

عنوان مقاله:

GENERALIZED THERMOELASTICITY

محل انتشار:

پانزدهمین کنفرانس سالانه مهندسی مکانیک (سال: 1386)

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خلاصه مقاله:

The generalized thermoelasticity based on the Lord-Shulman (LS), Green-Lindsay (GL), and Green-Naghdi (GN) theories admit the second sound effect. Introducing the unifier parameters, these theories are combined into a unified set of equations. The unified form of these equations are solved for a layer of isotropic and homogeneous material to study the thermal and mechanical wave propagations. The disturbances are generated by a sudden application of thermal shock to the boundary. The dimensionless form of the governing equations are solved utilizing the Laplace transform method in time domain. Closed form solutions are obtained for the layer in the Laplace transform domain, and a numerical inverse Laplace transform method is used to obtain the temperature, displacement, and stress fields in the physical time domain. The thermomechanical wave propagations and reflections from the layer boundaries are investigated.

کلمات کلیدی:

Generalized thermoelasticity theories, Thermal Shock, Layer

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