

Supplementary Information

Sliding dynamics of ring chains on two asymmetric/symmetric chains in a simple slide-ring gel

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S1 Effects of axial chain length on sliding dynamics

We calculated the diffusion coefficient D of ring chains sliding along two symmetric fluctuating axial chains, in which we changed the axial chain length from $N_{\text{axial}}=100$ to $N_{\text{axial}}=200$ and kept the other parameters unchanged. The dependence of D on the distance d between two symmetric axial chains is shown in Figure S1. From Figure S1, we found that there also exists a maximum value for D^{max} located at $d^*=16$, which is the same as the case of $N_{\text{axial}}=100$ for ring chains sliding along the symmetric axial chains. Therefore, the similar conclusion can be made for different axial chain lengths.

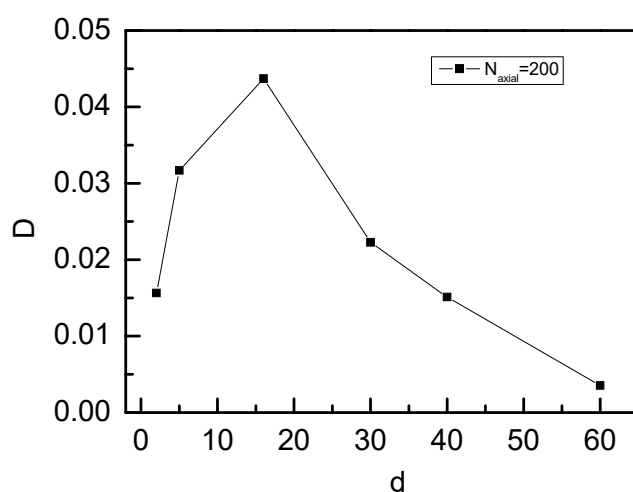


Figure S1. Diffusion coefficient D of ring chains sliding along two symmetric fluctuating axial chains ($K_1=K_2=0$) with different distances d between two symmetric fluctuating axial chains for $N_{\text{axial}}=200$.