

Continuous Dependence of Solution on Coefficients for the Viscoelastic Wave Equation

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Abstract

Stolk established existence, uniqueness, and continuous dependence on data (including coefficients) for finite energy solutions of initial/boundary value problems for second order hyperbolic systems with bounded and measurable coefficients, by means of energy estimates in the style of Lions-Magenes. We extend Stolk's results to first order hyperbolic integro-differential systems with dissipation mechanisms, including the viscoelasticity system. We show that the solution is a differentiable function of the coefficients, with loss of one derivative, and observe that this result is sharp.