The central limit theorem for the independence number for minimal spanning trees on random points in the unit square

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Abstract

Let $\{X_i : i \geq 1\}$ be i.i.d. with uniform distribution on $[-\frac{1}{2}, \frac{1}{2}]^d$, $d \geq 2$, and let T_n be a minimal spanning tree (MST) on $\{X_1, \ldots, X_n\}$. For each strictly positive integer α, let $N(\{X_1, \ldots, X_n\}; \alpha)$ be the number of vertices of degree α in T_n. Then, for each α such that $P(N(\{X_1, \ldots, X_{\alpha+1}\}; \alpha) = 1) > 0$, we prove a central limit theorem for $N(\{X_1, \ldots, X_n\}; \alpha)$.

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