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Binding large globular particles to long polymer chains ANTON SOUSLOV, JENNIFER E. CURTIS, PAUL M. GOLDBART, Georgia Institute of Technology — We present a minimal model that captures the change in conformational properties of long polymer chains as a result of the binding of large suspended globular particles. The large globular particles, which we model as spheres, have a single binding site and interact with each other via excluded volume repulsion, causing the attached chain to swell. This swollen chain in solution can be described as a free chain with an increased effective persistent length at large length scales and as stretched chain at short scales. Within the context of our model, we examine the statistics of these bindings and the structure of dilute and semidilute solutions of such polymer assemblies. We also consider such polymers grafted at an interface with a sufficient surface density to form a brush. We show how this model applies to the macromolecular assemblies found in the synovial fluid and in the pericellular coat of mammalian cells.

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