



Im

Oberseminar Partielle Differentialgleichungen

gibt es am

Donnerstag, dem 13. Juli 2017,

einen Vortrag von Herrn

Prof. Dr. Yuxi Hu

(China University of Mining and Technology Beijing)

“ Some studies on the relaxation models in hydrodynamics ”

Beginn: **15.15 Uhr**

Raum: **F426**

Interessenten sind herzlich willkommen!

R. Denk, R. Racke, O. Schnürer

Abstract: The compressible Navier-Stokes equations are to describe the dynamics of compressible fluid. The system are composed of mass equation, momentum equation and energy equation. Mathematically, the system are underdetermined and one need to give constitutive equations to close the system. Newtonian law in describing the relation of stress tensor and velocity, and Fourier law in describing the heat conductivity are the two main constitutive relations in fluid dynamics. In this talk, we shall investigate some other constitutive relations, namely, Cattaneo's law for heat conductivity and Maxwell's law for the stress tensor and velocity, which can be considered as some kind of relaxation of the classical system. The importance of these two constitutive relations are demonstrated by many physicists and biologists recently, in the field such as skin burns, nano fluids , biological materials, nanoscale mechanical devices vibrating in simple fluid, etc. However, the corresponding mathematical results are still very few. We shall present some related mathematical results and give some new results.