# Fakultät für Mathematik und Informatik
## Institut für Mathematik

## Seminar zur Stochastik

Dienstag, 1. November 2016
14 Uhr c. t.
**HS 4, Abbeanum**

## Herr M. Sc. Robert Hesse

(Friedrich-Schiller-Universität Jena)

### „Introduction to regularity structures I "

**Abstract:** One of the most challenging problems in mathematical physics is to describe a system near a critical state. Physicists often argue heuristically that its behaviour should be described by a non-linear stochastic partial differential equation (SPDE). Unfortunately, in some important cases these equations are mathematically ill-posed. To overcome this problem Martin Hairer has developed the theory of regularity structures which provides an algebraic framework to handle various kinds of SPDEs. For his work he was awarded the Fields Medal in 2014.

The aim of the two consecutive talks is to give a summary of a summer school lecture series given by Martin Hairer. ("A theory of regularity structures" https://arxiv.org/abs/1303.5113)

In the first talk we present a motivating application (stochastic quantisation model) and introduce appropriate notations, which symbolize certain terms of the considered SPDE. Finally, we describe the concept of a regularity structure. Based on this we build up the theory for the second talk.

**Alle Interessenten sind herzlich eingeladen!**

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