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Optimal Confinement for Internal Polymer Binding NAM-KYUNG LEE, Department of Physics/Sejong University, CAMERON ABRAMS, Department of Chemical and Biological Engineering/Drexel University, ALBERT JOHNER, Institut Charles Sadron — Internal binding between specific groups dilute along a polymer chain plays a paramount role in many technological and biological systems. Against common intuition, we show that the interplay between excluded volume correlations and hydrodynamic interactions can produce an optimal confinement where the binding is fastest. Similarly there is an optimal osmotic pressure for the binding rate of a chain immersed in a solution of (non-binding) spectator chains. When internal binding leads to higher order vertices as in self-assembly, confinement can set the same kinetic rate for the formation of several low order vertices.

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