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Bootstrap percolation on Cartesian products of lattices with Hamming graphs

Spread of signals on graphs with community structure has attracted interest in the mathematical literature recently. We model the spread of signals using the bootstrap percolation dynamics with integer threshold $r > 1$, and take our graph to be the Cartesian product of d_1 integer lattices (or cycles) with d_2 (finite) complete graphs. Thus, each “community” consists of individuals determined by d_2 characteristics, and two individuals within a community only communicate if they have all but one of the characteristics in common. Between communities, communication is between like individuals that are also neighbors in the lattice \mathbb{Z}^{d_1} . In collaboration with Janko Gravner.