

网络、通信、安全

加权局域网络上的病毒传播行为研究

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摘要 病毒传播问题的研究一直是国际上科学家所关注的焦点,但是在加权局域网络中的病毒传播研究却是空白。由于实际存在的网络很大一部分是加权局域网络,因此研究了一种特定加权局域网络中的传播行为。采用病毒传播的SI模型,令病毒的传播速度和网络的连接权重正相关。对加权局域网络中病毒传播行为的研究表明:加权局域网络的无标度性质和加权局域世界性质对病毒的传播有深刻的影响。由于加权局域网络能够很好地反应实际世界,因此该研究具有很广的应用背景。

关键词 [无标度网络](#) [加权局域网络](#) [病毒传播](#) [SI模型](#) [免疫](#)

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Study of epidemic spreading in weighted local-world complex networks

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Abstract

The problem of epidemic spreading has always been concerned by many scientists all over the world. However, there are no studies in the field of weighted local-world network. Since a lot of the real-world networks are weighted, the virus spreading in weighted local-world complex networks is studied in this paper. With the SI model of virus spreading being adopted and the virus spreading speed between any two nodes being positive correlation with the corresponding weight between them, the effect of different weight distributions on the spreading behavior in three weighted evolving networks is investigated. Study shows that scale-free and Weighted local-world properties of weighted local-world network both have a great effect on the Epidemic spreading. As the weighted local-world model can well reflex the real world, these research has board practical background.

Key words [scale-free network](#) [weighted local-world networks](#) [epidemic spreading](#) [SI model](#) [immunization](#)

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