Thin front limit of an integro-differential equation with fat-tailed kernels

Florian Patout, UMPA, ENS Lyon

We study the asymptotic behavior of solutions to a monostable integro-differential Fisher-KPP equation, that is where the standard Laplacian is replaced by a convolution term, when the dispersal kernel is fat-tailed. We focus on two different regimes. Firstly, we study the long time/long range scaling limit by introducing a relevant rescaling in space and time and prove a sharp bound on the (super-linear) spreading rate in the Hamilton-Jacobi sense by means of sub- and super- solutions. Secondly, we investigate a long time/small mutation regime for which, after identifying a relevant rescaling for the size of mutations, we derive a Hamilton-Jacobi limit.

Références

Florian Patout, Ecole Normale Suprieure de Lyon, UMR CNRS 5669 UMPA, 46 alle dItalie, F-69364 Lyon cedex 07, France.

`florian.patout@ens-lyon.fr`