
SOE 2: Traffic Dynamics, Urban and Regional Systems I

Time: Monday 9:30–10:15

Location: H44

Invited Talk

SOE 2.1 Mon 9:30 H44

Don't panic! - The physics of pedestrian dynamics and evacuation processes — ●ANDREAS SCHADSCHNEIDER — Institut für Theoretische Physik, Universität zu Köln, 50937 Köln

Besides the obvious practical relevance, pedestrian and crowd dynamics provide fascinating examples for collective phenomena and complex behaviour. This has inspired the application of physics-based approaches in this field. In theoretical descriptions pedestrian crowds are either viewed as exotic fluids, particles which interact via (social) forces violating Newton's laws or systems governed by stochastic rules.

Surprisingly, the empirical situation of pedestrian dynamics is far

from clear. There is still no consensus even about some of its most fundamental properties. This is reflected in very different legal regulations even within different parts of Germany. Also it is still under debate whether notions like "panic" are useful or relevant for the understanding of catastrophic events.

In the talk we discuss recent large-scale experiments and their implication for modelling approaches, especially cellular automata models with stochastic dynamics. As an application, the development of a so-called "evacuation assistant" for the Espritarena Düsseldorf is described. It uses fast online simulations which allow to react quickly to a specific emergency situation and support local authorities in their decision making.