Speakers: Chiara Boetti and Sebastian Quintanilla Terminel (University of Bath)

Date: 18/03/2025 at 13:15 in 1 West North 3.11

Talk 1: Long memory network time series

Abstract:
Recent advances in network time series models have improved the representation of multivariate time-dependent data observed over a graph. However, existing models struggle to represent various types of processes, such as those exhibiting long memory properties. Conversely, traditional methods for multivariate long memory time series analysis are unable to adequately account for the underlying graph structure and become computationally infeasible as the dimensionality of the process increases. In this talk, I will present two models for analysing long memory network time series and propose an estimation method that captures both short- and long-memory components.

Talk 2: Bayesian inference of genetic ancestry

Abstract:
The genetic history of living beings is encoded in their DNA, and those sequences can be traced back to a common ancestor. Having a sample of DNA sequences from individuals of a same population, it is natural to ask ourselves how this genetic variety cam about. Ancestral recombination graphs (ARGs) are a mathematical object that trace the genealogical history of a sample of sequences back to their common ancestor, in the presence of genetic recombination. Knowing the true ARG of a sample of DNA sequences is impossible in practice, so a stochastic process called the Coalescent with recombination (CwR) is used to model the unseen history. This process, although simple in its definition, can be computationally demanding when used for Bayesian inference of the true ARG.