Abstract

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State Space Approach to Thermoelastic Problem with Vibrational Stresses

In this work the equations of thermoelasticity with two relaxation times for one-dimensional problem are cast into matrix form using the state space and the Laplace transform techniques. The resulting formulation is applied to a half-space problem with thermal shock and vibrational stress. The inversion of the Laplace transforms is carried out using a numerical approach. Numerical results for temperature, displacement, and stress distributions are given and illustrated graphically.