

Abstract Submitted  
for the NWS12 Meeting of  
The American Physical Society

**Studying biomechanics at the single-molecule level with optical tweezers** NAGHMEH REZAEI, NANCY FORDE, ANDREW WIECZOREK, Simon Fraser University — Lasers have found significant roles in today's world. One of their applications is trapping microscopic objects, which has helped scientists to understand mechanical processes involved in protein and DNA mechanics, structure, and interaction kinetics. We use the optical trapping technique to study mechanical properties of short proteins that play a vital role in providing structural support for the body. Elastin and collagen are two important structural proteins: we study their mechanical response to an applied force, and try to understand how it relates to their biological roles. The goals are to reveal how changes chemical compositions at the molecular scale affect mechanical properties, and relate these to macroscopic changes that can lead to serious and sometimes lethal diseases.

Naghmeh Rezaei  
Simon Fraser University

Date submitted: 17 Sep 2012

Electronic form version 1.4