Abstract Submitted
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Effective temperature in elastoplasticity of amorphous solids[1] IDO REGEV[2], Los Alamos National Laboratory, LAURENT BOUE, JACQUES ZYLBERG, ITAMAR PROCACCIA, The Weizmann institute of Science, GEORGE HENTSCHEL, Emory University — An effective temperature $T_{\rm eff}$ which differs from the bath temperature is believed to play an essential role in the theory of elastoplasticity of amorphous solids. The definition of a measurable $T_{\rm eff}$ in the literature on sheared solids suffers however from being connected to a fluctuation-dissipation theorem which is correct only in equilibrium. Here we introduce a natural definition of $T_{\rm eff}$ based on measurable structural features without recourse to any questionable assumption. The value of $T_{\rm eff}$ is connected, using theory and scaling concepts, to the flow stress and the mean energy that characterize the elasto-plastic flow.

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