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无线移动通信网络拓扑有效性的研究

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摘要 主要研究无线移动通信网络中节点初始位置、覆盖半径和速度对链路和拓扑的影响．采用二维随机行走方法，构建基于移动性时元的随机移动模型．通过数学分析和推导获得节点在不同时刻的链路有效性测度，并在此基础之上研究一定覆盖下所有节点移动总体特性，采用数学推导方法得出了拓扑有效性测度函数．数值仿真结果表明所提出的有效性测度能够用来描述节点的移动特性对链路和拓扑的影响．

关键词 无线移动通信网络 随机移动 链路有效性 拓扑有效性

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Study of topology availability in wireless mobile communication networks

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Abstract

The impact of coverage radius and movement speed on the linkage and topology is investigated in wireless mobile communication networks. The 2D random walk process is applied to build the random mobility model based on the epoch. The measurement of linkage availability at different epochs is achieved with mathematical derivation. The integrated mobility characteristic of all nodes in the coverage is further studied, resulting in the mathematical expression of the measurement function of topology availability. Numerical simulation shows that the proposed availability measurements are able to represent the effect of node mobility on the linkage and topology.

Key words wireless mobile communication networks random movement linkage availability topology availability

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