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节理岩体中隧道围岩变形特征分析

许崇帮1，2，3，夏才初2，宋二祥3*

(1. 交通运输部公路科学研究院 北京 100088；2. 同济大学 地下建筑与工程系，上海 200092；
3. 清华大学 土木工程系，北京，100084)

DEFORMATION CHARACTERISTIC ANALYSIS OF TUNNEL SURROUNDING ROCK IN JOINTED MASS

XU Chongbang1，2，3，XIA Caichu2，SONG Erxiang3*

(1. Research Institute of Highway Ministry Transport，Beijing 100088，China；2. Department of Geotechnical Engineering，Tongji University，Shanghai 200092，China；3. Department of Civil Engineering，Tsinghua University，Beijing 100084，China)

摘要 金鸡山隧道是国内首例双向八车道连拱隧道，隧道区域内节理发育，围岩破碎，隧道围岩位移受节理展布特征影响显著。通过对施工中中导洞开挖掌子面、区段断面及其它出露区域节理的采集，利用统计分析方法对隧道正洞区域内的节理展布预测。在此基础上，利用自行编制的非连续变形分析计算的断续节理扩展过程的模拟算法，对金鸡山隧道的位移特征进行分析。结果表明，金鸡山隧道在2组节理作用下隧道围岩位移以竖向位移为主，且最大位移发生在外侧拱肩部位，研究成果为隧道施工中支护加固提供依据。

关键词： 隧道工程 连拱隧道 节理岩体 DDA 位移分析

Abstract： Jinjishan Tunnel is the first multi-arch tunnel with bidirectional eight-lane in China. There were developed joints and crushed rock in tunnel surrounding rock，and the characteristics of joint distribution has significant effect on the stability of tunnel surrounding rock. The data of joints in several cross-sections of mid-drift and other outcrop areas of the tunnel are collected，and joints distribution of the main tunnel by using statistical analysis method is predicted. On the basis of this，simulation calculation for the deformation process of Jingjishan tunnel surrounding rock is made with the self-programmed computation program of analyzing initiation，extending and connecting of rock fractures，and the simulation results show that affections of two joints distribution features on surrounding deformation and the displacement of tunnel surrounding rock be dominated by vertical displacement，and the maximum displacement is at the lateral arch shoulder. The results provide the basis for strengthen and construction methods of tunnel.

Keywords： tunnel engineering multiple-arch tunnel jointed rock mass discontinuous deformation analysis displacement analysis

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