Genetic Patterns by Range Expansion: Breaking the Neutral Assumption

In recent years, there has been a growing interest in understanding the genetic consequences of range expansion. Primarily, studies have focused on studying neutral genetic markers for their simplicity. In the literature, it commonly referred to as studying the inside dynamics of the population. While the results for the neutral genetic markers are insightful for processes such as gene flow, genetic drift, and migration it does not tell us anything about the evolutionary potential of a population. By breaking the neutral assumption, we can begin to study how individuals with different levels of fitness fair in range expansions. In particular, we study how differences in demography and dispersal influence the spread of individuals within a population. In this talk, I will discuss how we can break the neutral assumption, its implications, some preliminary results, and why the non-neutral assumption makes the model difficult to analyze.