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Modelling and Control in Contact Mechanics

**Optimal Control Problems in Nonsmooth Contact Mechanics  
via Hemivariational Inequalities**

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**Abstract:** We consider the optimal control problems for systems described by nonlinear evolution inclusions which are motivated by several contact problems of solid mechanics. We establish results on the existence of weak solutions to the control problems. We present some examples of the dynamic contact problem with nonmonotone nonsmooth subdifferential boundary conditions which can be formulated as the hemivariational inequalities and for which the abstract results on optimal control can be applicable.