



Study of a Dynamic Visco-Elastic Problem with Influence of Some Variables on General Frictional Behavior

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Abstract

The present research investigates the asymptotic behaviors of a viscoelastic problem with long-term memory under the effect of Coulomb-type free boundary friction conditions; the wear and stress relaxation. After the variational formulation, we prove the existence and uniqueness of the solution. Then, we discuss the problem in a transposed form which is independent of the small parameter ϵ , where we look for different a priori estimates. This study is based on the VF method and on various inequalities. The corresponding main convergence results will be stated in different theorems of the last section.

Keywords: A priori estimates, boundary value problem (BVP), long-term memory, Coulomb's law, stress relaxation, variational formulation (VF), wear friction.

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