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Joint behavior of point processes of clusters and partial sums for stationary bivariate Gaussian triangular arrays

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Abstract

For Gaussian stationary triangular arrays, it is well known that the extreme values may occur in clusters. Here we consider the joint behaviors of the point processes of clusters and the partial sums of bivariate stationary Gaussian triangular arrays. For a bivariate stationary Gaussian triangular array, we derive the asymptotic joint behavior of the point processes of clusters and prove that the point processes and partial sums are asymptotically independent. As an immediate consequence of the results, one may obtain the asymptotic joint distributions of the extremes and partial sums. We illustrate the theoretical findings with a numeric example.

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