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Einladung

zum
Oberseminar Stochastik

ONLINE Vortrag über Zoom - (Zugangsdaten werden noch mitgeteilt)

am Donnerstag, 09.07.2020 ab **17:45 Uhr**

Prof. Dr. Richard Kraaij

(Delft University of Technology)

zum Thema

Large deviations for coupled slow-fast systems via the comparison principle of an associated Hamilton-Jacobi equation

In statistical physics many interesting phenomena, e.g. behavior of systems at critical parameters or in the theory of hydrodynamic limits, arise from systems having multiple time-scales. A slow component is influenced by fast components, and as the number of interacting components tends to infinity, limiting results for the slow component are obtained in terms of `averaged' versions of the fast components.

I will consider in my talk the fluctuations (large deviations) of coupled Markovian systems with two-time scales. These fluctuations can arise from two sources: fluctuations of the slow process itself, or fluctuations of the large time averages of the fast process, effectively leading to a competition of two fluctuation effects.

To obtain the large deviation principle, we consider an associated Hamilton-Jacobi-Bellman equation of which the Hamiltonian is given in terms of the two fluctuation effects. We establish under mild conditions that this Hamilton-Jacobi-Bellman equation is well-posed, and as a consequence that we have a large deviation principle for a wide class of weakly coupled Markov processes.

Based on joint work with Mikola Schlottke (Eindhoven, The Netherlands).

Alle Interessenten sind herzlich eingeladen.

Die Dozenten der Stochastik