

# Oberseminar Mathematische Stochastik

Mittwoch, 8. April 2015, 17:00 Uhr, M 6

*Wilhelm Stannat, TU Berlin*

## Stochastic Models in Neuroscience

*Abstract:*

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 quantitatively and qualitatively. In particular, stochastic models capture the variability in neural data, due to various sources of noise on the molecular level. In the talk I will present recent results on two models of current interest 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.