Fachbereich Mathematik und Statistik

Prof. Dr. R. Denk, Prof. Dr. R. Racke, Prof. Dr. O. Schnürer

Im

Oberseminar Partielle Differentialgleichungen

gibt es am

Donnerstag, dem 16. November 2017,

einen Vortrag von Herrn

Prof. Dr. Heinrich Freistühler

(Universität Konstanz)

" *Magnetohydrodynamic Shock Waves*"

Beginn: **15.15 Uhr**
Raum: **F426**
Interessenten sind herzlich willkommen!

R. Denk, R. Racke, O. Schnürer

Abstract:Intensely used in applications to both terrestric and astrophysical plasmas, magnetohydrodynamics (MHD), a particular 'crossing' between fluid dynamics and electrodynamics that couples the Euler or Navier-Stokes equations with the Maxwell equations via the Lorentz force, has a richer pattern of linear and nonlinear waves than fluid dynamics by itself. This talk focusses on shock waves, spatiotemporal interfaces between distinctly different states. These interfaces are sharp (jump discontinuities) or diffuse (zones with steep gradients), depending on whether one considers 'ideal' or 'dissipative' MHD. In dissipative MHD, mechanisms such as viscosity, heat conduction, and resistivity are taken into account, while the same mechanisms are (seemingly) neglected in ideal MHD. We present some results on the stability of ideal MHD shocks (from joint work with Felix Kleber and Johannes Schropp (Konstanz)) and some on the existence of traveling waves modeling dissipative MHD shocks (from joint work with Christian Rohde (Stuttgart)).