



# Synergy in spreading processes: from exploitative to explorative foraging strategies

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An epidemiological model which incorporates synergistic effects that allow the infectivity and/or susceptibility of hosts to be dependent on the number of infected neighbours is proposed. Constructive synergy induces an exploitative behaviour which results in a rapid invasion that infects a large number of hosts. Interfering synergy leads to a slower and sparser explorative foraging strategy that traverses larger distances by infecting fewer hosts. The model can be mapped to a dynamical bond-percolation with spatial correlations that affect the mechanism of spread but do not influence the critical behaviour of epidemics.

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