

Supplementary information:

A Model for Aging under Deformation Field, Residual Stresses and Strains in Soft Glassy Materials

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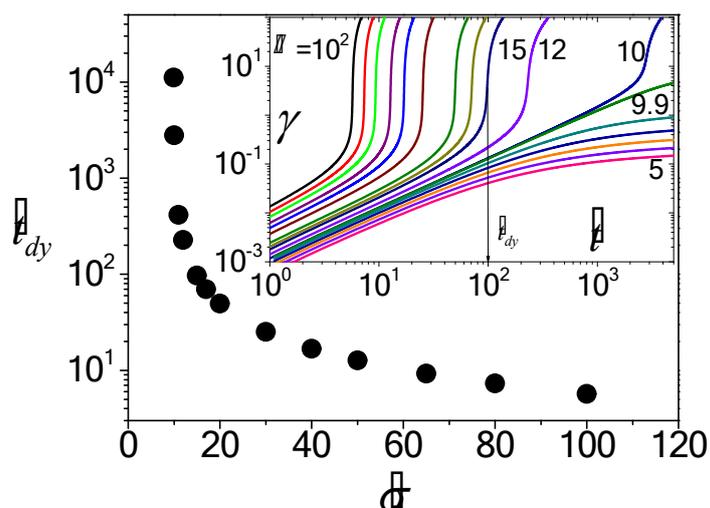


Figure S1. Time to yield t_{dy}^c is plotted against creep stress for $\mu=1.2$, $A=10$ (the corresponding $\phi_c=0.74$, $\sigma_c=9.7$ and $\phi^*=0.6$), $\phi_i=0.7$ (the corresponding $\sigma_{yi}=9.93$). It can be seen that as stress decreases towards yield stress, t_{dy}^c increases very sharply. The inset shows evolution of strain as a function of time for the values of stress from left to right $\sigma_c=100, 80, 65, 50, 40, 30, 20, 17, 15, 12, 10, 9.9, 9, 8, 7, 6$, and 5 . The inset clearly shows viscosity bifurcation for stress below and above $\sigma_{yi}=9.93$.

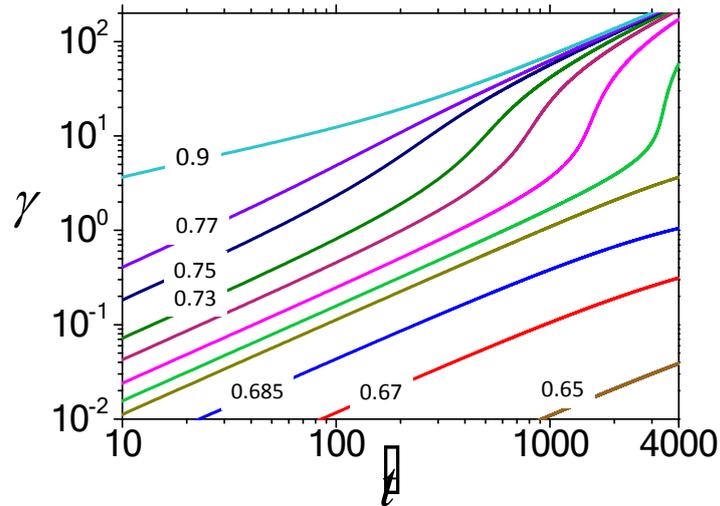


Figure S2. Evolution of of strain as a function of time is plotted various values of ϕ_i for $\mu=1.2$, $A=10$ and $\mathcal{R}_c=9.93$ (corresponding $\phi_{ss}=0.7$). From bottom to top: $\phi_i=0.65$, 0.67 , 0.685 , 0.698 , 0.703 , 0.71 , 0.72 , 0.73 , 0.75 , 0.77 , and 0.9 (the corresponding $\phi_c=0.74$, $\mathcal{R}_c=9.7$ and $\phi^*=0.6$). It can be seen that for $\phi_i > 0.7$ significant strain gets induced in the material, while for $\phi_i < 0.7$, strain approaches a plateau value.