

Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

4pm, Monday, October 15, 2018
Sequoia Hall Room 200

Refreshments served at 3:30pm in the Lounge.

Speaker: Amandine Veber-Delattre, *École Polytechnique, France*

Title: **The effects of a weak selection pressure in
a spatially structured population**

Abstract:

One of the motivations for the introduction of the Fisher-KPP equation was to model the wave of advance of a favourable (genetic) type in a population distributed over some continuous space. This model relies on the fact that reproductions occur very locally in space, so that if we assume that individuals can be of two types only, the drift term modelling the competition between the types is of the form $sp_{t,x}(1 - p_{t,x})$. Here, s is the strength of the selection pressure and $p_{t,x}$ is the frequency of the favoured type at location x and time t . However, large-scale extinction-recolonisation events may happen at some non-negligible frequency, potentially disturbing the wave of advance. In this talk, we shall address and compare the effect of weak selection in the presence or absence of occasional large-scale events, based on a model of evolution in a spatial continuum called the spatial Lambda-Fleming-Viot process.

This is joint work with Alison Etheridge and Feng Yu.