Title:	Dynamic Transitions in Unzipping of an Adsorbed Polymer
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Abstract:	We study, using Monte Carlo simulations, the unzipping of the adsorbed polymer from the wall whose one end is subjected to a time dependent periodic force with frequency (w) and amplitude (g0) and the other end is kept fixed. The polymer is modeled as a directed walk in (1+1)-dimensional square lattice and three different cases for the wall are considered: (1) soft-wall, (2) hard-wall, and (3) the wall separating two different media. In the static force limit, i.e., w = 0, this model has been solved exactly and the unzipping transition is a found to be a first order phase transition. The critical force obtained from the simulation matches excellently with the analytical phase boundary for all the three cases. For the dynamical case, i.e., w 6=0, we observed that the force-distance isotherms show hysteresis loops for all the three cases mentioned above . We obtained the area of the hysteresis loops Aloop and found that they satisfy scaling. We also study the probability distributions of the dynamical order parameter Q.
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