

Marches aléatoires branchantes, graphes aléatoires (9 ECTS) Yueyun Hu

ler semestre

Présentation

``Random Walk, Trees and Graphs"

In this course we study certain aspects of discrete probability on infinite graphs (in particular on infinite trees). These domains are full of interesting, sometimes surprising results, many of which are closely related to other areas of probability theory and theoretical computer science.

Programme

Below is a tentative planning:

- (1) Random walk and electrical networks.
- (2) Branching processes, second moments and percolation.
- (3) Size-biased trees and Biggins' theorem.
- (4) Branching random walks: the law of large numbers.
- (5) The lambda-biased walks on a Galton-Watson tree.
- (6) Random walk in random environment on trees.

Connaissances requises

We try to make this course self-contained, the only prerequisite is basic knowledge of Markov chains and conditional expectation.

Bibliographie

- R. Lyons with Y. Peres: Probability on Trees and Networks. Cambridge Series in Statistical and Probabilistic Mathematics, 2016.
- [2] Z. Shi: Branching random walk. Saint-Flour's course, Springer, 2015.