# An electro-viscoelastic micromechanical model with non-constant relaxation time

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| **Abstract** | An electro-viscoelastic constitutive model based on non-constant relaxation time is proposed in this paper. We start by deriving the viscoelastic model from the well-known generalized Maxwell model (GMM) provided with stress-stretch-dependent relaxation time. Here, we consider relaxation time no longer as a constant but a variable that depends on dissipation or viscous process in polymer chains due to electroelastic stress-stretch. Comparison with the electro-viscoelastic experiments shows that our proposed model can capture well dielectric elastomer viscoelastic behaviors under time- and rate-dependent electric loadings for different pre-stretch values. |
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