Vorträge
Tenure Track „DATA DRIVEN PARTIAL DIFFERENTIAL EQUATIONS"

Montag, 4. März 2019, Seminarraum 13   **Timothy John Sullivan**
(Free University of Berlin; Zuse Institute Berlin)

15:00 Uhr – 15:20 Uhr: Didaktischer Vortrag
„Well-posed PDE-constrained Bayesian parameter inference"
In this lecture, which would take place mid-way through a master's-level course on data-driven partial differential equations, we will see how to combine the stability of a second-order elliptic PDE with respect to its governing parameters (such as the diffusion tensor) and the well-posedness theory of Stuart to obtain a well-posedness result for the Bayesian inverse problem of inferring these parameters from noisy observations of the PDE's solution. Such results are essential for assessing the reliability of scientific inferences from data using PDE models.

15:50 Uhr – 16:35 Uhr: Wissenschaftlicher Vortrag
„Bayesian probabilistic numerical methods"
This presentation will give a broad overview of my current and recent mathematical research. Particular emphasis will be given to the theme of Bayesian probabilistic numerical methods. Probabilistic approaches to numerical analysis have a long history and many applications. Recent work has shown how to rigorously connect this viewpoint to the Bayesian perspective on inverse problems: this delivers both a rigorous statistical interpretation of probabilistic numerics (in which we basically see numerical tasks as inference tasks), and a self-consistent connection to Bayesian inverse problems (as discussed in the teaching presentation).