

Stabilization of the Bernoulli-Euler Plate Equation: Numerical Analysis

Authors : Carla E. O. de Moraes, Gladson O. Antunes, Mauro A. Rincon

Abstract : The aim of this paper is to study the internal stabilization of the Bernoulli-Euler equation numerically. For this, we consider a square plate subjected to a feedback/damping force distributed only in a subdomain. An algorithm for obtaining an approximate solution to this problem was proposed and implemented. The numerical method used was the Finite Difference Method. Numerical simulations were performed and showed the behavior of the solution, confirming the theoretical results that have already been proved in the literature. In addition, we studied the validation of the numerical scheme proposed, followed by an analysis of the numerical error; and we conducted a study on the decay of the energy associated.

Keywords : Bernoulli-Euler plate equation, numerical simulations, stability, energy decay, finite difference method

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