I Congresso Brasileiro de
Jovens Pesquisadores em
Matemática Pura e Aplicada

Phase Transition in a Bidimensional Random Polymers Model

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Abstract

Phase transition issues are addressed for random polymers on $\mathbb{Z}^2$ with self-repulsive interactions. It is shown that, in the absence of drift and with power law interactions, the polymer exhibits transition from diffusive to a ballistic behavior. When non-null drifts are added and positive translation invariant interactions are considered, the polymer presents a ballistic behavior. We also derive a Central Limit Theorem for the model.