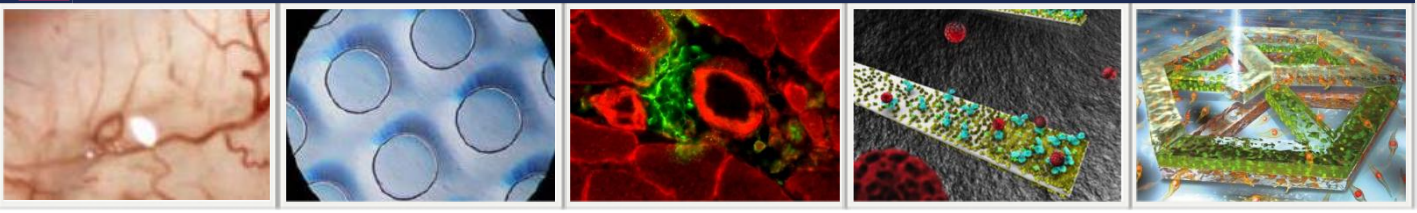
BioNanotechnology Seminar Series

Fall 2011



Deconvolving Stiffness in MEMS Pedestal Cell Mass Measurements

Elise Corbin, CMMB IGERT Trainee

Elise is a 5th Year PhD student in the Department of Mechanical Science and Engineering at the University of Illinois Urbana-Champaign

Date: **Tuesday, October 18, 2011**

Time: **12:00 – 12:30 p.m. CDT (10:00 – 10:30 a.m. PDT)**

Location: **1000 MNTL at Illinois (KL 361 at UC Merced)**

Abstract:

The complex relationships between a cell's behavior and the physical properties of both itself and its environment have long been of interest. Specifically, the understanding the mechanisms through which a cell's physical properties influence cell growth, cell differentiation, cell cycle progression, and apoptosis. The accuracy and versatility of measurement techniques play an integral part in investigating how a cell's physical properties influence its behavior. We developed an improved MEMS resonator sensor that can be used to directly measure the biophysical properties, mass, and growth rate of single adherent cells. However, our measurement technique offers a combination of complex elastic and viscoelastic dynamic properties of cells. Decoupling the relationship between the cell's dynamics and the apparent mass reported by the sensor is of utmost importance. Understanding this relationship will further empower the measurement technique, enabling even more prudent investigations that will benefit efforts in cancer diagnosis and treatment, biological accurate design, cell-to-cell interfacing, and tissue engineering, among others.

Seminar Presented by:

Center for Cellular Mechanics
University of Illinois at Urbana-Champaign

IGERT Integrative Graduate Education and Research Traineeship
Cellular and Molecular Mechanics and BioNanotechnology

M-CNTC NCI Alliance for Nanotechnology in Cancer
Midwest Cancer Nanotechnology Training Center

CNST University of Illinois Center for Nanoscale Science and Technology