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Impact of Hotspot Arrangements on Disease Invasion

In this talk we consider the spread of an infectious disease in a heterogeneous environment, modeled as a network of patches. We focus on the invasibility of the disease, as quantified by the basic reproduction number R_0 , and investigate how the locations of disease hotspots and the changes in the network structure affect the value of R_0 . These effects can be characterized using new indices for the network average and network heterogeneity, and provide both qualitative and quantitative information for mitigating disease spread among the patches.