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Abstracts of Short Communications and Posters

Section:

12. Probability and Statistics

1991 MS Classification: 60K35,82B24,60J70
Ramirez, Alejandro, Ecole Polytechnique Federale de Lausanne, Switzerland.
Diffusion and saturation processes in random media
We consider a model arising from nuclear waste management industry. At each site of the lattice $\mathbf{Z}^d$ we have an obstacle having a certain depth, randomly distributed. Furthermore at the origin, independently of the distribution of the obstacles, independent random walks are introduced at a time dependent rate, and move until they touch an obstacle. When this happens the random walk particle is killed and the depth of the obstacle decreases by one. We prove a quenched shape theorem for the saturated set of obstacles. Using this, and the enlargement of obstacle technique of Sznitman, we show that there exist three main regimes, depending on the injection rate and the dimension of the lattice. Joint work with Gerard Ben-Arous.