

ÉCOLE D'ÉTÉ SMS 2012 « COMBINATOIRE PROBABILISTE »
25 JUIN - 6 JUILLET 2012

SMS 2012 SUMMER SCHOOL "PROBABILISTIC COMBINATORICS"
JUNE 25 - JULY 6, 2012

Mixing times, MCMC and rapid mixing (7.5 hours)

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Random walk on a graph is a (by now) classical subject with lots of beautiful theorems and scores of applications in mathematics and computer science. Nonetheless, new and remarkable results keep coming in. In this course, we'll review the basic tools and classical theorems, then move in some exciting new directions, looking at recent results and open problems.

No background will be assumed beyond probability and combinatorics at a middle undergraduate level.

Outline :

Lecture I : Random walk and electrical networks

Lecture II : Cover time for vertices and for edges

Lecture III : Collision and avoidance

Lecture IV : Pursuit and evasion

Lecture V : Branching random walk

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