

Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

4pm, Monday, October 21, 2019
Sequoia Hall Room 200

Refreshments served at 3:30pm in the Lounge.

Speaker: Amandine Véber, *École Polytechnique*

Title: Resource sharing with logarithmic weights

Abstract:

In this talk, we'll focus on a class of resource allocation algorithms for communication networks: if a node of this network has L requests to transmit and is idle, it tries to access the channel at a rate proportional to $\log(1 + L)$. We'll study a simple stochastic model for such an algorithm in the case of a star network, in which J nodes can transmit simultaneously but interfere with a central node 0 in such a way that node 0 cannot transmit when one of the other nodes does. In contrast with the case where the probability of accessing the channel is proportional to L , as the total number of pending requests tends to infinity several timescales interact in a fine way to determine the asymptotic behaviour of the system. In particular, the numbers of pending requests at every node can evolve on very different timescales and have very different orders of magnitude.

This is joint work with Philippe Robert (INRIA Paris).