

基于能量法的强夯频域分析

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摘要 强夯分析一般基于时域, 利用能量方法, 在频域中对强夯作用下地基动力响应进行研究与计算。由于地基模态密集, 提出以能量响应信息的收敛作为模态截断的判断指标, 建立能量范数和能量判据, 计算强夯动力响应的模态截断阶数。根据能量方程研究强夯过程中地基应变能和动能的响应规律, 研究表明大量的夯击能都转变为波动能量, 可以认为除了表层土直接受夯锤的冲击力作用外, 深层土主要是受波动影响。

关键词 [土力学](#); [强夯](#); [能量法](#); [模态截断](#); [能量判据](#)

分类号

FREQUENCY-DOMAIN ANALYSIS OF DYNAMIC COMPACTION BASED ON ENERGY METHOD

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Abstract

Dynamic compaction analysis is usually based on time-domain. The energy method is used to calculate and analyze the dynamic response of foundation under dynamic compaction within frequency-domain. Since the modes of foundation are dense, by taking the criterion of energy response as mode truncation index, the energy norm and criterion are established to calculate the mode truncated order of dynamic compaction response. According to energy equation, the response regulation of kinetic energy and strain energy during dynamic compaction is studied. The results show that most of the compaction energy is changed into wave energy. It is considered that the deep soil is mainly under the effect of wave energy though the surface soil is under the compaction force directly.

Key words [soil mechanics](#); [dynamic compaction](#); [energy method](#); [mode truncation](#); [energy criterion](#)

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