

611e Scaling of Energy Landscape Features in Stressed Systems and Relationship to Viscoelastic Processes

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The stress induced changes in the nature of reaction paths between energy minima and saddle points are characterized. In particular, molecular simulations are used to examine barrier heights and positions, relevant curvatures of the landscape, and directions of reaction paths, for diffusive events. The simulation results on a range of systems, and an associated analytical analysis, show that these features of the energy landscape follow universal scaling laws as the system is stressed. Implications of these scaling laws in regard to viscoelastic processes are discussed.