

# A New Approach to Poisson Approximations\*

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## Abstract

The main purpose of this note is to present a new approach to Poisson Approximations. Some bounds in Poisson Approximations in term of classical Le Cam's inequalities for various wise-row triangular arrays of wide class of discrete independent random variables are established via Trotter-Renyi distance based on Trotter-Renyi operator method. Some analogous results related to random sums in Poisson Approximations are considered, too.

**Keywords:** Poisson approximation, Random summand, Le Cam's inequality, Trotter's operator, Renyi's operator, Poisson-binomial random variables, Geometric random variables, Negative binomial random variables

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