

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Numerical Coarse-Graining of Polymer Field Theories** MICHAEL VILLET, GLENN FREDRICKSON, University of California, Santa Barbara — Field theoretic models of polymers are widely used to investigate polymer self-assembly, but numerical simulations of these models that include full fluctuation physics are computationally demanding and infrequently conducted. To reduce this computational cost, we propose the use of systematically coarse-grained field theories that can be simulated on a coarsely spaced lattice without truncation of important short-wavelength physics. We present a variational method for numerically executing this coarse-graining, in which fine-grained simulation data is used to parameterize trial coarse-grained models, and results from the application of this method to some model systems.

Michael Villet  
University of California, Santa Barbara

Date submitted: 19 Nov 2009

Electronic form version 1.4