RECOVERY OF A SPACE-DEPENDENT VECTOR SOURCE IN AN ANISOTROPIC THERMOELASTIC SYSTEM

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Abstract

The inverse problem of determining a space-dependent load vector in an anisotropic thermoelastic system of type-III is discussed. The displacement at final time is measured to recover the unknown vector source. Uniqueness of a solution to this inverse source problem is shown for different types of convolution kernels arising in type-III thermoelasticity. A Landweber-Fridman type algorithm for finding the source term is developed and its convergence is studied. The theoretical results are illustrated by numerical experiments. The obtainded results are valid for all types of thermoelasticity and are an extension of the paper [1], where the authors studied the same problem for isotropic thermoelasticity.

References

[1] Van Bockstal, K. and Slodička, M. *Recovery of a space-dependent vector source in thermoelastic systems.* Inverse Problems in Science and Engineering, 2015, 23, 956-968