学术讲座

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Dynamical analysis of epidemics with medical resource on networks

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计算机与电子信息学院 1 楼报告厅

报告摘要

In this talk, a new network-based SIR epidemic model, which incorporates the individual medical resource factor and public medical resource factor is proposed. To address the allocation of medical resources, a network-based SAIRS quenched mean field model is proposed. Through theoretical analysis and numerical simulation, it has been found that analyzing the model on the network can lead to more complex dynamic phenomena. Besides, the optimal resources allocation strategy is studied. When medical resources are less, allocating all to symptomatic infected individuals will minimize the fraction of the final infected population at steady state. However, with the amount of medical resources increases, a near-average distribution between asymptomatically and symptomatically infected individuals will result in the smallest fraction of the final infected population.

报告人简介

刘茂省，北京建筑大学理学院教授，博士生导师，副院长，中国数学会生物数学专业委员会常务委员。2003 年毕业于西安交通大学获得理学硕士学位，2009 年毕业于复旦大学获得博士学位，曾在加拿大约克大学、匈牙利塞格德大学、美国亚利桑那州立大学访问。主要研究方向为网络传染病动力学，负责主持国家自然科学基金 4 项，参加国家自然科学基金 5 项，其中重点项目 1 项。曾主持山西省 1331 工程重点创新团队，曾获得山西省教学成果一等奖 1 项(第二完成人)，山西省科技奖自然类一等奖 1 项(第五完成人)，二等奖 1 项(第一完成人)等。

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