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Noisy Transport in Reaction-Diffusion Systems with Quenched Disorder ANDREW MISSEL, KARIN DAHMEN, University of Illinois, Urbana-Champaign — Reaction-diffusion (RD) models are useful tools for studying a wide variety of natural phenomena. The effects of quenched disorder in the reaction rates on RD models is not completely understood, especially in parameter regimes where internal noise or stochasticity is also important. In this talk, I will discuss an RD model in which both quenched disorder and stochasticity are important. I will show how ideas from the theory of hopping conduction in doped semiconductors and first passage percolation can be used to make predictions for a number of important transport-related features in the model: the infection time, or time needed for the population to traverse the system; the velocity of the front moving through the system; and the dynamic roughening of the coarse-grained front. I will also present the results of simulations of the model that largely confirm these analytical predictions.

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