
2003k:60044 60E07 60B15 60F05 60G51

Babu, G. Dzh. [**Babu, Gutti Jogesh**] (1-PA-S); **Manstavichyus, È.** [**Manstavičius, Eugenijus**] (LI-VILNMI)

Infinitely divisible limit processes for the Ewens sampling formula. (Russian. Russian, Lithuanian summary)

Liet. Mat. Rink. **42** (2002), *no.* 3, 294–307; *translation in Lithuanian Math. J.* **42** (2002), *no.* 3, 232–242.

The Ewens sampling formula can be viewed as a probabilistic measure on the group of permutations of a finite set of integers. The paper studies asymptotic distributions of this measure in the case when the set size n increases without bound. In the original sampling formula, the distribution is defined for $\overline{k} = (k_1, \ldots, k_n)$ such that $1 \cdot k_1 + \cdots + nk_n = n$. It is a well-known fact that the one-dimensional distributions of k_j converge with n to Poisson distributions.

The main results deal with weak convergence (in the Skorokhod topology) of partial sum processes defined for additive functionals on k_j. Obviously, the k_j are strongly dependent random variables. However, it is shown that the weak convergence of a partial sum process to a random process is equivalent to the weak convergence of the appropriately defined partial sum process based on independent random variables having Poisson distributions arising in the one-dimensional distributional limits of the k_j. Consequently, the limiting process is infinitely divisible. A necessary and sufficient condition for the limit to be a stable process is given. A counterexample is presented illustrating that the equivalence of convergence of the two mentioned partial sum processes fails if only the convergence of one-dimensional distributions is considered. Finally, a necessary and sufficient condition for the limit to be a standard Brownian motion is formulated.

Krzysztof Podgorski (1-INPI)