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Generic rugged landscapes under strain and the possibility of rejuvenation in glasses DANIEL LACKS, BRITTANY ISNER, Case Western Reserve University — A strain-dependent random landscape model shows that many aspects of the mechanical response of disordered materials are universal, and arise from the rugged nature of the energy landscape. Simulations with this model demonstrate that states produced by mechanical deformation will generally be distinct from the states traversed during thermal aging. This behavior is a generic consequence of a rugged energy landscape, and is independent of any specific microstructure of the material. Thus, mechanical deformation does not literally “rejuvenate” a material, although the states produced by mechanical deformation may in some ways resemble less aged systems.

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