Supplemental Information for: Models of flexible polymers in good solvents: relaxation and coil-stretch transition

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1 Parameters of our bead-spring chain simulations

In Section 4, we have described a procedure for including inter-spring EV. We have listed the values of the parameters for our simulations in the following tables.

The parameters for molecules described as ds-DNA, ss-DNA and hypothetical molecules are given in Tables 1, 2 and 3 respectively.

Table 1 Parameters for molecule with $v/l^3 = 0.01$ using our new-model (ds-DNA)

N_s	$N_{K,s}$	z^*	d^*
1	10000	0	-
2	5000	0.0264	0.15
5	2000	0.0438	0.13
10	1000	0.0455	0.13
20	500	0.0414	0.1

Table 2 Parameters for molecule with $v/l^3 = 1$ using our new-model (ss-DNA)

N_s	$N_{K,s}$	z^*	d^*
1	10000	0	-
2	5000	0.0695	0.25
5	2000	0.1565	0.22
10	1000	0.2087	0.22
20	500	0.2459	0.22

Table 3 Parameters for molecule with $v/l^3 = 0.031$ using our new-model (hypothetical molecule)

N_s	$N_{K,s}$	z^*	d^*
1	10^{10}	0	-
2	$5*10^9$	0.0768	0.2
5	$2*10^9$	0.1802	0.23
10	10^9	0.2495	0.19
20	$5*10^8$	0.3077	0.19

For the conventional model with FENE springs parameters for ds-DNA, ss-DNA and hypothetical molecule are described in Tables 4, 5 and 6 respectively.

Table 4 Parameters for molecule with $v/l^3 = 0.01$ using FENE springs with Gaussian EV (ds-DNA)

N_s	$N_{K,s}$	z^*	d^*
1	10000	0.2333	0.25
2	5000	0.1905	0.21
5	2000	0.1347	0.15
10	1000	0.09947	0.12
20	500	0.07199	0.12

Table 5 Parameters for molecule with $v/l^3 = 1$ using FENE springs with Gaussian EV (ss-DNA)

N_s	$N_{K,s}$	z^*	d^*
1	10000	23.33	0.79
2	5000	19.05	0.59
5	2000	13.47	0.45
10	1000	9.947	0.38
20	500	7.199	0.34

Table 6 Parameters for molecule with $v/l^3 = 0.031$ using FENE springs with Gaussian EV (hypothetical molecule)

N_s	$N_{K,s}$	z^*	d^*
10	10^9	308.45	0.80
12	$8.33*10^8$	283.73	0.78
15	$6.67*10^8$	255.75	0.76
20	$5*10^8$	223.24	0.74

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