John L. Bassani

Richard H. and S. L. Gabel Professor
Mechanical Engineering and Applied Mechanics (MEAM)
Materials Science and Engineering (MSE)

Email

Honors and Awards: President of Society of Engineering Science - 2008, Presidential Young Investigator Award - 1984

Research Expertise: Biomechanics | Computational Mechanics | Mechanics of Materials

John applies his expertise in atomic-level properties of continuum mechanics in order to model mechanical and mechano-chemical behavior of nano-structured materials. His research group explores concepts to control the formation of patterned nanostructures in the solid state and investigates the interplay between mechanics and adhesion, with applications to MEMS/NEMS devices and living cells. John has developed models for elastic and inelastic behavior, and failure at the nanoscale, including interfaces and other complex defects in crystalline materials and thin films.

Member of:

- Laboratory for Research on the Structure of Matter (LRSM)
- Institute for Medicine and Engineering (IME)
- Center for Engineering Cells and Regeneration (CECR)
- Penn Center for Energy Innovation

Education:
PhD Engineering 1978 - Harvard University
MS Applied Mechanics 1975 - Lehigh University
BS Mechanical Engineering 1973 - Lehigh University

Recent Publications

- Guided aggregation of three-dimensional nanostructures in stressed thin films, Shi, Q. | Lou, Y. | Bassani, J.L., Modelling and Simulation in Materials Science and Engineering, 2012
- A phenomenological model for microstructural evolution during plastic flow, Bassani, J.L. | Pan, H., Comptes Rendus - Mecanique, 2012
- From non-planar dislocation cores to non-associated plasticity and strain bursts, Bassani, J.L. | Racherla, V., Progress in Materials Science, 2011
- Mechano-chemical coupling in shell adhesion, Springman, R.M. | Bassani, J.L., IUTAM Bookseries, 2010
- Effects of elastic interactions on the aggregation of nanostructures, Lou, Y. | Bassani, J.L., Acta Materialia, 2010

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