Physical Chemistry Seminar

Tuesday, April 14, 2009 | **11:00 a.m.** | **Room 1315 Chemistry Building**

Fundamental Mechanics Issues Addressing Several Challenges in Biology and Energy

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Mechanics has impacted all major technologies and it thrives whenever it participates in advancing new technology. In this talk, I will highlight several of my group's recent advances in applying mechanics to biology and energy. In the first half of the talk, I will show that the distinctive morphological patterns observed in quite a few kinds of fruits, vegetables, animals, tissues, and cells, can be explained by mechanical buckling principles. It is demonstrated that mechanics plays a simple yet vital role in morphogenesis, a topic which was once thought to be unexplainable by Charles Darwin. In the second half of the talk, I will present the recent progresses of using nanoporous materials and functional liquids for ultrahigh performance of energy absorption, harvesting, and actuation. The underlying nanofluidic mechanisms and the unique behaviors of liquid molecules in confined nanoenvironments are inspired from physical chemistry principles.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315

Graduate Students may meet with the speaker at 1:15 p.m. in Room 8305f