

学术报告

On the transience and recurrence for the
Lamperti's random walk on Galton-Watson trees

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报告地点：天津大学6号楼108教室

报告摘要：Over Galton-Watson trees generated by a supercritical branching process with offspring N and $E[N]:=m>1$, $C(x)$ is the conductance assigned to the edge between the vertex x and its parent x^* given by

$$C(x) = \left(\lambda + \frac{A}{|x|^\alpha} \right)^{-|x|},$$

Where $|x|$ is the generation of the vertex x . $(X_n)_{n \geq 0}$ is a $C(x)$ -biased random walk on the tree, we show that

- (1) when $\lambda \neq m, \alpha > 0$, $(X_n)_{n \geq 0}$ is transience/recurrent according to $\lambda < m$ or $\lambda > m$ respectively.
- (2) When $\lambda = m, 0 < \alpha < 1$, $(X_n)_{n \geq 0}$ is transience/recurrent according to $A < 0$ or $A > 0$ respectively.

In particular, if $P(N=1)=1$, the $C(x)$ -biased random walk is the Lamperti's random walk on the nonnegative integers, which can be dated back to Lamperti (1960).

欢迎大家参加！