**ALISON ETHERIDGE**, University of Oxford

*Evolution in a spatial continuum*

Understanding the evolution of individuals which live in a structured and fluctuating environment is of fundamental importance in mathematical population genetics. We outline some of the mathematical challenges that arise from modelling structured populations, primarily focussing on the interplay between forwards in time models for the evolution of the population and backwards in time models for the genealogical trees relating individuals in a sample from that population. In addition to the classical models we describe a new model, introduced in recent work with Nick Barton, which can be thought of as a spatial version of the generalised Fleming–Viot process and for which genealogical trees are spatial versions of Lambda- (or more generally Xi-) coalescents.