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A Dynamic Problem with Adhesion and Damage in Electro-Viscoelasticity with Long-Term Memory

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Abstract: We consider a dynamic frictionless contact problem for an electro-viscoelastic body with long-term memory and damage. The contact is modelled with normal compliance. The adhesion of the contact surfaces is taken into account and modelled by a surface variable, the bonding field. We derive variational formulation for the model which is formulated as a system involving the displacement field, the electric potential field, the damage field and the adhesion field. We prove the existence of a unique weak solution to the problem. The proof is based on arguments of evolution equations with monotone operators, parabolic inequalities, differential equations and fixed point.



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