

A CLASS OF DELAY EVOLUTION HEMIVARIATIONAL INEQUALITIES AND OPTIMAL FEEDBACK CONTROLS

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ABSTRACT. In this paper, we study the feedback optimal control for a class of evolution hemivariational inequalities with delay. First, we obtain the existence of feasible pairs by applying the Cesari property, the Filippov theorem, the properties of Clarke subdifferential and a fixed point theorem for multivalued maps. Next, the results of optimal feedback control pairs and time optimal control for delay evolution hemivariational inequalities are presented under sufficient conditions. Finally, an example is included to illustrate our main results.

1. Introduction

Hemivariational inequalities were introduced to deal with the mechanical problems with nonsmooth and nonconvex energy superpotentials (see [31], [32]). It is an efficient tool in mathematical models to describe the antiplane shear deformations of a piezoelectric cylinder in frictional contact with a foundation,

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