

非稳态温度场中二维流道截面弹性波传递过程的理论分析

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Title: A theoretical study of transmitting of elastic wave on the section of a two-dimensional flow channel under non-steady temperature field

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关键词: 流道; 弹性波; 保形变换; 非稳态温度场

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摘要: 针对燃料电池二维流道热弹性波的传递问题, 采用经典的保形变换复变函数解析方法, 考虑非稳态温度场, 建立了二维流道表面动态热应力分布的理论解析模型, 并得到了采用汉克尔函数表示的复函数解析解; 为说明理论模型的可行性, 本文进行了二维圆形和椭圆形流道表面动态热应力分布系数的计算。计算结果表明: 非稳态温度场对流道表面的应力分布的影响与表面曲率相关, 且瞬时冲击特性明显。

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