

## **SUPPLEMENTARY MATERIAL:**

### **Effect of topology on the statics and dynamics of a polymer chain at the fluid-fluid interface: a molecular dynamics simulation study**

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## I. SUPPLEMENTARY FIGURE

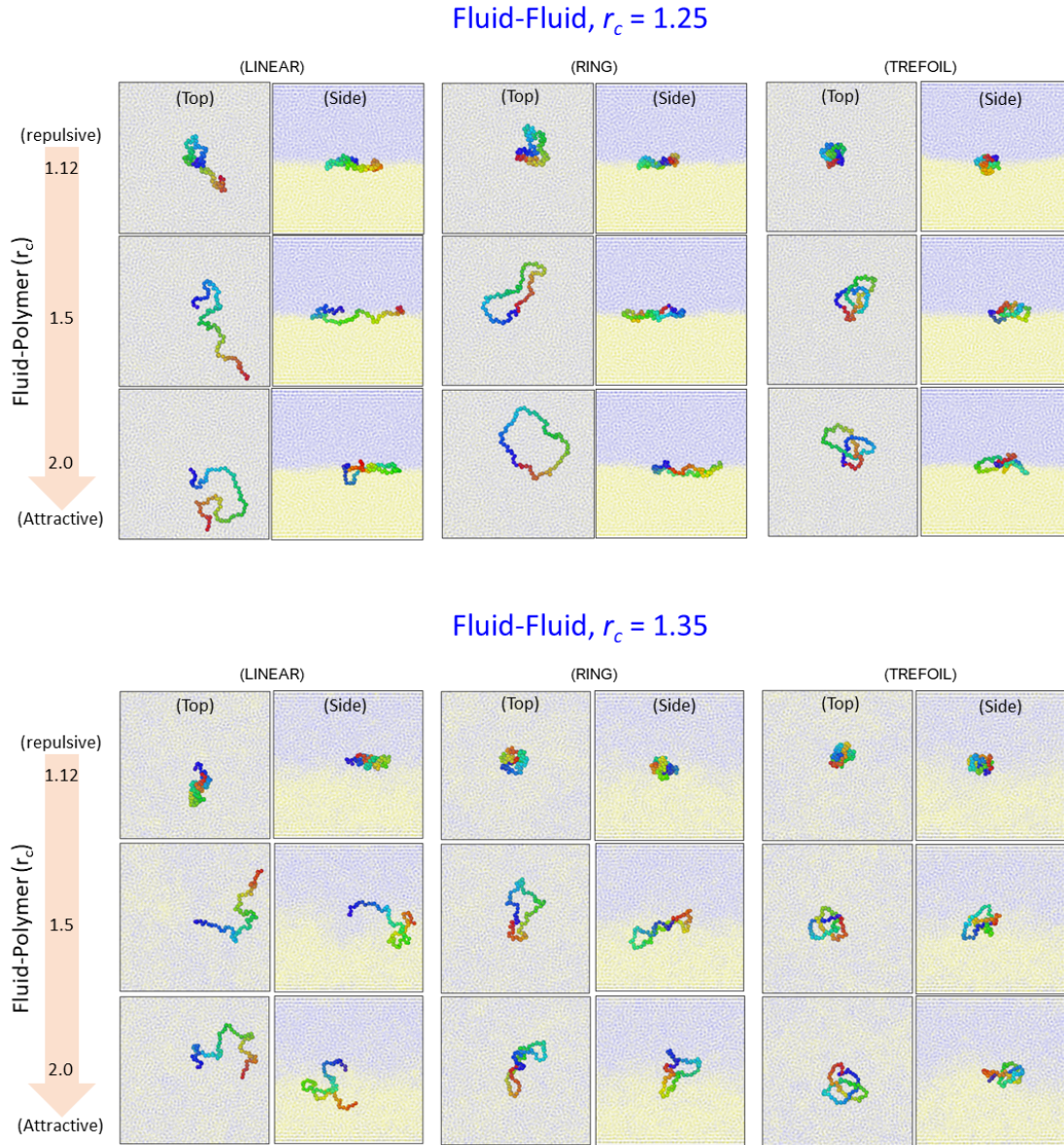


FIG. S1: MD simulation snapshots showing (top and side view of) typical instantaneous configuration of the linear, ring and trefoil chains located at the interface of two immiscible fluids (case of sharp interface). Fluids are shown in smeared out blue and yellow regions to clearly see the polymer. In order to identify easily the different regions of the chain, monomers are give continuous color scheme (blue to red of the visible spectrum).

