

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Simulation of Actin-Polymerization Near Moving Surface¹ KUN-CHUN LEE, University of Pennsylvania, ANDREA LIU, University of Pennsylvania — An important component of the cellular cytoskeleton is F-actin, a biopolymer whose self-assembly is key to the process of cell crawling. The polymerization and branching of F-actin near the cell membrane is known to drive cell crawling, but the precise mechanism by which these processes lead to the generation of a mechanical force is still controversial. We have constructed a Brownian dynamics simulation of F-actin polymerizing near a surface, which includes all known important processes, including polymerization, depolymerization, branching, severing and capping. Using this model, we study the dynamics of the moving surface in conjunction with the morphology of the resulting actin network.

¹This work is supported by NSF-CHE-0096492.

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Date submitted: 30 Nov 2005

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