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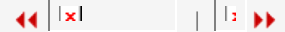
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## SH波入射双相介质半空间浅埋任意位置圆形夹杂的动力分析

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### DYNAMIC ANALYSIS FOR SHALLOWLY BURIED CIRCULAR INCLUSIONS OF ARBITRARY POSITIONS IMPACTED BY SH-WAVE IN BI-MATERIAL HALF SPACE

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#### 摘要

采用Green函数及复变函数方法研究了SH波入射到双相介质半空间时,浅埋任意位置圆形夹杂的动力响应问题。首先,利用“镜像”法构造满足直角平面自由边界条件的散射波场解答,进而求出该文所需的Green函数;其次,利用“契合”思想,将模型沿着垂直界面剖分为两个直角域,并利用界面连续性条件及Green函数建立待解外力系的第一类Fredholm积分方程组;最后,通过具体算例给出了圆形弹性夹杂周边的动应力集中系数。结果显示:界面、自由边界、圆形夹杂、入射波数等因素均对动应力集中系数有影响。

关键词: 双相介质界面 直角平面 圆形夹杂 Green函数 动应力集中系数

#### Abstract:

Green's function and complex function methods are used here to investigate the problem of the dynamic response for shallowly buried circular inclusions of arbitrary positions impacted by SH-wave in a bi-material half space. Firstly, the expression of the scattering wave field was constructed, satisfying the free boundary conditions in a right-angle plane by the method of 'image', then Green's function was constructed. Secondly, the bi-material media was divided into two parts along the vertical interface using the idea of interface 'conjunction', then a series of Fredholm integral equations of first kind for determining the unknown forces could be set up through continuity conditions on the surface and Green's function. Finally, some examples for the dynamic stress concentration factor of the cylindrical elastic inclusion are given. Numerical results show that the dynamic stress concentration factor is influenced by the interface, free boundary, circular inclusion, incident wave and so on.

Key words: bi-material interfaces right-angle plane circular inclusion Green's function dynamic stress concentration factor

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