Electronic Supplementary Material (ESI) for Soft Matter.

Effect of the content and strength of hard segment on the viscoelasticity of the polyurethane elastomer: Insight from molecular dynamics simulation

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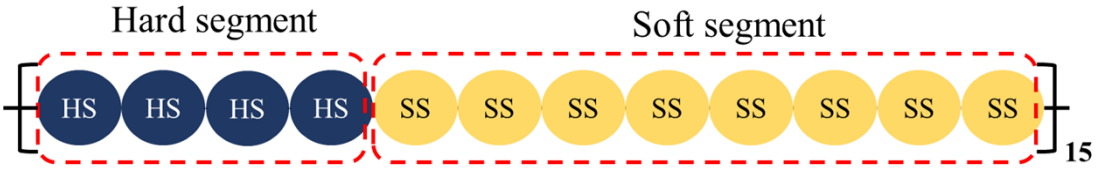

Fig. S1 Schematic representation of the modelled hard-soft block PU chain containing 15 repeating units where the content of HS α_H is 0.33.

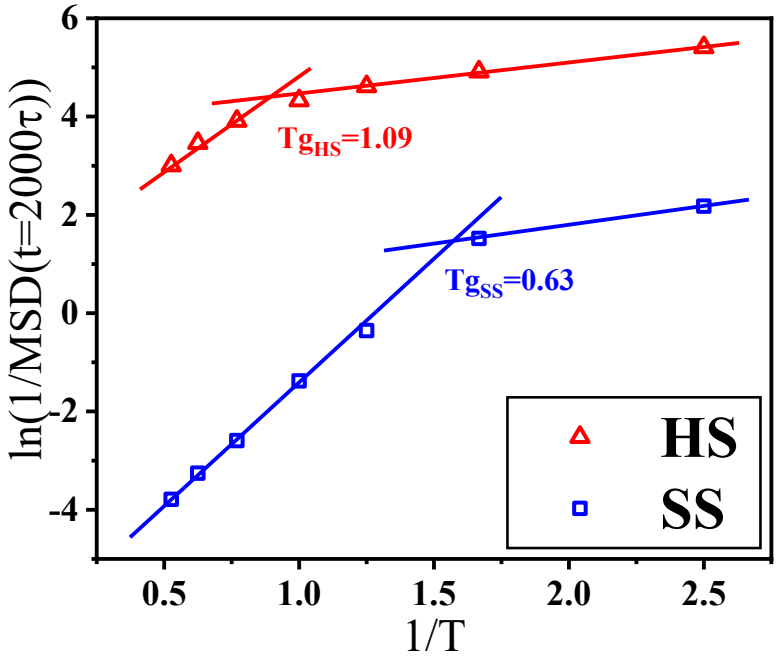

Fig. S2 The glass transition temperature (T_g) of the pure HS polymer (α_H =1.0) and the pure SS polymer (α_H =0.0).

