

1067-41-1427

**Salam Md. Mahbubush Khan\*** ([khan@math.fsu.edu](mailto:khan@math.fsu.edu)), Department of Mathematics, Alabama A&M University, 4900 Meridian Street, Normal, AL 35762. *Approximation of the Generalized Poisson-Binomial Distribution.*

Generalized distributions are becoming increasingly evident and useful in many branches of science but the functional forms of these generalized distributions are often complicated. Therefore, there arises a need to have some simplified or approximated form of these generalized distributions and their cumulative sums. It is also useful to obtain approximations for the generalized distributions and to know their relationship with other distributions. Here we approximate the generalized Poisson-Binomial distribution by using different techniques and suggested the best approximation. We also derive the standard normal approximation of generalized Poisson-Binomial distribution. The results are intended to fill a conspicuous gap in the mathematical and statistical literature concerning the empirical quality of the approximations, and they are useful for designing efficient and accurate computing algorithms for such probabilities. (Received September 21, 2010)