Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Dynamics of an Adsorbed Polymer Chain JOSHUA KALB, SANAT KUMAR, Columbia University — Because of the current precision in fluorescent labeling, it is possible to label single polymers such as DNA or PEG and track their dynamical and equilibrium properties in the bulk as well as near attractive surfaces[Maier et. al., Macro 2000][Sukhishvili et. al., Macro 2002]. Recent evidence from these experiments and related simulations has shown that the dynamics of a single polymer near an attractive surface appear diffusive, however further evidence coming from the 'diffusion coefficient' implies a different process other than diffusion is at work such as reptation, 'hovercrafting', or 'hopping' [Sukhishvili et. al., Macro 2002]. In general, these possible dynamical behaviors are determined by the length of the polymer itself as well as the microscopic details of the attractive surface which include the density, strength, and distribution of attractive surface sites[Desai et. al., PRL 2007][Qian et. al., PRL 2007]. In this presentation, we investigate the effects of microscopic surface effects on single polymer dynamics through Monte-Carlo and molecular dynamics simulations.

Joshua Kalb
Columbia University

Date submitted: 19 Dec 2007 Electronic form version 1.4