



## 论文摘要

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## 桩侧土软化对单桩承载力及沉降的影响

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**摘 要:** 用分段线性函数模拟桩侧剪应力与桩土相对位移的关系, 用应力跌落描述了峰值剪应力和残余剪应力之间的关系, 运用力学理论推导出单桩荷载与沉降的关系, 并通过算例分析了软化系数的大小对单桩承载力、沉降、桩身轴力和位移的影响. 研究表明: 若桩土之间剪应力和相对位移的关系满足软化模型(即应力-应变关系曲线上有明显的峰值, 峰值后应力随位移增大而降低), 则根据p-s曲线确定单桩承载力时, 必须综合考察软化系数大小、桩端土的性状及单桩沉降和p-s曲线的形状, 才能合理地确定单桩承载力.

**关键字:** 模型; 位移; 承载力; 沉降

## Influence of the soil softening behaviour of pile-side on bearing capacity and settlement of single pile

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**Abstract:** Based on load-transfer softening model to pile-surrounding soil, the relation between side-pile shear and pile-soil relative displacement is stimulated by the linear function, and the relation between ultimate shear and remnants shear is described by stress-dropping. Based on this model, the relation of load and settlement is established by mechanics theory. Influence of different softening coefficients on bearing capacity of pile, settlement, and the axial force and the displacement in pile is analyzed by calculating examples. The results show that if the side-pile shear and the pile-soil relative displacement corresponds with the softening model using p-s curve affirms bearing capacity of single pile, it is essential to synthetically investigate softening coefficient, soil situation of pile-tip, settlement of single pile and shape of p-s curve, therefore to establish bearing capacity of single pile reasonably.

**Key words:** model; displacement; bearing capacity; settlement

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