Alexandra Blessing, Robert Denk, Markus Kunze, Michael Kupper

Wir laden Sie sehr herzlich ein zu einem Vortrag im Rahmen des

Oberseminars Stochastische Analysis:

Dr. Antonio Agresti
(TU Delft)

"Reaction-diffusion equations with transport noise"

Dienstag, 7. November 2023

Beginn: **15.15 Uhr**

Raum: **F426**

Interessenten sind herzlich willkommen!

A. Blessing, R. Denk, M. Kunze, M. Kupper

Abstract: Reaction-diffusion equations (RDEs) arise in several physical and engineering applications as they can be used to model many systems of practical interest, such as chemical reactions and population dynamics. RDEs are mathematically described by a system of parabolic PDEs with polynomial nonlinearities of high degree. In applications, transport noise is often used to model the effect of a turbulent flow advecting reactants or to take into account local effects in population dynamics. Physically relevant transport noises have typically low regularity in space. It is a challenging task to handle transport noise and high-order polynomial nonlinearities at the same time. In this talk I will review some recent results on local/global well-posedness of RDEs with transport noise. The keys to overcome the difficulties mentioned above are the use of L^p theory for stochastic PDEs and the recent theory of critical spaces for stochastic evolution equations. If time allows, then I will discuss how transport type noise can delay and/or suppress singularities in RDEs.

Based on joint works with M. Veraar (TU Delft).

(eingeladen von Tenure-Track-Prof. Dr. Alexandra Blessing)