Supplemental Material for

Emergence of ordered network mesophases in kinetic pathways of order-order transition for linear ABC triblock terpolymers

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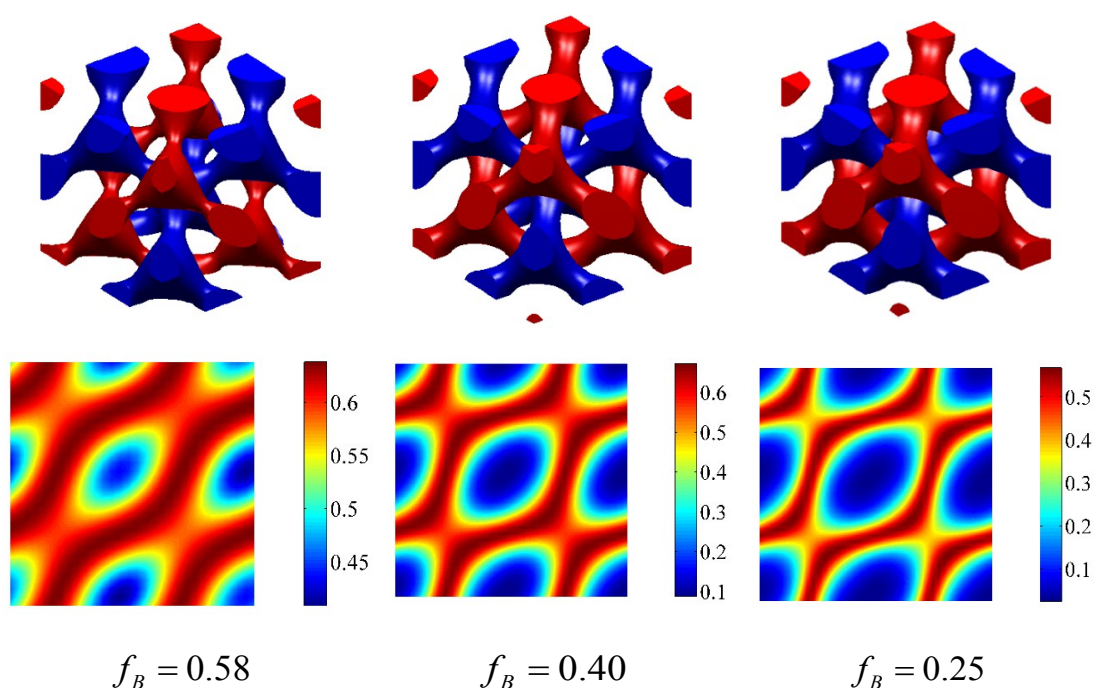
This file includes Figs. S1 to S6:

