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目录

基于复杂网络的城市路网可靠性分析

闫文彩, 张玉林, 赵茂先, 宋伟

山东科技大学信息科学与工程学院，山东 青岛 266510

摘要：

为分析城市路网中线路的重要程度，采用对偶拓扑方法，将路段抽象为节点，将交叉口抽象为网络边，对实际路网进行拓扑结构转换。应用复杂网络节点度、边介数等特征指标及网络可靠性指标评价城市路网结构特征。最后，分别在蓄意攻击和随机故障条件下，对济南市区路网的连通可靠性进行了实证研究。

关键词： 复杂网络 城市路网 可靠性 对偶拓扑 边介数

Complex network based reliability analysis of urban road networks

YAN Wen-Cai, ZHANG Yu-Lin, ZHAO Mao-Xian, SONG Wei

School of Information Science and Engineering, Shandong University of Science and Technology, Qingdao 266510, China

Abstract:

This paper employs the method of dual topology to convert a road segment into a node and an intersection into an edge of a network (topology structure conversion of a real road network) for the importance analysis of the roads in urban road networks.We further employ such parameters as node degrees of complex networks, edge betweenness and network reliability to assess the structure characteristics of an urban road system. We eventually put this evaluation method into practice for the connection reliability analysis of Jinan urban road system under these conditions of deliberate attack and random failure.

Keywords: complex network urban road networks reliability dual topology edge betweenness

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通讯作者:

作者简介: 闫文彩(1986-)，男，硕士研究生，研究方向为城市交通系统复杂性、最优化理论

作者Email: yanwencaihao@126.com

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