

Abstract Submitted  
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**Dynamics of segregation of polymers in a confined geometry** YA LIU, BULBUL CHAKRABORTY, Brandeis University — Chromosomes are enormous DNA molecules living in the crowded, confined environment of a cell. They carry important genetic information and are stably propagated to new generations through replication. During the replication, two identical DNA molecules are generated and segregate rapidly into opposite pole of the cell. We have used numerical simulation to investigate the effects of confinement on the segregation of two identical self-avoiding chains. Simulation shows the existence of a transition from a mixing state to a demixing state with changes in the confining geometry. Using the blob picture, we construct a free energy function that depends on the distance between the two chains. We describe the dynamics of segregation as a stochastic process driven by this energy function. We will present comparisons of our theoretical results with numerical simulations.

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