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Patterns of pathogen spread induced by host range expansion

This is based on a recent joint work with Yijun Lou and Jian Fang. We consider a standard diffusive SIS model but conclude that the infection waves may have different wave speeds from the invasion speed of the entire (susceptible) population, and may exhibit different profiles from the normal wavefronts. This work also provides some answers to some open problems related to generalized eigenvalues of elliptic operators in unbounded domains.