problem using the concept of spatial dynamics which then allows us to path follow in parameter space GBs and detect a range of bifurcations. Justification of the boundary value problem and numerical results will be presented for a prototypical pattern-forming system (the Swift-Hohenberg equation). I will then outline several exciting areas for future work.

This work is done in collaboration with Arnd Scheel (Minnesota).

Der Gast wird von Prof. Dr. Mark Groves betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik (Erdgeschoss, Raum 103)

Die Dozenten der Mathematik