

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Non-equilibrium microrheology of living cells MING-TZO WEI, Bioengineering, Lehigh University, Bethlehem, PA, USA 18015, H. DANIEL OU-YANG, Physics and Bioengineering, Lehigh University, Bethlehem, PA, USA 18015 — Intracellular stresses generated by molecular motors can actively modify cytoskeletal network and change intracellular mechanical properties. We study the out-of-equilibrium microrheology in living cells using endogenous organelle particles as probes. This paper reports measurements of the intracellular mechanical properties using passive, particle-tracking and active, optical tweezers-based microrheology approaches. Using arguments based on the fluctuation-dissipation theorem, we compared the results from both approaches to distinguish thermal and non-thermal mechanical fluctuations in living cells.

Ming-Tzo Wei
Bioengineering, Lehigh University, Bethlehem, PA, USA 18015

Date submitted: 22 Nov 2010

Electronic form version 1.4