Shape Control of Composite Plates with Piezoelectric Patches under Thermomechanical Loading

S.V. Plotnikova, M.G. Kulikov

Tambov State Technical University, Tambov

Key words and phrases: composite plate; finite element method; piezoelectric patches; shape control; thermoelectroelasticity.

Abstract: This article deals with the determination of optimal voltages at piezoelectric patches for the optimal shape control of composite plates. Taking into account the physical limitation, a space of electric potentials is restricted, i.e., the control constraints are imposed. The mathematical model is based on the 3D geometrically exact finite elements of thermoelectroelastic multilayered anisotropic plates. In numerical examples, we investigate the ability of the proposed formulation to model shape control problems of laminated composite plates subjected to thermomechanical loading.

© С.В. Плотникова, М.Г. Куликов, 2011