04
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🕐 de 13h à 14h
📍 Salle de formation du PRABI

SÉMINAIRE

Evolutionary rescue in a fluctuating environment

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No environment is constant over time, and environmental fluctuations impact the outcome of evolutionary dynamics. Survival of a population not adapted to some environmental conditions is threatened unless a mutation rescues it, an eco-evolutionary process termed evolutionary rescue. I investigate evolutionary rescue in an environment that fluctuates between a favorable state, in which the population grows, and a harsh state, in which the population declines. I quantify the probability of evolutionary rescue using a stochastic framework with numerical and analytical tools, resulting in an exact computation of the fate of a population under deterministic versus stochastic environmental fluctuations. I also compare a perfectly harsh environment (i.e., fully birth-preventing) to an imperfectly harsh one (i.e., not fully birth-preventing) and identify which growth parameters promote evolutionary rescue using different population growth types. Because I find that the type of population growth is essential in assessing the fate of a population, I discuss the main current methods for inferring growth parameters from curve data. I identify their weaknesses, explain why fitting growth data from deterministic models can sometimes poorly estimate growth parameters, and finally attempt to develop an accurate inference method.