



Wir laden Sie sehr herzlich ein zu einem Vortrag im Rahmen des
Oberseminars Stochastische Analysis:

JProf. Dr. David Criens

(University of Freiburg)

“Nonlinear Diffusions and their Feller Properties”

Dienstag, 21. November 2023

Beginn: **15.15 Uhr**

Raum: **F426**

Interessenten sind herzlich willkommen!

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

Abstract: Motivated by Knightian uncertainty, S. Peng introduced his celebrated G -Brownian motion. Intuitively speaking, it corresponds to a dynamic worst case expectation in a model where volatility is uncertain but postulated to take values in a bounded interval. Natural extensions of the G -Brownian motion are nonlinear diffusions, whose volatility (and drift) take values in a random set that is allowed to depend on the canonical process in a Markovian way. Nonlinear diffusions satisfy the dynamic programming principle, which entails the semigroup property of a corresponding family of sublinear operators. In this talk, we discuss regularity properties of these semigroups and we relate them to evolution equations. In particular, we explain a novel type of smoothing property and a stochastic representation result for general sublinear semigroups with pointwise generators of Hamilton-Jacobi-Bellman type. Latter also implies a unique characterization theorem.

The talk is based on joint work with Lars Niemann (University of Freiburg).