Soft Dielectrics: Heterogeneity and Instabilities

STEPHAN RUDYKH, GAL DEBOTTON, Ben-Gurion University of the Negev, KAUSHIK BHATTACHARYA, California Institute of Technology — Dielectric Elastomers are capable of large deformations in response to electrical stimuli. Heterogeneous soft dielectrics with proper microstructures demonstrate much stronger electromechanical coupling than their homogeneous constituents. In turn, the heterogeneity is an origin for instability developments leading to drastic change in the composite microstructure. In this talk, the electromechanical instabilities are considered. Stability of anisotropic soft dielectrics is analyzed. Ways to achieve giant deformations and manipulating extreme material properties are discussed.


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