Thermoelastic Thick Plate Under Illumination of a Laser Beam With Two Relaxation Times

Ismail Mohamed Ismail Tayel ,Henain, Ezzat. F.; Hassan, Amin. F.; Megahed, Fouad.;

Abstract

The problem of thermo elasticity, based on the theory of Green and Lindsays (G-L) with two relaxation times, is used to solve a two dimensional boundary value problem of a thick plate. The upper surface of the medium is taken as traction free and heated by a pulsed laser beam. The lower surface of the medium is thermally isolated and traction free. The general solution is obtained in the Laplace and Hankel transforms domain. Approximate small time analytical solutions to temperature, stress and displacement are obtained. Results of this problem are presented graphically.