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Supplemental information

Sequence effects on internal structure of droplets of associative polymers

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Supplementary Material: Sequence Effects on Internal Structure of Droplets of Associative Polymers

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I. DROP FORMATION FOR $\epsilon_s = \epsilon_{ns} = 0.8$ AND $r_{ij}^{cut} = 2.5\sigma$

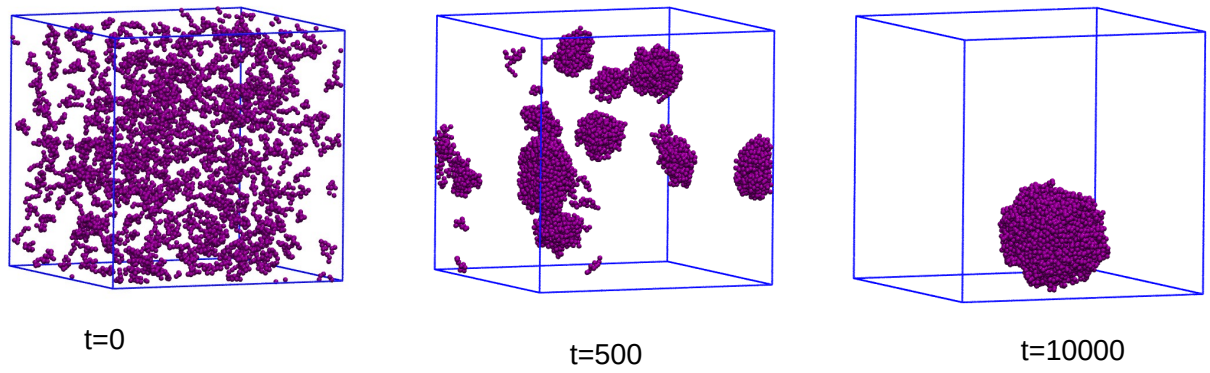

FIG. S 1: Phase separation of polymers without stickers in poor solvent condition for $\epsilon_s = \epsilon_{ns} = 0.8$

II. NO DROP FORMATION FOR $\epsilon_s = \epsilon_{ns} = 0.5$ AND $r_{ij}^{cut} = 2.5\sigma$

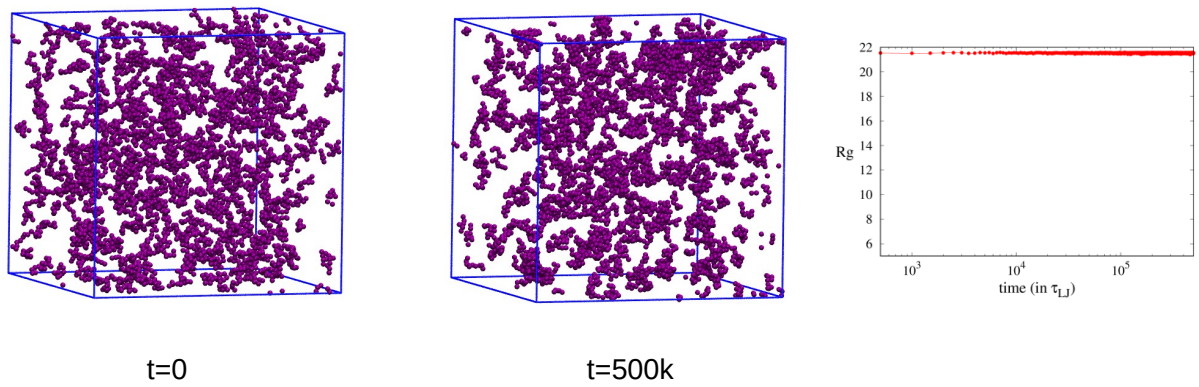

FIG. S 2: Phase separation of polymers does not occurs in poor solvent condition $\epsilon_s = \epsilon_{ns} = 0.5$. We evolved the system for very long time ($t = 500,000$) to eliminate the possibility of slow phase separation.

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III. TIME EVOLUTION OF R_g FOR $1s6s1$, $2s4s2$, $3s2s3$ AND $4ss4$ SEQUENCES.

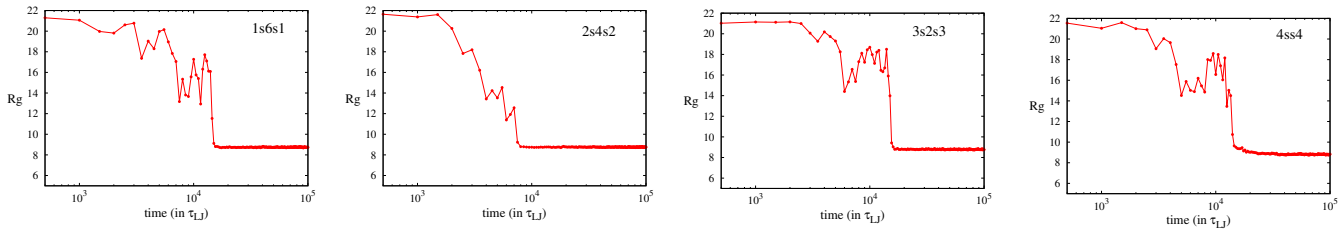

FIG. S 3: Plot of time evolution of radius of gyration of all monomers in the system for different sequences ($\epsilon_s = 4$).

