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Semi-flexible interacting self-avoiding polygons on 3-simplex lattice

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Self-avoiding polygons with bending stiffness and attractive nearest-neighbor interactions, are studied on three simplex fractal lattice. Via an exact set of restricted generating functions, the number of contacts as a function of the Boltzmann weights associated with stiffness and interaction energies, is calculated numerically. Calculation reveals that the number of contacts is a non-monotonic function of stiffness, for each considered value of the interaction weight. Possible causes and implications of such a peculiar behavior are discussed.

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