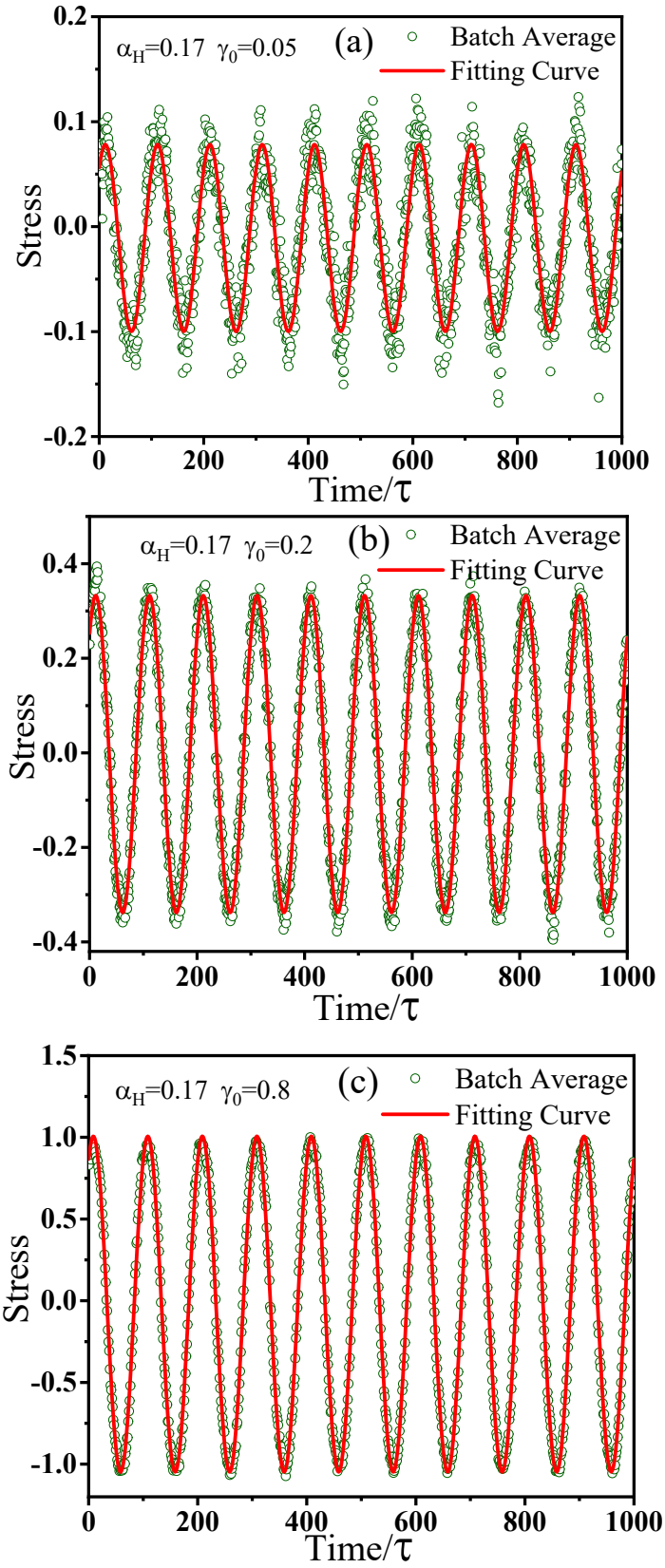

Fig. S3 The time-dependent shear stress σ_{xy} at shear strain amplitude (a) γ_0 =0.05, (b) γ_0 =0.2, (c) γ_0 =0.8. The empty dots stand for the "batch averaged" shear stress while the continuous lines are sinusoidal fits to empty dots. (T^*=1.0, α_H =0.17)

