Supplementary Information

Adherent moving of polymers in spherical confined binary semiflexible ring polymer mixtures

Xiaolin Zhou* Wan Wei

Corresponding author. E-mail: xlzhou@hrbeu.edu.cn

S1. Calculation details of the simulation parameters in Table 1

As there is a strong repulsive force for the distance between the monomer of the long SRP and a sphere surface less than d<1, the value of the distance between the monomer of the long SRP and sphere center ranges for d is d=0-19. The number of total monomers N_{total} is

$$N_{total}=\rho*V=(L_{long}*N_{long}+L_{short}*N_{short})=0.5\sigma^{-3}*(4*\pi*19\sigma^3/3)\approx14365$$

Additionally, the length of the short ring in the bulk involved in this article is in the range of L_{short}=5-40, and the corresponding number of short rings N_{short} can be calculated. The result of N_{short} is taken as an integer:

$$\therefore N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}$$

For L_{short}=5, $N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}=(14365-50)/5=2863$

For L_{short}=10, $N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}=(14365-50)/10=1431.5\approx1432$

For L_{short}=20, $N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}=(14365-50)/20=715.75\approx716$

For L_{short}=30, $N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}=(14365-50)/30=477.16\approx477$

For L_{short}=40, $N_{short}=(N_{total}-L_{long}*N_{long})/L_{short}=(14365-50)/40=357.86\approx358$

1 Corresponding author. E-mail: xlzhou@hrbeu.edu.cn