

عنوان مقاله:

Finite Element Analysis of One-dimensional Classical Coupled Thermoelasticity of a Layered Slab

محل انتشار:

هجدهمین کنفرانس سالانه مهندسی مکانیک (سال: 1389)

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خلاصه مقاله:

The behavior of thermoelastic waves at the interface of layered media and distributions of these waves through the domain are examined by using direct finite element method to obtain the field variables directly in the space and time domains. The analysis is performed in a onedimensional domain with two different layers to provide a means to follow the behavior of the reflected thermoelastic waves at the interface. The material characteristics of layers are selected in both hypothetical and practical ways. This can assure us that the method is applicable for both theoretical and practical purposes. It found that the distributions of thermoelastic waves in an isotropic slab with one layer are significantly different from those in multilayered slabs. This method may be generalized to simulate the propagation of thermoelastic waves in different multilayer regions and analyze the behavior of the layered composite structures under the mechanical or thermal impact loads.

کلمات کلیدی:

Layered Media, Impact Loading, Wave Propagation, Classical Coupled Thermoelasticity

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