

Eigenvalue approach for an unbounded medium with a spherical cavity based upon two-temperature generalized thermoelastic theory

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Abstract

The thermoelastic interaction in an unbounded medium with a spherical cavity is studied using two-temperature generalized thermoelasticity theory. The medium is assumed to be initially quiescent. The inner surface of the cavity is taken traction free and subjected to a thermal shock. By the Laplace transformation, the basic equations are expressed in the form of a vector-matrix differential equation, which is solved by an eigenvalue approach. Some comparison have been shown in figures to estimate the effect of the two-temperature parameter.

Keywords

Two-temperature Laplace transform Thermoelasticity
Eigenvalue approach

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