Statistical Mechanics of DNA Mutation

We investigated the deoxyribonucleic acid (DNA) denaturation through statistical mechanics and demonstrates that the exceptional polynomials lead to DNA mutation. A DNA model with two chains connected by the Morse potential representing the H bonds is considered and the partition function for this model is computed. The partition function is converted into a Schrödinger-like equation. The techniques of SUSY quantum mechanics are used to model the DNA mutation. The thermal denaturation of DNA for each mutated state is also computed.

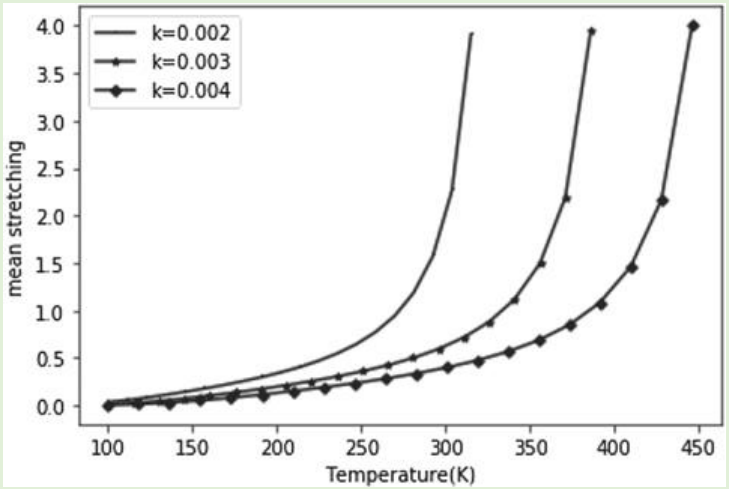

Fig1: Variation of $\langle y \rangle$ as a function of temperature for three values of coupling constant K.

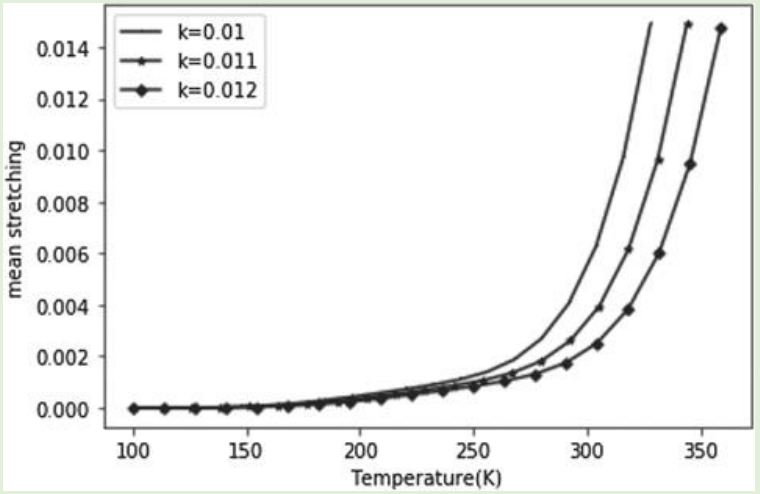

Fig 2: Variation of $\langle y \rangle$ as a function of temperature for three values of coupling constant K.

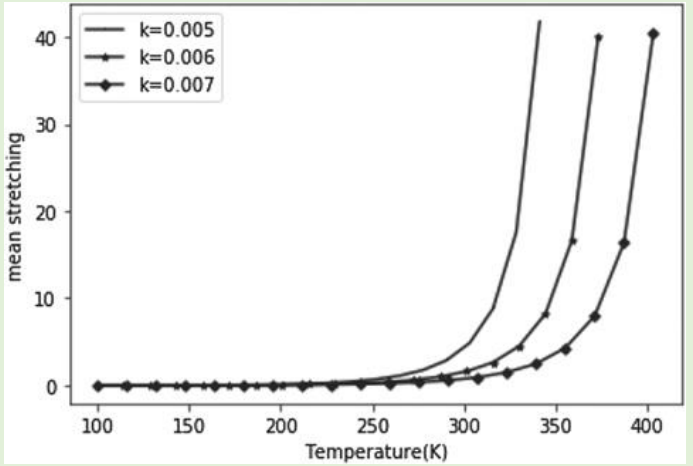

Fig 3: Variation of $\langle y \rangle$ as a function of temperature for three values of coupling constant K.

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