

Abstract

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A Generalized Thermoelasticity Problem for a Half Space with Heat Sources under Axisymmetric Distributions

In this work, we solve a transient two dimensional problem for an infinite thermoelastic half space whose surface is traction free and subjected to a known axisymmetric temperature distribution. The problem is considered within the context of the theory of generalized thermoelasticity with one relaxation time. Axisymmetric heat sources permeate the medium. The problem is solved using the Laplace and Hankel transforms. The solution in the transformed domain is obtained by using a direct approach. The inverse transforms are obtained using a numerical technique. Numerical results for the temperature, stress and displacement distributions are obtained and represented graphically.