

Contact process on random graphs with power law degree distributions.

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Abstract.

Mean field calculations suggest that the contact process with infection rate λ on random finite graphs with power law degree distributions should have a phase transition depending on λ , when the power $\alpha > 3$. In this talk I will show that there is no phase transition for the process for any value of $\alpha > 3$, i.e. the critical value $\lambda_c = 0$. I will also establish the existence of a quasi-stationary density and give nice bounds for that, when the process starts with all vertices infected. These bounds will ensure that the density is different from mean field predictions.