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Entropic segregation of short chains to the surface of a polydisperse melt

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It is well understood that chains ends have an entropic preference for the surface of a polymer melt, and consequently the shorter chains of a polydisperse melt are favored at the surface. We study this effect for a bidisperse melt using numerical self-consistent field theory (SCFT). Semi-analytical approximations to the SCFT are derived for the concentration profiles resulting in simple expressions for the integrated excess or depletion of each component.

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