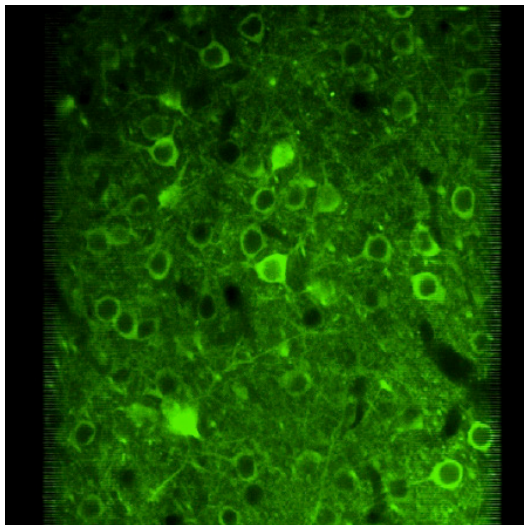


Friday 17 June 2022 at 16:30

HU Berlin, Erwin-Schrödinger Zentrum, Conference Room 0'119

The program already starts at 15:00!

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Registration and more details here:

www.mathplus.de

Christoph Reisinger

(Oxford University)

Simulation and control of stochastic mean-field models: from starlings over neurons and traders to supercooling

Large interacting random systems are widespread in nature, technology, and society, ranging from large flocks of birds, over networks of communicating neurons, to banks interconnected through mutual lending.

Classical work by McKean and Vlasov has paved the way for an elegant description of such systems by stochastic differential equations with coefficients that depend on the law of the process itself.

In this talk, Christoph Reisinger will review recent theoretical and computational advances in the simulation and control of large interacting particle systems in classical and non-classical settings. He will highlight the challenges presented by the numerical approximation of the resulting McKean-Vlasov equations, as well as the construction of optimal stochastic control by gradient iterations of the feedback control map where relevant. Applications range from neuroscience to credit risk analysis.

Christoph Reisinger is Professor of Applied Mathematics at the University of Oxford. His current research interests include stochastic control, mean-field models, the numerical analysis of stochastic and partial differential equations, and mathematical foundations of machine learning. He is a co-investigator in the Berlin-Oxford IRTG 2544 "Stochastic Analysis in Interaction".