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Analysis of the infinitesimal model by an hilbertian approach

jeudi 8 janvier 2026 16:00 (45 minutes)

In this talk I am considering a model for the dynamics of a population—distributed according to a phenotypic trait—that reproduces sexually and is subject to selection and competition. Sexual reproduction is modeled via a nonlinear integral term, known as Fisher's "infinitesimal model", which prescribes that the phenotypic trait of the offspring follows a Gaussian distribution around the mean of the parents' traits. Under the assumption that the reproduction variance is small compared to the selection variance, I am focusing on an explicit description of the dynamics obtained by writing the solution on a well-chosen polynomial basis. This description allows us to study the existence of stationary distributions and their stability.

The talk is based on a collaboration with Sepideh Mirrahimi.

Orateur: HILLAIRET, Matthieu (Institut Montpelliérain Alexander Grothendieck)