

软弱夹层的透射模型及其隔震特性研究

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摘要 尽管软弱夹层对工程往往产生不良影响, 但同时又对地震波具有阻隔作用。对软弱夹层阻隔特性的研究不仅能够为岩土工程的屏蔽隔震提供必要的理论依据, 而且有助于揭示充填贯通型节理的动力学特性。为此, 基于固体弹性波传播理论, 以平面P波为例, 建立了弹性夹层对平面矢量波的透射模型。在此基础上, 按照能量观点, 全面分析了矢量波通过软弱夹层的传播特性, 其中包括透射能量与入射角、波阻比及厚度等因素的关系, 并初步分析了透射波形畸变的机理。

关键词 [岩土力学](#); [软弱夹层](#); [透射模型](#); [矢量波场](#); [传播特性](#); [透射能量](#); [波形畸变](#)

分类号

TRANSMISSION MODEL OF WEAK INTERCALATION AND ITS VIBRATION ISOLATION PROPERTIES

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Abstract

The weak intercalations have an impedance action on seismic wave propagation in spite of its adverse influence on engineering body. In the past, the adverse influence has been researched more than their properties of the base isolation. However, the research on the base isolation properties of weak intercalations can not only offer us more theoretic foundation for reducing damage and preventing disasters induced by the action of earthquake waves, but also help to explore the dynamic character of rock joints. In fact, the weak intercalations may be approximately regarded as a kind of joints when they become very thin. Based on some theories of plane elastic wave propagation, the transmission model of weak intercalations for P wave fields is established and used to analyze propagation properties varying with incidence angles, depth, impedance ratio of the weak intercalations. Finally, the mechanism of waveform distortion of transmission wave is also discussed.

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Key words [rock and soil mechanics](#); [weak intercalation](#); [transmission model](#); [vector wave fields](#); [propagation property](#); [transmission potential](#); [waveform distortion](#)

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