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DK Seminar

May 24, 2017, 14:15 - 15:45
Vienna University of Technology,
Freihaus, green area, 4th floor, 101C

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RICAM

On cross-diffusion models for interacting particle systems

In this talk we present different PDE models describing the evolution of pedestrian flows as well as interacting particles. First, we present a non-linear cross-diffusion system describing the evolution of bidirectional and crossing pedestrian flows. Starting with a microscopic lattice based model, we formally derive the corresponding macroscopic PDE system using Taylor expansion. We discuss existence and stability of solutions and illustrate the dynamics with various numerical simulations. Furthermore we present an interacting particle model based on Brownian dynamics, where we introduce the concept of asymptotic gradient flows.