

Robin Stephenson (Sheffield University)

Scaling limits of multi-type Markov Branching Trees

Abstract

Consider a population where individuals have two characteristics: a *size*, which is a positive integer, and a *type*, which is a member of a finite set. This population reproduces in a Galton-Watson fashion, with one additional condition: given that an individual has size n , the sum of the sizes of its children is less than or equal to n . We call *multi-type Markov branching tree* the family tree of such a population.

We show that under some assumptions about the splitting rates, Markov branching trees have scaling limits in distribution which are self-similar fragmentation trees, monotype or multi-type.

We then give two applications: the scaling limits of some growth models of random trees, and new results on the scaling limits of multi-type Galton-Watson trees. This is joint work with Bénédicte Haas.