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Quasistatic frictional contact problem governed by a variational–hemivariational inequality

Piotr Gamorski

Abstract: A quasistatic nonsmooth frictional contact problem for a viscoelastic material is studied. The contact is modeled by a multivalued normal damped response condition with the Clarke generalized gradient of a locally Lipschitz superpotential and the friction is described by a version of the Coulomb law of dry friction with the friction bound depending on the regularized normal stress. The weak formulation of the contact problem is a history-dependent variational-hemivariational inequality coupled with an operator equation for the stress field. A result on the unique weak solvability to this coupled system is proved through a recent contribution on history-dependent subdifferential inclusions and a fixed point approach.

[1)] Piotr Gamorski, M.Sc. (Ph.D. student): Politechnika Łódzka, 90-924 Łódź,ul. Wólczańska 215, Poland (PL), piotrgamorski@gmail.com, the author presented this contribution at the conference in the special session: "Mathematical modeling of nonlinear systems involving interaction with the medium" organized by M. Dosaev and Y. Selyutskiy.