Modelling the genetics of spatially structured populations

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The last century has seen remarkable developments in the nature and scale of genetic data, and the tools with which to interrogate them. Nonetheless fundamental questions remain unanswered. The genetic composition of a population can be changed by natural selection, mutation, mating, and other genetic and evolutionary mechanisms. The effect of these mechanisms, and the way in which they interact with one another, is also influenced by the spatial structure of the population. The hunt for adequate mathematical models with which to investigate the interaction between the forces of evolution and spatial structure is still very much in progress. Capturing stochastic effects in a biologically meangingful way is particularly challenging. In this talk we shall explore some of the progress that has been made, and some of the remaining challenges.