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A VISCOELASTIC FRICTIONAL CONTACT PROBLEM WITH ADHESION

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Abstract. We consider a quasistatic frictional contact between a viscoelastic body with long memory and a foundation. The contact is modelled with a version of normal compliance associated to the Coulomb's law of dry friction. The adhesion between contact surfaces is taken into account and the evolution of the bonding field is described by a first order differential equation. We provide a variational formulation of the mechanical problem and prove an existence and uniqueness result of the weak solution under a certain condition on the coefficient of friction. The proofs are based on arguments of time-dependent variational inequalities, differential equations and Banach fixed-point theorem.

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