

Abstract Submitted  
for the DFD07 Meeting of  
The American Physical Society

**Modeling of the motion of the actin filament on the myosin motility assays**<sup>1</sup> YUAN YOUNG, New Jersey Institute of Technology, MIKE SHELLEY, New York University — In motility assays, cytoskeletal actin filaments (actin filaments) glide over a surface coated with motor proteins, and the different modes of motion provide a simple measure of the force exerted by the motor proteins (Bourdieu, 1995). Motivated by these experiments, we consider the actin filament as a slender, elastic filament immersed in Stokesian flow, driven by a tangential forcing that mimics the force by the motor proteins. We find qualitative agreement on several points between our analysis and simulations and experimental observations. Furthermore, we study the correlation between filament transport and the characteristics of motion with the spatial pattern of motor protein density.

<sup>1</sup>This work is supported in part by NSF/DMS.

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Date submitted: 24 Jul 2007

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