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MS18 Modeling and Control of Multi-agent Systems

Hughes model for pedestrian flow: optimal control formulation and local effects

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Abstract: In this talk we present a novel interpretation of the Hughes model for pedestrian flow, which is based on an optimal control approach. We discuss the underlying mathematical modelling and present a modification of the original model to include local effects, namely limited vision. We compare both models in terms of efficiency and illustrate the behaviour of the models on the microscopic and macroscopic level. Finally we comment on analytic results as well as numerical complexity in either case. Joint work with M. Burger, J. Carrillo, M. Di Francesco, M. Stephan and P.A. Markowich.