

# Robust Parametric Estimation of Branching Processes with Random Number of Ancestors

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## 1 Abstract

The paper deals with a robust parametric estimation in branching processes  $\{Z_t(n)\}$  having random number of ancestors  $Z_0(n)$  as both  $n$  and  $t$  tend to infinity (and thus  $Z_0(n)$  in some sense). The offspring distribution is considered to belong to a discrete analogue of the exponential family - the class of the power series offspring distributions. Robust estimators, based on one and several sample paths, are proposed and studied for all values of the offspring mean  $m$ ,  $0 < m < \infty$ , in the subcritical, critical and supercritical cases.