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滑面正应力分布对边坡安全系数的影响

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摘要 极限平衡法计算边坡安全系数的结果依赖于滑面正应力分布的假设, 研究滑面正应力分布对安全系数的影响具有重要的理论意义。采用五点插值三次样条函数构造出滑面正应力多种分布形式, 分别求解对应的满足整体力和力矩平衡条件的安全系数, 比较其差别, 并验证其内力分布的合理性。算例研究表明, 滑面正应力分布的不同对边坡安全系数影响差别达19%左右; 验证条间力分布合理性后, 其差别可减小到7%以内。

关键词 [边坡工程](#) [稳定](#) [安全系数](#) [极限平衡法](#)

分类号

EFFECT OF NORMAL STRESS DISTRIBUTION ON FACTOR OF SAFETY OF A SLOPE

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Abstract

The factor of safety of a slope based on limit equilibrium method is largely dependent upon the assumption regarding the distribution of normal stresses on the slip surface. Thus, investigation of the effect of this distribution on the factor of safety is of practical significance. A series of normal stress distributions are represented by a cubic spline function with five discrete points, and the associated factors of safety are computed according to the force and moment equilibrium conditions for the whole sliding body. Comparisons are made between the differences in values of factors of safety and the reasonableness of the internal forces is checked. Example studies show that the maximum differences in values of factors of safety with different normal stress distributions are within 19%, which is reduced to be less than 7% after checking the internal forces.

Key words [slope engineering](#) [stability](#) [factor of safety](#) [limit equilibrium method](#)

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