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Title	Simulation study of phase separated structures of blends of long and short block copolymers
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Purpose of this study	Reproduction of the phase separated structures obtained by experiments. Analysis of the competition of the process between micro and macro phase separation.
System (Material)	Long A-B/ short A-B blend. (A-B corresponds to PS-PI in experiments.)
Program (including analysis)	MesoSimulator990827version

Method & Some important input parameters	(Method) Dynamic mean field density functional method (Scheutjens - Fleer model + Cahn - Hilliard eq.)
	
	(Inputs)
	   Polymer Polymer A (corresponds to PS), Polymer B (corresponds to PVME), Void(for air layer), volume fraction, length, and species for each polymer must be set.
	   Parameters of interactions
	       potential from wall (like χ parameter)
	       segment-segment interaction parameter(χ)

Advance & Problem	(Advance) We succeeded to reproduce several phase-separated structures observed in experiments. Furthermore, we can calculate the macro phase separated structures. Scattering function analysis was also performed. (Problem) We have strict restriction on the unit cell dimension to 2^n to obtain scattering functions. This restriction causes difficulty to identify some of phase separated structures.
References	[Manuscript] Submitted/Accepted(/) [Presentation at conferences (Meetings)] International symposium of Doi Project.
KeyWords (in English)	Blends of nearly-symmetric long and short block copolymers, macro phase separation, micro phase separation, dynamical process, scattering function, dynamic density functional method

Results (Remarks)
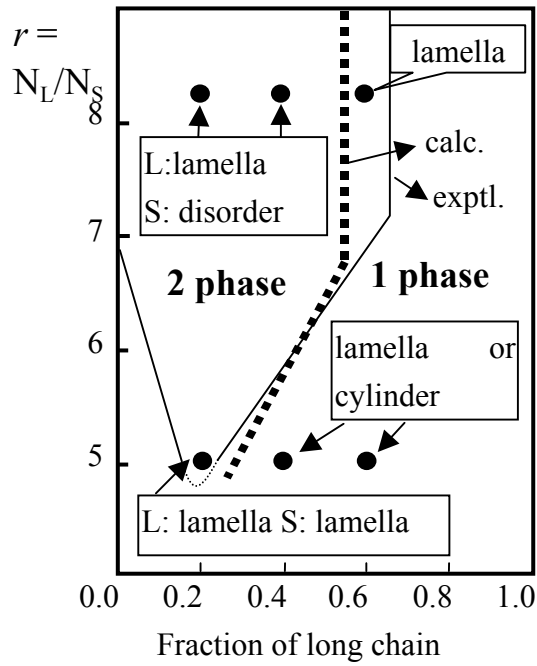
Fig. 1 A phase diagram obtained by experiments and 2D simulations. Dotted and solid lines indicate the boundary between one phase and two phase regions from experiments and calculations, respectively.
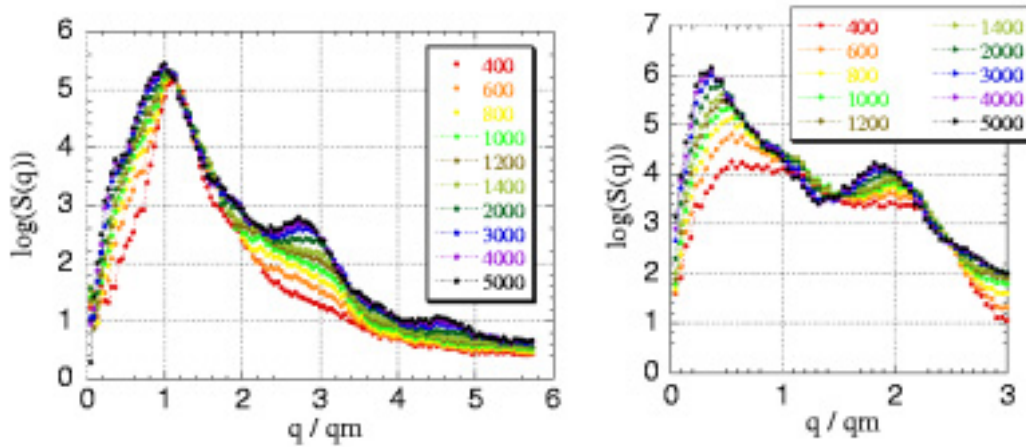

Fig. 2 Circular averaged scattering functions at the time=400, 600, 800, 1000, 1200, 1400, 2000, 3000, 4000, and 5000. (a) and (b) show the scattering functions of ϕ_A- ϕ_B and ϕ_{Long}-ϕ_{Short}, respectively. The wave number q is scaled by the peak position q at time = 5000.