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Evolutionary dynamics of populations : nonlocal PDEs approaches

Abstract: In this talk I will present some result about evolutionary dynamics of populations using nonlocal PDEs. More precisely, I will focus on the evolution of sexual or asexual population facing environmental change. Starting with a Individual based model, we obtain an analytical description of this microscopic model using nonlocal partial differential equations. In a special regime of "small mutation", we are able to approximate analytically the behavior of the microscopic model and we deduce qualitative as well as quantitative effect of the environmental change on the evolutionary dynamics of the population.