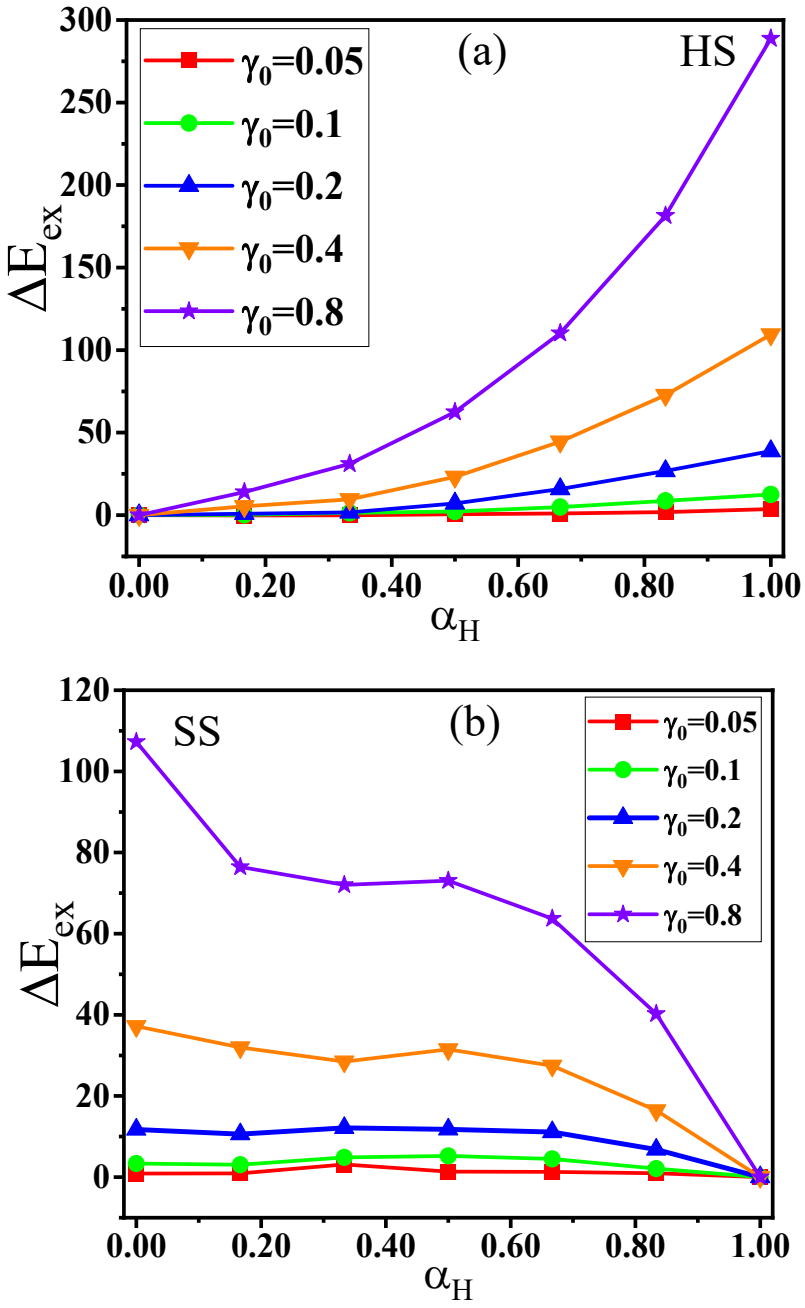

Fig. S4(a) The thermal energy exchange (ΔE_{ex}) contributed by (a) HS and (b) SS respectively with respect to the content of HS α_H for different shear strain amplitudes γ^o. (T^*=1.0)

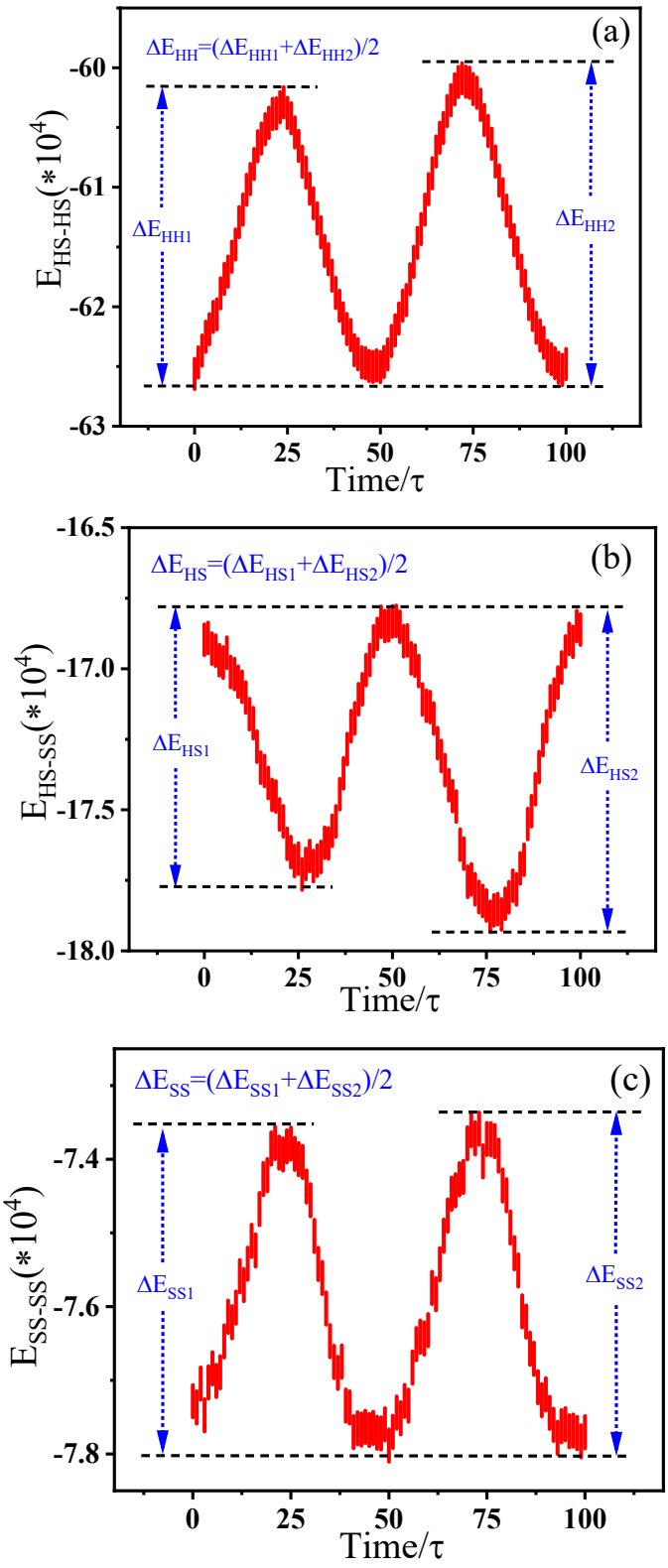

Fig. S5 Schematic diagram of the energy difference (ΔE_{HH}, ΔE_{HS}, ΔE_{SS}) between HS and HS, HS and SS or SS and SS during the sinusoidal shear process. (α_H =0.5)