

生灭分枝树连通分支的平均规模

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Average Size of Connected Components in Birth-Death Branching Tree

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摘要 基于随机图将生物繁衍过程描述为随机图过程-随机分枝树, 建立了依赖年龄的生灭分枝树模型, 并研究了分枝树的若干拓扑性质. 首先, 给出任意节点的首生年龄和末生年龄的分布及生产年龄的顺序统计量分布. 然后, 得到以年龄 t 的节点为根节点的连通分支的平均规模.

关键词: [随机图](#) [分枝过程](#) [生灭分枝树](#) [度分布](#) [连通分支](#)

Abstract: A model of age-dependent birth-death branching tree is developed based on random graph. In this model, biological reproduction processes are described as random graph processes, i.e., a random branching tree. Topological properties of the random branching tree, namely distributions of first-born and last-born age, and the distribution of order statistics of productive ages, are explored. The average size of the connected components in the branching tree is discussed.

Keywords: [random graph](#), [branching process](#), [birth-death branching tree](#), [degree distribution](#), [connected components](#)

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