

## SEMINARVORTRAG

Die AG Funktionalanalysis des Instituts für Mathematik lädt zu folgendem Vortrag ein:

### **Pavel Krejčí**

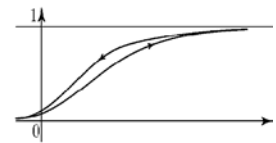
Institute of Mathematics, Academy of Sciences of the Czech Republic

Professor Krejčí has been working in the fields of partial differential equations, hysteresis, phase transitions and variational inequalities. His publications include more than one hundred papers and the book "Hysteresis, Convexity and Dissipation in Hyperbolic Equations" (Tokyo, 1996). He worked for ten years in the Weierstrass Institute in Berlin.

The talk of Professor Krejčí will be addressed to both colleagues and to students interested in applications of partial differential equations.

### **A thermodynamic model for fluid flow in a porous elastoplastic solid**

The goal of the talk is to review some basic principles in modeling fluid flow through a deformable porous solid, which is an important issue in all branches of civil engineering. In particular, it will be shown how the principles of continuum thermodynamics (mass and energy conservation, entropy principle) lead to a system of partial differential equations describing the process. To close the system, we have to prescribe constitutive relations characterizing the mechanical response of the materials to a given loading. In relevant practical cases, both the strain-stress relation in the solid and the pressure-saturation diagram in the liquid exhibit strong irreversible hysteresis. Main techniques of solving partial differential equations with hysteresis will be discussed in some detail. This is a joint work with B. Albers from TU Berlin.



Zeit: **Dienstag, den 09. Dezember 2014 um 12:15 Uhr**  
Ort: **Victor-Franz-Hess-Haus, Technikerstraße 25, HS F**

**Gäste und Studierende sind herzlich willkommen!**

*Eva Kopecká*