

Some weak limit laws for the diameter of random point sets

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Abstract

In many problems of stochastic geometry, we may be interested in the asymptotic behavior of some extreme values of a random sample as the sample size becomes large. Let X_1, X_2, \dots be a sequence of i.i.d. points with some known distribution, taking value in a compact set K such that the maximum interpoint distance D_n converges almost surely to the diameter $\text{diam}(K)$ of K . We present several weak limit theorems on the behavior of $\text{diam}(K) - D_n$, upon suitable rescaling.