

基于三维非线性有限元的坝肩稳定刚体极限平衡法机理研究

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摘要 结合溪洛渡高拱坝三维非线性有限元仿真分析, 对拱坝设计规范采用的坝肩稳定的刚体极限平衡法的基本机理和假说进行了探讨。提出了多重网格的概念和方法, 将有限元的应力成果转移到任一滑面(平面或曲面)上, 进而分析滑面的稳定状态, 包括滑面的应力、屈服区及剪应力的分布及变化过程, 并求出类似刚体极限平衡法的滑面安全系数和滑块体安全系数, 从而对块体变形直至失稳的全过程进行了深入的探讨。

关键词 [岩土工程; 刚体极限平衡法; 滑块体; 滑动面](#)

分类号

ON MECHANISM OF RIGID-BODY LIMIT EQUILIBRIUM METHOD FOR ABUTMENT STABILITY ANALYSIS OF ARCH DAM

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Abstract

Based on 3D nonlinear finite element emulation analysis of Xiluodu arch dam, the fundamental and supposition of rigid-body limit equilibrium methods are discussed. The stress distributions of the sliding surfaces of sliding blocks are computed, including the safety factor of sliding surfaces and blocks of each loading step, yield area and shearing strength of sliding surfaces during overloading. On the basis of the results, the process of sliding failure of blocks due to deformation is discussed systematically.

Key words [geotechnical engineering; rigid-body limit equilibrium method; sliding blocks; sliding surfaces](#)

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