MECHANICAL AND AEROSPACE ENGINEERING
COLLOQUIUM SERIES

"Role of Time-Scales in Modeling the Failure of Fibrous Materials: From Nanoseconds (10^{-9} s) in Police Body Armor to 200,000 Hours (10^{-9} s) in Composite Pressure Vessels"

Professor Leigh Phoenix
Sibley School of Mechanical and Aerospace Engineering
Cornell University

Friday, October 9, 2009
1:30PM
205 Thurston Hall
Refreshments: 2:30pm, 206 Thurston Hall

ABSTRACT

I will review the modeling work my students and I have been doing on understanding failure processes both in 'soft' police body armor and in composite overwrapped pressure vessels and other pressurized structures. These represent applications where the timescales of the failure processes differ by 18 orders of magnitude, yet the fibers used are often the same. Time scale issues are also important in developing good predictive computational models. I will review progress we have made in developing good predictive tools for the performance of these two types of structures and how these tools can lead to better design and manufacturing processes.