

PHYSICAL MATHEMATICS SEMINAR

Wrinkling, Crumpling and Snapping for Surface Property Control

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ABSTRACT:

Upon the development of a critical stress, many materials and geometries experience a mechanical instability, which produces significant changes in geometry with small changes in stress. In nature, mechanical instabilities are ubiquitous with the definition of shape, morphology, and function. Examples range from fingerprints to the snapping of Venus Flytrap. Inspired by these examples, we use elastic instabilities to control the morphology and function of soft polymer surfaces. We present our control of kinetically-trapped and equilibrium wrinkle and crumple morphologies and our success in using these structures to biomimetically control properties ranging from adhesion to optics. Additionally, new efforts to use these instabilities in the characterization of early tissue formation will be presented.

TUESDAY, SEPTEMBER 30, 2008

2:30 PM

Building 2, Room 105

*Refreshments at 3:30 PM in Building 2, Room 349
(Applied Math Common Room)*



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