PERCOLATION IN A DEPENDENT RANDOM ENVIRONMENT

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Resumo/Abstract:

We study stochastic processes that simulate the propagation of an infection, using the following papers: *Oriented percolation in a random environment*[1], *Interacting particle system: renormalization and multi-scale analysis*[2] and *The contact process in a random environment*[3]. The processes studied are the contact process and the oriented percolation process. In both cases the question is about the existence of a positive probability of percolation and survival. We study the models with a disorder in the environment, given by different conditional distributions for the parameters, depending on an bundle in the space. We analyse the existence of a phase transition: under restrictions in the parameters, the process percolate (survives) for almost every outcome of the fibres. We compare (via computer simulations) the cases when the fibers are along or across the direction of growth.

References

[1] Kesten, H., Sidoravicius, V., Vares, M. *Oriented percolation in a random environment.* arXiv:1207.3168,2012.

[2] Sidoravicius, V., Vares, M. *Interacting Particle Systems: renormalization and multi-scale analysis.* Notes for the XVIII Escuela Venezolana de Matematicas Sptember, 2005.

[3] Bramson, M., Durrett, R., Schonmann, R. *The contact process in a random environment.* The Annals of Probability, vol 19, no. 3, 960-983, 1991.