

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Entropic Segregation of Short Polymers to the Surface of a Poly-disperse Blend¹ PENDAR MAHMOUDI, MARK MATSEN, University of Waterloo — Surface effects become particularly important for micro-sized and even more so for nano-sized objects. Naturally, enthalpic preferences will cause certain components of a multi-component material to segregate to a surface, but in polymeric materials this can also happen as a result of purely entropic reasons. To demonstrate this, we consider the effect of a surface on a binary blend of chemically identical long and short polymers, using self-consistent field theory. Despite the absence of any enthalpic preference, the short polymers are found to segregate to the surface. We investigate how the amount of the surface excess and its decay length depends on the polymeric model, the molecular weights of the two polymers and the blend composition.

¹This work was supported by NSERC of Canada.

Pendar Mahmoudi
University of Waterloo

Date submitted: 06 Nov 2015

Electronic form version 1.4