Bernoullis Tafelrunde

Graduate Student Seminar

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Seminarraum 00.003, Spiegelgasse 1

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SPDE's and regularity structures

Abstract

In this talk I will present some aspects of the theory of stochastic partial differential equations (SPDEs) which I learnt during my master thesis. Martin Hairer's theory of regularity structures will be the centrepiece of the discussion.

First, I will give a short motivation for studying SDEs and SPDEs and describe one of the main players in the game: (Gaussian) space-time white noise. This will be followed by a short introduction to regularity structures. To be more specific, I will present the definition of a regularity structure and a model for it with an emphasis on the analogy to Taylor polynomials, and one of the linchpins of this theory, the reconstruction theorem. Lastly, I will try to give a bird's eye overview of the methodology to obtain local solutions to subcritical non-linear SPDEs.

Keywords

SPDEs, Regularity Structures, Taylor polynomials