

INVITATION TO THE DOCTORAL SEMINAR

Andreas Neuenkirch

Universität Mannheim

**“Mandelbrot-van Ness fractional Brownian motion
depends smoothly on its Hurst parameter”**

📍 N.2.01

📅 Wednesday, 9 January 2019

🕒 10:00 a.m.

Abstract

We study the Mandelbrot-van Ness representation of fractional Brownian motion $B^H = (B_t^H)_{t \geq 0}$ with Hurst parameter $H \in (0, 1)$ and show that for arbitrary fixed $t \geq 0$ the mapping $(0, 1) \ni H \mapsto B_t^H \in \mathbb{R}$ is almost surely infinitely differentiable. Thus, the sample paths of fractional Brownian motion are smooth with respect to H . As a byproduct we obtain that scalar stochastic differential equations are differentiable with respect to the Hurst parameter of the driving fractional Brownian motion. We also discuss the multi-dimensional case.

This is joint work with Stefan Koch (U Mannheim).

Michaela Szölgyényi and the Department of Statistics look forward to seeing you at the talk!