



Berlin  
Mathematical  
School

# BMS Days 2015

Tuesday 17 February 2015

BMS Loft, Urania, An der Urania 17, 10787 Berlin

11:00 R. Klein (FU Berlin)

15:30 W. Stannat (TU Berlin)

## Rupert Klein: The new Collaborative Research Center CRC 1114: "Scaling cascades in complex systems: across-scale modeling and simulation paradigms"

Complex processes involving cascades of (more than two) interacting scales are ubiquitous in natural science research. Such processes cannot be understood through computational simulations alone. For sizeable progress we need to simultaneously exploit mathematical analysis, numerics, stochastics, and advanced data analysis in developing innovative modeling approaches. Guided by concrete natural science applications, this is the central challenge for the Collaborative Research Center CRC 1114.

Rupert Klein is a professor of mathematics at FU Berlin. His main area of research is theoretical and computational fluid dynamics.

## Wilhelm Stannat: Mathematical models in neuroscience

Understanding the brain is one of the grand challenges in science. Mathematical models for brain dynamics always provided crucial progress with respect to all aspects of neural activity, both qualitatively and quantitatively.

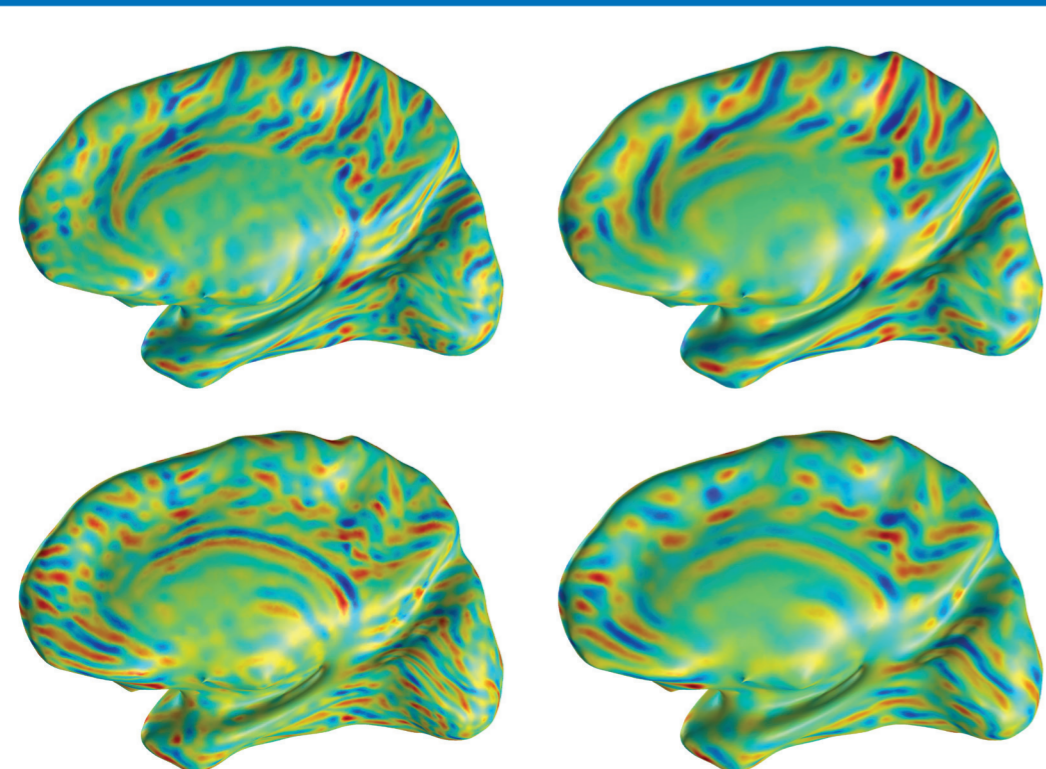
In his talk, Stannat will present insights into two current trends in mathematical neuroscience:

- stochastic nerve axon equations describing the dynamics of a single action potential under the impact of channel noise,
- stochastic neural field equations modelling the spatio-temporal evolution of the average activity of synaptically coupled neural systems.

Wilhelm Stannat is a professor of mathematics at TU Berlin. His main area of research is stochastics.



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