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The disease threshold condition for SIS dynamics on a random contact network

It is know that, on a random network, the basic reproduction number of an SIS model is larger than that of an SIR model. It has also been shown that, there is no disease threshold on a scale free network with finite second moment of the degree distribution. These results contrast the prediction of the classical heterogeneous mixing models. We should that, for any positive transmission rate, as long as the network contains nodes with large enough degree, the disease persists on the network, independently to the degree distribution of the network.