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萧山软粘土一维固结系数非线性研究

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摘要 根据广泛采用的 $\sigma_v - e$ 关系推导出饱和软粘土非线性固结系数的表达式, 该式反映了有效应力、孔隙比等因素对固结系数的影响。在固结过程中, 利用可以测量孔压并在固结完成后可进行渗透试验的GDS先进固结试验系统对饱和的萧山软粘土进行一维固结试验, 得到了压缩指数和渗透指数。利用非线性理论进行计算并与试验结果进行对比分析, 发现土体在固结过程中固结系数是呈现非线性变化的。

关键词 [土力学](#) [萧山软粘土](#) [固结系数](#) [非线性](#)

分类号

STUDY ON NONLINEARITY OF ONE-DIMENSIONAL CONSOLIDATION COEFFICIENT OF XIAOSHAN CLAY

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Abstract

The widely accepted $\sigma_v - e$ relations are used for deducing the analytical equations of one-dimensional nonlinear consolidation coefficient of saturated clay, where the effective stress and void ratio are considered. The advanced GDS consolidation system, which can measure the bottom pore pressure during the consolidation process and where the following permeability test can be taken under the same consolidation pressure, is used to investigate the behavior of consolidation coefficient of Xiaoshan saturated clay. The compression index and permeability index can be obtained to calculate the nonlinear consolidation coefficient. Compared with the results from one-dimensional consolidation tests, the nonlinearity of consolidation coefficient is obtained.

Key words [soil mechanics](#) [Xiaoshan clay](#) [consolidation coefficient](#) [nonlinearity](#)

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