On a Class of Subdifferential Problems with Applications to Dynamic Contact Mechanics

Stanisław Migórski*

Abstract

A class of abstract first order evolution problems involving the Clarke generalized gradient operator is studied. An existence and uniqueness result for this class is provided under a smallness hypothesis.The result is applied to a dynamic frictional viscoelastic contact problem in which the contact is described by a subdifferential boundary condition and the friction is modeled by a version of the Coulomb law of dry friction. In a consequence, we deliver a result on a general variational-hemivariational inequality with history-dependent operators which models the contact phenomenon.

*Jagiellonian University in Krakow, Poland