Encounter probability in the polymer Ring Applications for polymer structure reconstruction using from chromosome capture data

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The Rouse chain

1. The Rouse chain can be described as a sequence of N beads connected by $N-1$ Hookian springs.
2. the source of the Hookian behavior is derived from the change in the Helmholtz free energy of the chain while it undergoes stretching.
3. in a homogeneous (in terms of spring constant) chains, the spring constant is defined as $k = \frac{3K_bT}{b^2}$
4. specifically, the end-to-end vector distribution is if we connect the two ends with a spring of constant $k = \frac{3K_bT}{(N-1)b^2}$
5. therefore we can find equivalence between the equilibrium distribution of chains and rings.
6. The question is what is equivalence?

The configuration distribution

1. Since each bond vector is independent, the configuration distribution is given by the multiplication of each bond probability.
2. closing the chain into a ring, adds a spring between bead 1 and N.
3.

Equivalence of Chains

1. The nature of the Gaussian chain allows us to study one chain's properties in terms of others more simple.