

# Anita Winter

## Genealogy of catalytic branching models

### Abstract

We consider catalytic branching populations in which the catalyst population branches critically binary with a constant branching rate and the reactant population branches critically binary with a branching rate proportional to the number of catalyst individuals alive. The reactant forms a process in random medium.

We describe asymptotically the genealogy of catalytic branching populations coded as the induced forest of real trees using the many individuals -- rapid branching continuum limit. The result is obtained by constructing a contour process and analyzing the appropriately re-scaled version and its limit. The genealogy of the limiting forest is described by a point-process. We compare geometric properties and statistics of the reactant limit forest with those of the classical Brownian forest.

(joint with Andreas Greven and Lea Popovic)