Spreading Properties of a City-Road Reaction-diffusion Model on One-Dimensional Lattice

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We consider a City-Road reaction-diffusion model to describe spreading dynamics on the lattice. The model consists of cities interconnected by a transportation network, such as roads, railways, or rivers. We investigate the existence and uniqueness of the Cauchy problem and characterize the existence of stationary solutions. Furthermore, we analyze the asymptotic spreading speed, highlighting the influence of various parameters on the propagation dynamics.

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