Karlsruher Institut für Technologie

Institut für Stochastik

Einladung zu einem Vortrag in der

AG STOCHASTIK

am Dienstag, 02.12.2025, um 15.45 Uhr.

Sebastian Höfer

Institut für Stochastik

spricht über das Thema

Continuous-Time Mean-Field Markov Decision Models

For many Markovian decision problems, it is reasonable to consider several statistically equal decision makers operating simultaneously on the same state space and interacting with each other (e.g., maintenance of identical machines in a production site, population of potentially infected persons). Depending on the model, the state transition and the profit of the individual may depend on the empirical distribution of the decision makers across the states. In the limiting case, as the number of decision makers tends to infinity, we show that the resulting mean-field model describes a classical deterministic control problem, for which the limit state process is characterized by a controlled ordinary differential equation. We show that an optimal control of the mean-field model yields an asymptotically optimal control for the model with N decision makers. In the end we discuss some applications.

Ort: SR 2.059 (Geb. 20.30)

Die Dozentinnen und Dozenten der Stochastik