$$f_B = 0.58 \qquad f_B = 0.40 \qquad f_B = 0.25$$

Fig. S1 Three dimensional morphologies of D^A structure and density profiles of the top view for B block with f_B decreasing along the isopleth $f_A = f_C$ with $\chi_{AB}N = \chi_{BC}N = 13, \chi_{AC}N = 35$. Red and blue represent domains rich in A and C blocks, respectively.
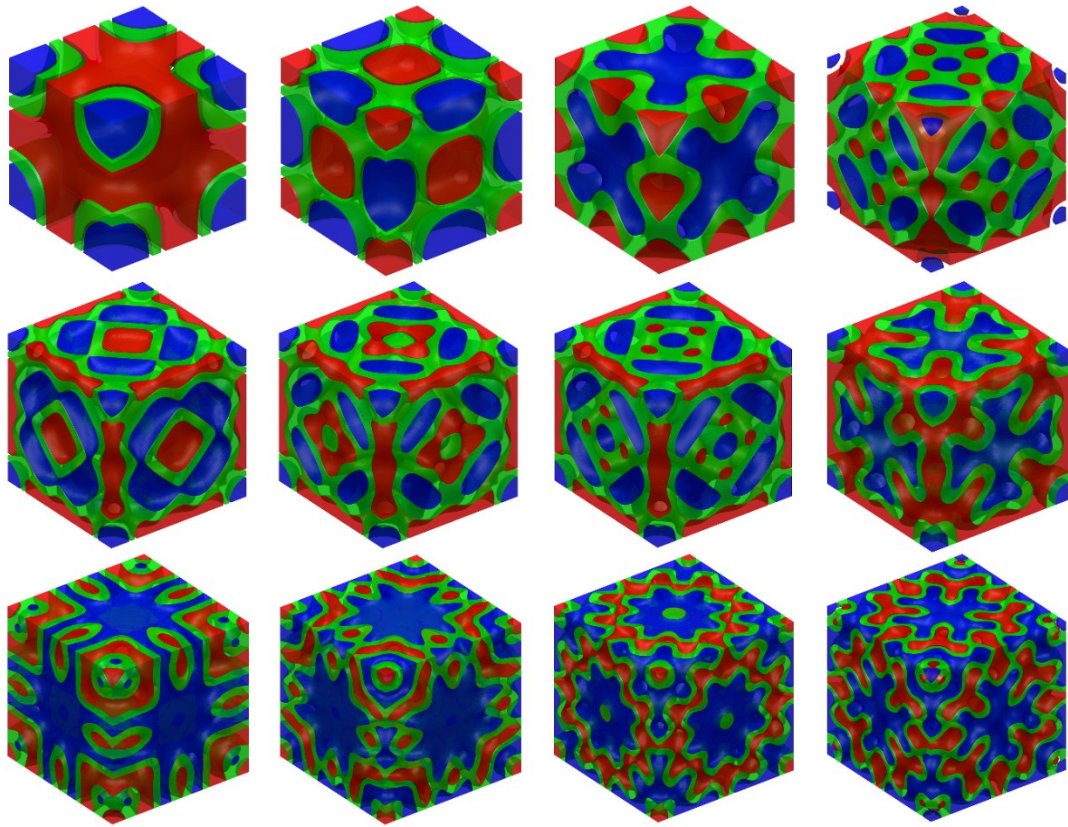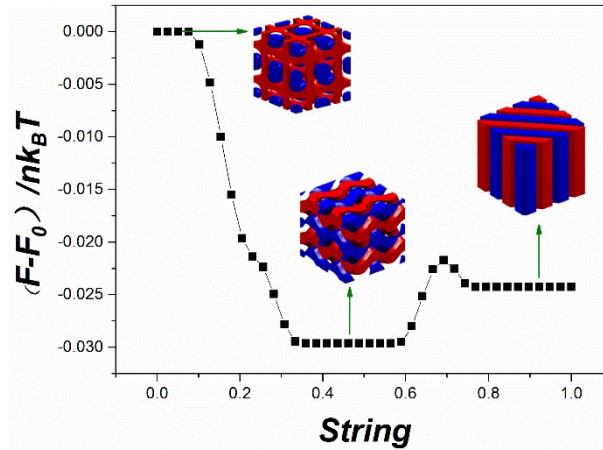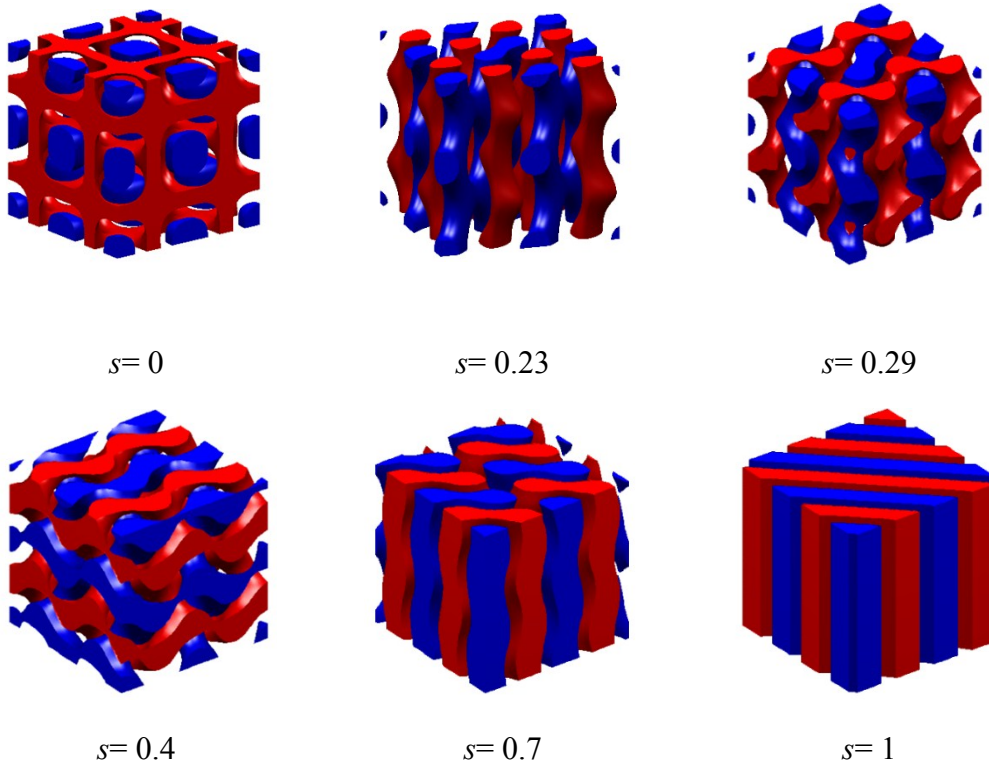
Fig. S2 Various metastable structures in the phase region of G^A structure with $\chi_{AB}N = \chi_{BC}N = 13, \chi_{AC}N = 35$, $f_A = f_C = 0.23, f_B = 0.54$. The red, green and blue colors represent the A-, B- and C-rich domains, respectively.

