Adomian's Decomposition Method to Functionally Graded Thermoelastic Materials with Power Law

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Abstract : This paper presents an iteration method for the numerical solutions of a one-dimensional problem of generalized thermoelasticity with one relaxation time under given initial and boundary conditions. The thermoelastic material with variable properties as a power functional graded has been considered. Adomian’s decomposition techniques have been applied to the governing equations. The numerical results have been calculated by using the iterations method with a certain algorithm. The numerical results have been represented in figures, and the figures affirm that Adomian’s decomposition method is a successful method for modeling thermoelastic problems. Moreover, the empirical parameter of the functional graded, and the lattice design parameter have significant effects on the temperature increment, the strain, the stress, the displacement.