Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Hybrid molecular motors - Brownian and power stroke models
BRIAN GEISLINGER, University of Alabama at Birmingham, RYOICHI KAWAI, University of Alabama at Birmingham — Whether the actin-myosin motor protein system in muscle utilizes Brownian ratchet effects to create directed motion or a more traditional power stroke event has been a matter of debate. We investigate a two dimensional ratchet designed specifically with this system in mind. We specifically look at two state (Brownian) and three state (hybrid Brownian and power stroke) variants using numerical simulations and analytical calculations. We also examine the collective effects these motors would experience in an arrangement comparable to that which would occur in real muscle tissue.

Brian Geislinger
University of Alabama at Birmingham

Date submitted: 01 Dec 2004 Electronic form version 1.4