Northeastern University
College *of* Engineering

Special Seminar

"Mechanically-Tunable Materials Inspired from Nature"

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(Host: Prof. Shashi Murthy)

ABSTRACT

An understanding of the architecture and deformation behavior of natural materials, such as titin, collagen, nacre, and spider silk, gives clues to the unique interplay between structure, hierarchy, and function and influences the rational design of mechanically-enhanced materials. These bio-inspired design principles have motivated our exploration of several approaches to enhancing mechanical behavior. I will highlight recent developments in my group related to nature-inspired nanocomposites with self-assembling small molecule fillers, confinement-induced block copolymer in multilayered films, and hierarchical elastomers for energy absorption. Tunability in extensibility, toughness, and modulus as well as opportunities to impart additional functionality have been achieved through these strategic approaches.

BIOGRAPHY

LaShanda Korley is the Nord Distinguished Assistant Professor in the Department of Macromolecular Science and Engineering at Case Western Reserve University. She received her Ph.D. in Chemical Engineering from MIT in 2005 and entered the Case Western faculty in 2007 following postdoctoral training at Cornell University. She is the recipient of CAREER (2010) and BRIGE (2008) awards from the National Science Foundation. In 2011, she was selected as one of eighteen DuPont Young Professors.