Partition function zeros of two-dimensional lattice homopolymers

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We study the zeros of the partition function of lattice homopolymers on two-dimensional square lattices. By solving the polynomial resulting from the partition function, we obtain the zeros in the complex temperature plane, called Fisher zeros. The leading zeros tend to approach the real axis as the chain length increases, and the locus of zeros may intersect the real axis in the limit of infinite chain length. The results suggest the collapse transition in the thermodynamic limit.