عنوان مقاله:

Stress Wave Propagation in ۲D Functionally Graded Media: Optimization of Materials Distribution

محل انتشار:

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خلاصه مقاله:

In this paper, the analysis and optimization of the effect of the materials distribution on the behavior of ۲D functionally graded media subjected to impacted loading has been investigated. First, it is assumed that there are two cases for distributing the components in the FG material. In the first case, the power law is considered for materials distribution, and in the second case, the volume fractional changes of the components are made by third degree interpolation. Considering the elastodynamic behavior of the FG materials under loading, the general governing equations of the wave propagation are extracted for the case of properties variation in two dimensions and then the equations are solved using the finite difference method. Finally, an optimization has been made using a single objective genetic algorithm. The results show that the materials distribution has a considerable effect of stress wave propagation in .FGMs

کلمات کلیدی:

Functionally graded material, finite difference method, Genetic Algorithm, Optimization, Stress Wave Propagation