Effects of Polydispersity on the Stability of Complex Spherical Packing Phases in Diblock Copolymers

Decreasing average A-monomer concentration, f_A

0.5



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Classical & Nonclassical Spherical Phases



Methodology

We use self-consistent field theory (SCFT) to study the phase behavior of block copolymers.

Input: Initial guess for $\phi_A^{(in)}(r) \& \phi_B^{(in)}(r)$

 $\omega_{A,B}(\mathbf{r}) = \chi N \phi_{B,A}(\mathbf{r}) + \xi(\mathbf{r}),$ and other SCFT equations

Output: $\phi_{A}^{(out)}(r) \& \phi_{B}^{(out)}(r)$

Anderson Mixing [4]

New intput: $\phi_A^{(in)}(r) \& \phi_B^{(in)}(r) \checkmark$

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Chain Length Distributions Studied



Polydispersity-induced Sigma Phase



Measuring Packing Frustration