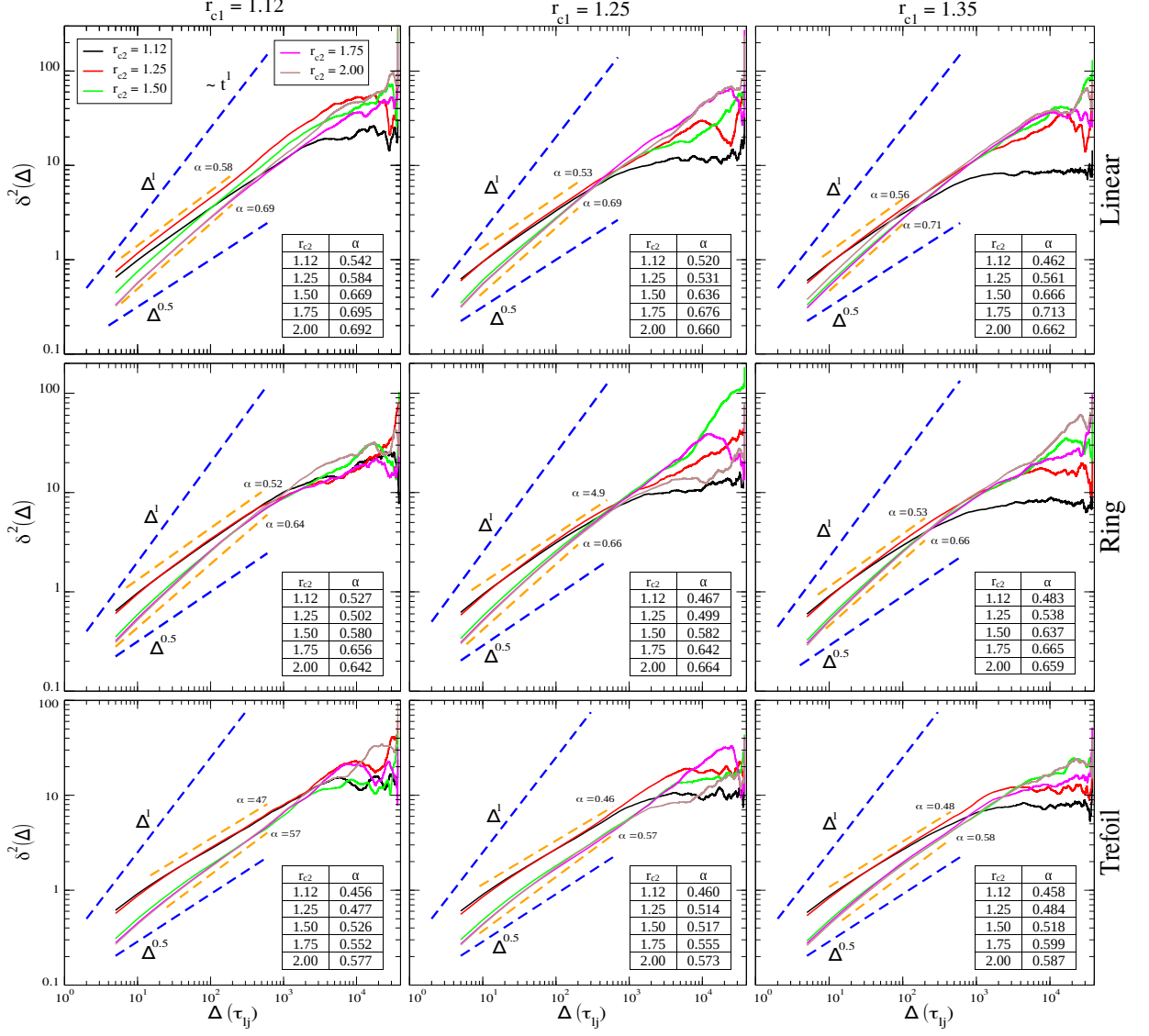


FIG. S2: Monomeric MSD w.r.t. CM,  $g_2(\Delta)$ , for linear (top panel), ring (middle panel), and trefoil (lower panel) chains at five different values of polymer-fluid interaction indicated by  $r_{c2}$  in the figure are shown for  $r_{c1} = 1.12$  (sharp interface), 1.25 (intermediate), 1.35 (weak interface). Dashed lines with  $\delta^2 \sim \Delta$  and  $\delta^2 \sim \Delta^{0.5}$  is guide to the eye. Inset table indicates the value of exponent (or slope)  $\alpha$  obtained in the linear region.

## II. SUPPLEMENTARY TABLE

TABLE S1: Self-diffusion constant of linear, ring and trefoil chain at various values of fluid-fluid interaction  $r_{c1}$  and polymer-fluid interaction  $r_{c2}$ .

|                            | Linear |      |      | Ring |      |      | Trefoil |      |      |
|----------------------------|--------|------|------|------|------|------|---------|------|------|
| $r_{c1} \backslash r_{c2}$ | 1.12   | 1.25 | 1.35 | 1.12 | 1.25 | 1.35 | 1.12    | 1.25 | 1.35 |
| 1.12                       | 6.54   | 5.45 | 5.38 | 4.69 | 4.31 | 4.16 | 5.93    | 5.93 | 5.08 |
| 1.25                       | 6.49   | 3.37 | 4.11 | 3.42 | 3.50 | 3.23 | 3.69    | 5.20 | 4.90 |
| 1.50                       | 3.83   | 2.36 | 2.69 | 2.72 | 2.34 | 2.45 | 3.20    | 3.77 | 3.77 |
| 1.75                       | 2.52   | 2.42 | 2.56 | 2.88 | 2.29 | 2.17 | 3.35    | 3.86 | 3.05 |
| 2.00                       | 2.46   | 2.38 | 3.50 | 2.37 | 2.68 | 2.31 | 3.05    | 4.05 | 2.94 |