Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Kinetics of Phase Separation in Binary Mixtures SHAISTA AHMAD, Department of Chemical Engineering, Pennsylvania State University, University Park, PA - 16802, SUBIR K. DAS, Theoretical Sciences Unit, Jawaharlal Nehru Center for Advanced Scientific Research, Jakkur, Bangalore - 560064, India, SANJAY PURI, School of Physical Sciences, Jawaharlal Nehru University, New Delhi - 110067, India — We present numerical simulation results of the phase separation kinetics in three-dimensional symmetric binary fluid mixtures and binary solid mixtures. In the former system, our extensive molecular dynamics simulation is able to probe an extended period where the domain size grows linearly with time, leading to an unambiguous confirmation of the viscous hydrodynamic regime. On the other hand, for the binary solid mixture, we use Monte Carlo simulation with spin-exchange dynamics to verify the Lifshitz-Slyzov growth law. In spite of the differences in the growth mechanisms, the pair correlation functions and structure factors of the two systems overlap, indicating similarity in the morphologies during phase separation.

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Date submitted: 17 Dec 2012 Electronic form version 1.4