Seminar of Probability and Stochastic Process

Friday, 26th November, from 10h15 to 11h30
MAA 112, EPFL, Ecublens

Dr. Beltran Johel

EPFL

Tunneling of reversible condensed zero range processes on finite sets.

Abstract:

Let r(x,y) be the jump rates of an irreducible random walk on a finite set S, reversible with respect to some probability measure m. For some a>1, let g be a function given by g(k) = (k/k-1)^a. We consider a zero range process on S in which a particle jumps from a site x occupied by k particles, to a site y at rate g(k)r(x,y). Since g is decreasing, the dynamics is attractive in the sense that particles on sites with a large number of particles leave them at a slower rate than particles on sites with a small number of particles. Let N be the total number of particles. In the stationary state, as N goes to infinity, all particles but a finite number accumulate on one single site. In our work we investigate the dynamical aspects of this condensation phenomenon. We show that in the time scale N^(1+a) the site wich concentrates almost all particles evolves as a random walk on S whose transition rates are a multiple of the capacities of the underlying random walk.

This is a joint work with Claudio Landim.

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