IV. AVERAGE NUMBER OF CLUSTERS FOR DIFFERENT SEQUENCES

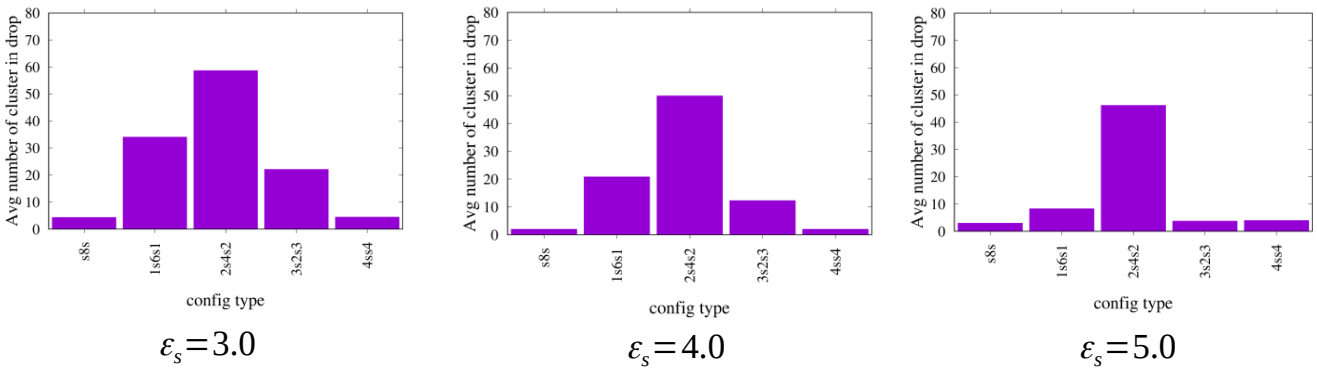

FIG. S 4: Plot shows the average number of clusters in equilibrium state for three different values of ϵ_s for all sequences. For all values we obtained non-monotonic change in average cluster size as we go from $s8s$ to $4ss4$ sequence.

