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Crossing a repulsive interface: slowing of the dynamic and metastability phenomenon.

ABSTRACT: We study a simple heat-bath type dynamic for a simple model of polymer interacting with an interface. The polymer is a nearest neighbor path in $\mathbb{Z}$, and the interaction is modelised by energy penalties/bonuses given when the path touches 0. This dynamic has been studied by D. Wilson for the case without interaction, then by Caputo et al. for the more general case. When the interface is repulsive, the dynamic slows down due to the appearance of a bottleneck in the state space, moreover, the systems exhibits a metastable behavior, and, after time rescaling, behaves like a two-state Markov chain.