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# 不良地质路堑高边坡的施工模拟与监测分析

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收稿日期 2004-6-15 修回日期 2004-9-15 网络版发布日期 2007-4-2 接受日期 2004-6-15

**摘要** 不良地质路堑高边坡的性态受降雨、开挖等因素的显著影响, 需要对施工过程进行模拟计算并及时分析现场监测数据, 掌握边坡的动态。以京珠高速公路粤境段K108+208~+466路堑高边坡为背景, 采用有限元方法模拟计算边坡开挖到半坡桩平台和二级平台时的应力变化和位移分布, 并与监测资料对照分析, 二者结论一致, 均表明边坡有深层滑动的趋势。通过深部位移资料得出边坡的滑动面位置; 同时监测结果表明, 降雨和开挖使边坡位移速率显著增大。将模拟计算结果与监测数据分析相结合, 进行反馈分析和动态设计, 可以有效地指导施工和保证安全。

**关键词** [边坡工程](#); [施工模拟](#); [监测分析](#); [有限元方法](#)

分类号

## CONSTRUCTION SIMULATION AND MONITORING DATA ANALYSIS OF HIGH CUT SLOPE WITH FAULTY GEOLOGY

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### Abstract

Stability of high cut slope is influenced significantly by many factors such as rainfall and excavation, especially with faulty geology. Therefore, it is necessary to simulate excavation operation and analyze monitoring data in time for dynamic construction design. As a typical example, K108+208~+466 high cut slope in Beijing—Zhuhai Expressway with coal geology is calculated with finite element method (FEM) and monitored during excavation. FEM stress and displacement results are in good agreement with in-situ monitoring data, both indicating the trend of deep landslide. Further, potential sliding surfaces are determined by slope internal displacement and sliding rate. The influence of rainfall and excavation on slope displacement is proven immediately by increasing slope deformation rate. Finally, combining FEM computation with monitoring analysis is the main process of dynamic design which guides construction and assures safety.

**Key words** [slope engineering](#); [construction simulation](#); [monitoring data analysis](#); [finite element method](#)

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