ASYMPTOTIC DISTRIBUTIONS AND BERRY–ESSEEN INEQUALITIES FOR LOTKA–NAGAEV ESTIMATOR OF A POISSON RANDOMLY INDEXED BRANCHING PROCESS

Zhenlong Gao and Huili Zhang

Abstract. Consider a Galton–Watson process \( \{Z_n\} \), the Lotka–Negaev estimator for offspring mean \( m \) is \( R_n = Z_n + 1/Z_n \). Let \( N_t \) be a Poisson process independent of \( \{Z_n\} \), the continuous time process \( \{Z_{N_t}\} \) is a Poisson randomly indexed branching process. We show the asymptotic distributions for \( \{R_t := R_{N_t}\} \).


Keywords and phrases: Asymptotic distribution, Berry-Esseen’s inequality, branching process, Poisson process.

REFERENCES