

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Self-assembly of ABA amphiphilic block copolymers and its metastable behavior** WEI JIANG, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences — Amphiphilic triblock copolymer can self-assemble into a vast variety of micelles in selective solvents. We investigated, both theoretically and experimentally, the kinetics of the vesicle formation of ABA amphiphilic triblock copolymers in a selective solvent by cooling the system from an initially homogeneous state at different rates. It was found that the pathway of spontaneous vesicle formation depended on the cooling rate. This road path difference for vesicle formation can be attributed to the existence of many metastable states in the system. Moreover, it was found that in uniform shear flow, the size distribution of the vesicles was much narrower than that in nonuniform shear flow and the uniformity of the vesicles increased with increasing shear rate. The results show that the metastable states in the system can be modulated and the morphological polydispersity of amphiphilic ABA triblock copolymer vesicles can be controlled by shear flow.

Wei Jiang  
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences

Date submitted: 17 Oct 2012

Electronic form version 1.4