论文

基于块体理论安全系数的隧道优化设计

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摘要：

以连云港后云台山隧道为工程地质背景。所研究隧址区主要岩性较为单一,以硬质的变粒岩为主,部分地段见软弱的绿片岩层,软硬岩层交切,在洞顶和洞壁容易形成掉块和坍塌。考虑到其结构面控稳的特点,利用Unwedge程序,将块体理论应用于指导隧道优化设计,包括洞形的选择,隧道走向的优化、支护参数的确定等。通过实例分析与计算证明,块体理论在低地应力区结构面控稳的地下洞室的优化设计中具有重要的理论价值和实际意义。

关键词： 块体理论▰安全系数▰设计优化▰结构面

TUNNEL DESIGN OPTIMIZATION BASED ON SAFETY FACTOR OF KEYBLOCK THEORY

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Abstract:

This paper takes the Yuntaishan tunnel located in Lianyungang as an example. The lithology around the tunnel is single, which consists of a massive of

hard granulite and a small amount of weak green schist. The intersection of the structural features releases blocks or wedges which can fall or slide from the surface of the tunnel excavation. This paper considers its discontinuity controlling model. The keyblock theory is used to optimize the design of the tunnel with Unwedge procedure, which includes the choice of hole shape,the trend of the tunnel,support parameters. Through the analysis and calculation,it is indicated that the key block theory is correct and efficient,which is significant to the further study of the optimization of tunnel design in low ground stress regions.

Keywords: Key block theory　Safety factor Design optimization　Discontinuity plane