(a)

s= 0   s= 0.23   s= 0.29

s= 0.4   s= 0.7   s= 1

(b)

Fig. S3 Phase transition process for scanning the G^A structures. The two ends of the string are BCC sphere and L with (110) planes. (a) Minimal free energy pathway for scanning the G^A structures with $\chi_{AB}N = \chi_{BC}N = 13, \chi_{AC}N = 35, f_A = f_C = 0.23, f_B = 0.54$. (b) Morphologies on the minimal free energy pathway. Red and blue represent domains rich in A and C blocks. For a clear presentation of the final pattern, the linear dimensions of the unit cell are replicated 2 times in each direction.
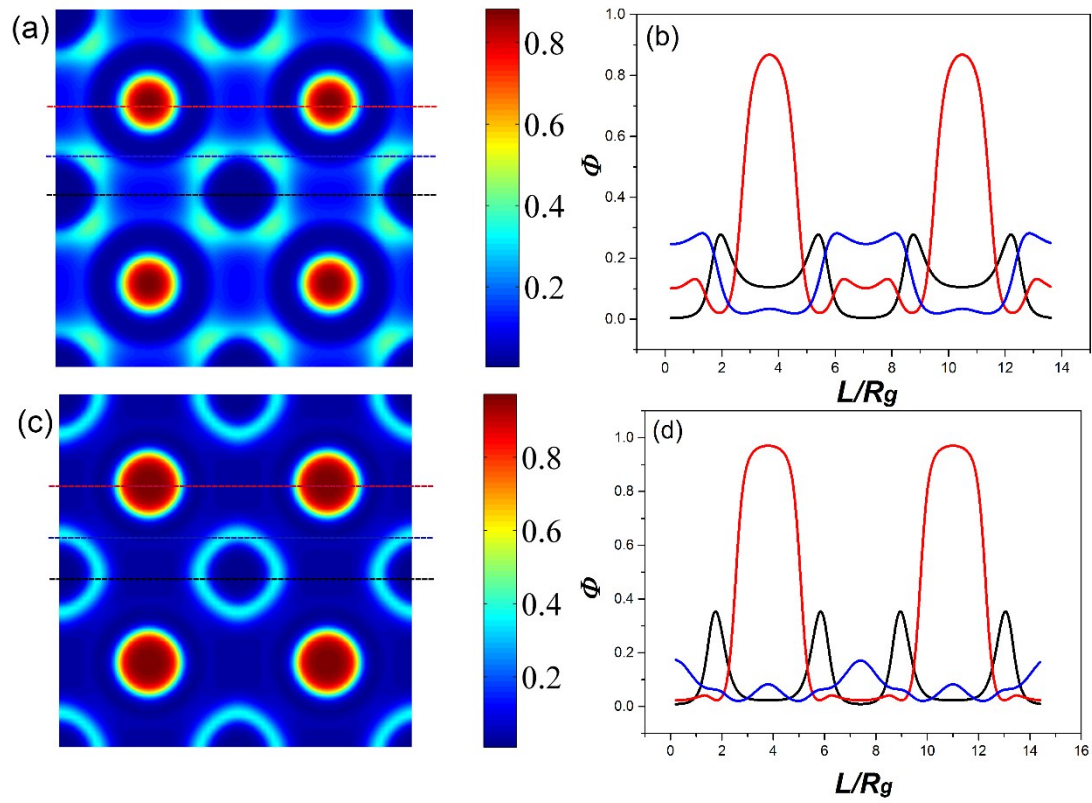
Fig. S4 (a) Density profiles of the top view for A block in P^A structure when f_B=0.54 shown in Fig. 8(a). Density distribution along the lines with different colors marked in the density profiles is shown in (b). (c) Density profiles of the top view for A block in P^A structure when f_B=0.40 shown in Fig. 8(a). Density distribution along the lines with different colors marked in the density profiles is shown in (d).
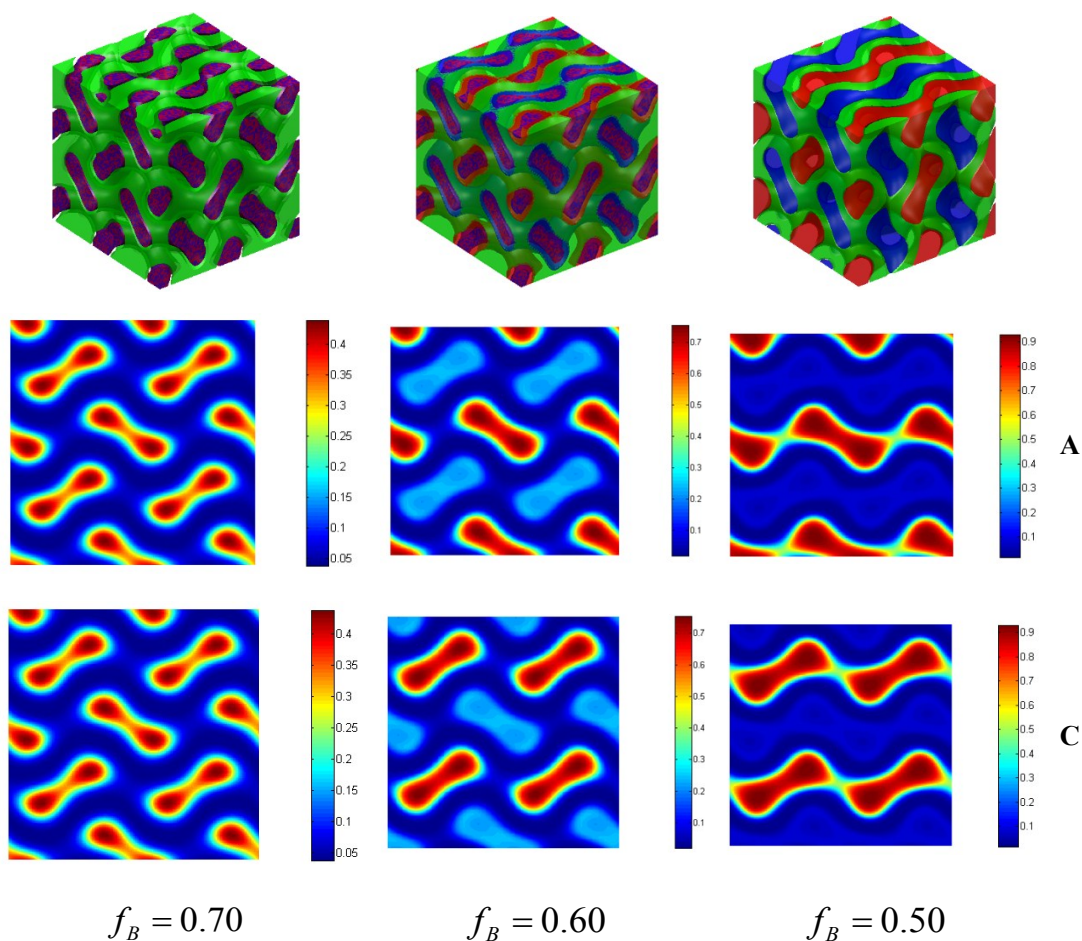
$$f_B = 0.70 \qquad\qquad f_B = 0.60 \qquad\qquad f_B = 0.50$$

