

Nonsmooth Problems with Applications in Mechanics  
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**A Nonsmooth Optimization Approach for  
Time-Dependent Hemivariational Inequalities**

**Piotr Bartman**

Jagiellonian University in Kraków

piotr.bartman@uj.edu.pl

**Abstract:** This talk is devoted to a study of time-dependent hemivariational inequality. We recall the existence and uniqueness of its solution, provide a fully discrete scheme, and reformulate this scheme as a series of nonsmooth optimization problems. Then the introduced theory is applied to a sample quasistatic contact problem that describes a viscoelastic body in frictional contact with a foundation. This contact is governed by a nonmonotone friction law with dependence on the normal component of displacement and the tangential component of velocity. Finally, computational simulations are presented to illustrate the obtained theoretical results.

The talk is based on a recently published paper by Jureczka, Ochal, and Bartman with the same title.