

“The biomechanics of tumor growth”

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Abstract:

We are an experimental cell and tissue biomechanics laboratory focused on understanding the role of mechanics in disease initiation and progression. We are currently involved in studies utilizing *in vitro* models of tumor growth in order to probe the relationship between tumor cells and their biomechanical environment.

What forces do tumor cells produce and exert on their surroundings and how do they differ from healthy cells? We engineer 3D *in vitro* environments that mimic healthy and cancerous tissue. We measure the mechanical properties of the components of these environments as well as cells and tissues using various methods such as indentation and compression testing. Observing cellular behavior in these environments provides us a window into the biomechanical functioning of the disease.

<http://homepages.rpi.edu/~millsk2/index.html>

Bio:

Education

2008 Ph.D., University of Michigan, Mechanical Engineering

1999 B.S., University of California, San Diego, Mechanical Engineering

Awards

2009 Alexander von Humboldt Foundation, Research Fellowship for Postdoctoral Researchers

2002 National Science Foundation, Graduate Research Fellowship

Experience

2015-Present Assistant Professor, MANE, Rensselaer Polytechnic Institute

2008-2014 Postdoctoral Researcher, Department of New Materials and Biosystems, Max Planck Institute for Intelligent Systems

2010-2014 Lecturer, Advanced Materials Program, University of Ulm