Fig. S5   Three dimensional morphologies of G^A structure and density profiles of the top view for A block and C block with f_B decreasing along the isopleth $f_A = f_C$ with $\chi_{AB}N = \chi_{BC}N = 35, \chi_{AC}N = 15$. The red, green and blue colors represent the A-, B- and C-rich domains, respectively.

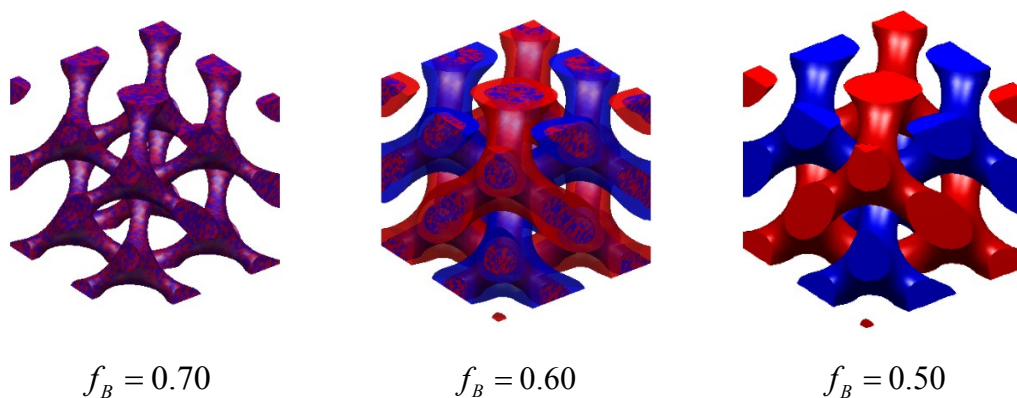$$f_B = 0.70 \qquad\qquad f_B = 0.60 \qquad\qquad f_B = 0.50$$

Fig. S6   Three dimensional morphologies of D^A structure with f_B decreasing along the isopleth $f_A = f_C$ with $\chi_{AB}N = \chi_{BC}N = 35, \chi_{AC}N = 15$. The red and blue colors represent the

A- and C-rich domains, respectively.