

# Probability and Statistics

Location: room ??

Abstracts

General linear-fractional Galton-Watson processes

**Serik Sagitov**

Chalmers University of Technology and University of Gothenburg, Sweden

We study a special class of discrete time branching random walks over a general state space  $E$ . The reproduction-allocation algorithm is defined by a triplet  $(K, \gamma, m)$ . Here a sub-stochastic kernel  $K(x, dy)$  and a probability measure  $\gamma(dy)$  determine the allocation rules for a group of sibling particles, so that only the location of the first sibling may depend on mother's location  $x$ . A positive number  $m \in (0, \infty)$  is the parameter of the geometric distribution for the number of siblings beyond the first one.

We present transparent results for the corresponding measure-valued branching processes. Our findings are illustrated by a simple case of the reproduction-allocation algorithm described by just three parameters  $(\lambda, \mu, m)$ :

$$E = [0, \infty), \quad K(x, A) = e^{-x}P(x + Y_\lambda \in A), \quad \gamma(A) = P(Y_\mu \in A),$$

where  $Y_u$  stands for an exponential random variable with parameter  $u$ .

This is joint work with Alexey Lindo.