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**Alina Chertock\*** (chertock@math.ncsu.edu), **Alexander Kurganov**, **Anthony Polizzi** and **Ilya Timofeyev**. *Pedestrian flow models with slowdown interactions*.

In this talk, I will discuss one-dimensional models for the behavior of pedestrians in a narrow street or corridor. I will first formulate a stochastic cellular automata model with explicit rules for pedestrians moving in two opposite directions. Coarse-grained mesoscopic and macroscopic analogs will then be carefully derived leading to the coupled system of PDEs for the density of the pedestrian traffic. The obtained first-order system of conservation laws is only conditionally hyperbolic and thus higher-order nonlinear diffusive corrections resulting in a parabolic macroscopic PDE model will be introduced. Finally, I will present a number of numerical experiments comparing and contrasting the behavior of the microscopic stochastic model and the resulting coarse-grained PDEs for various parameter settings and initial conditions. These numerical experiments demonstrate that the nonlinear diffusion is essential for reproducing the behavior of the stochastic system in the nonhyperbolic regime. (Received February 22, 2015)