Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Intracellular mechanical properties of living cells MING-TZO WEI, H. DANIEL OU-YANG, Lehigh University — In biological systems, internal stresses resulting from molecular motors such as myosin or kinesin, can actively modify cytoskeletal network mechanical properties and quantitatively change the viscoelastic response of network. This paper report a study that uses both passive and active microrheology approaches to measure the inner mechanical properties in living cellular mechanical systems. We examined the mechanical fluctuations in the cells under the conditions where motor activities and cytoskeleton proteins were modulated by chemical treatments. To distinguish the non-thermal nature of the biological activities on the mechanical integrity of the cell interior, results by the passive and active microrheology methods are compared in the context of Fluctuation-Dissipation relation.

Ming-Tzo Wei
Lehigh University

Date submitted: 20 Nov 2009 Electronic form version 1.4