V. COMPARISON OF CLUSTERS SNAPSHOTS OF DIFFERENT SEQUENCES FOR THREE DIFFERENT ϵ_s VALUES

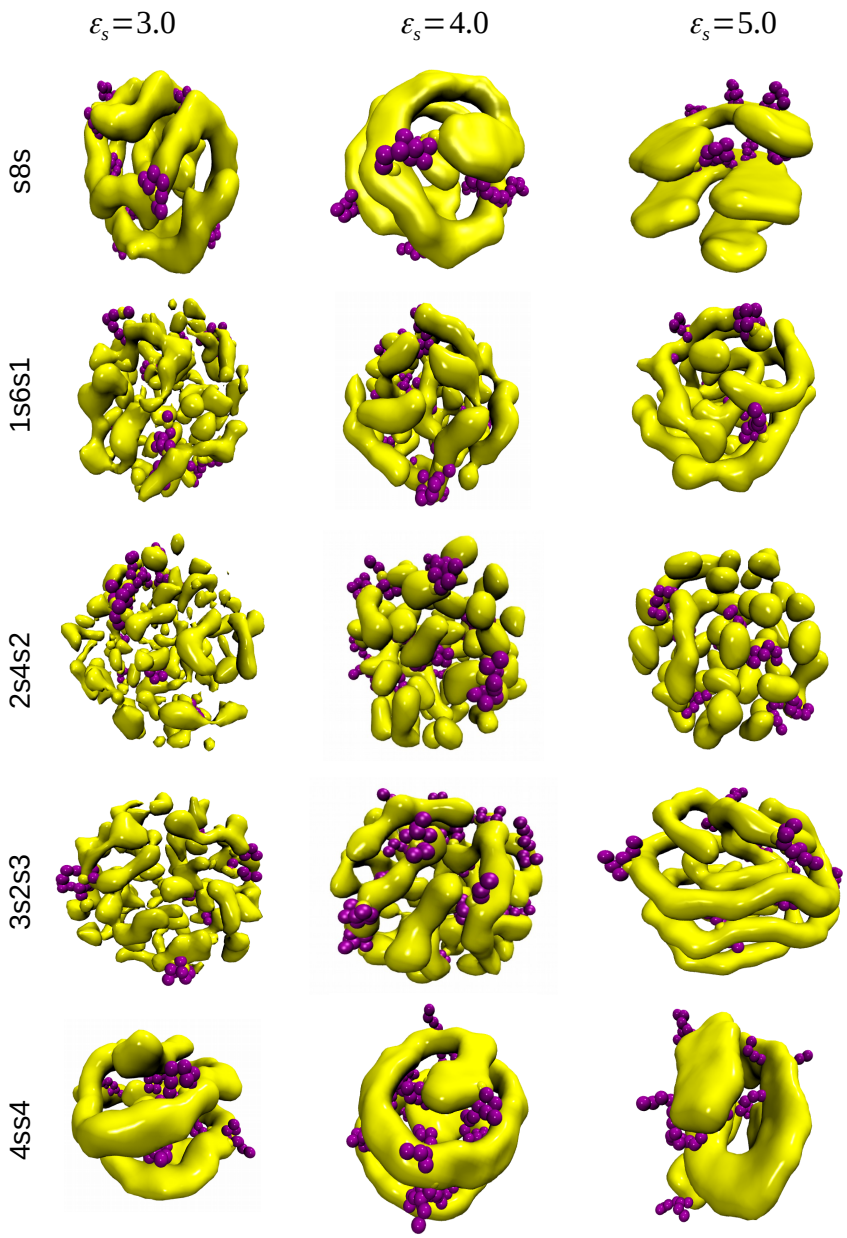

FIG. S 5: Snapshots of sticker clusters in equilibrium state for three different values of ϵ_s for all sequences. Shape and size of the clusters changes as ϵ_s value is increased. At small ϵ_s value, large number of small clusters are present in the system of $1s6s1$, $2s4s2$ and $3s2s3$ sequences for $\epsilon_s = 3$ and as ϵ_s increases the number of clusters in the system decreases and their size increases. Long and broad fiber-like structures appears for $\epsilon_s = 5$. For $s8s$ and $4ss4$ sequences, the number of clusters remains very small ($\sim 3-4$) for all ϵ_s but the shape of the clusters changes from cylinderical to planer bilayer as ϵ_s is increased.

VI. R_{ss} DISTRIBUTION IN POOR SOLVENT

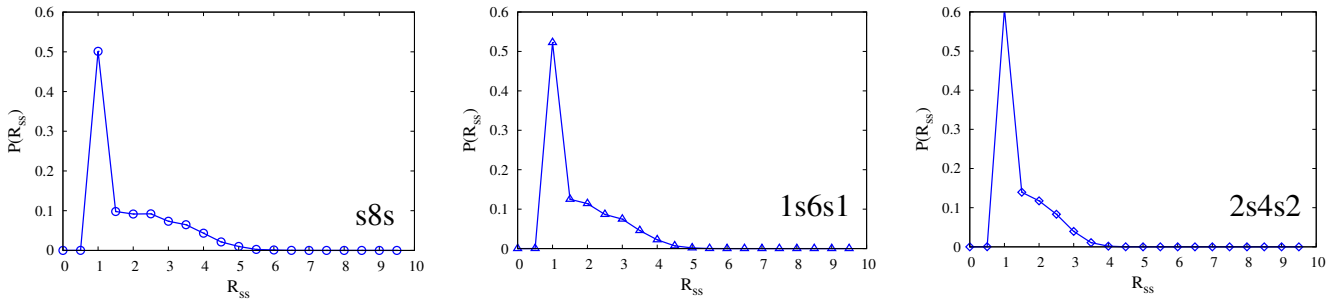

FIG. S 6: R_{ss} distribution of isolated associating polymers in poor solvent for $s8s$, $1s6s1$ and $2s4s2$ sequences ($\epsilon_s = 4$).

VII. MORPHOLOGY COMPARISON: 10 BEADS POLYMER WITH TWO STICKERS *VS* ITS REPEAT UNITS (5 BEADS POLYMER WITH ONE STICKER)

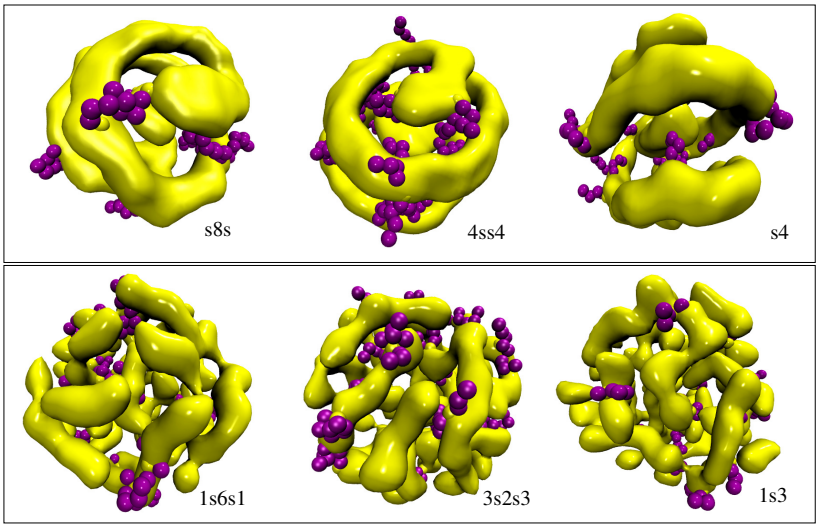

FIG. S 7: Snapshots of sticker clusters inside droplet for different sequences and their repeat units ($\epsilon_s = 4$). Top panel: $s8s$, $4ss4$ and their repeat unit $s4$. Bottom panel: $1s6s1$, $3s2s3$ and their repeat unit $1s3$.