

Chemical and Biological Engineering Graduate Research Symposium

Wednesday, October 21, 2009

UB North Campus

Keynote Lecture

Professor David A. Putnam

Chemical and Biomolecular Engineering, Cornell University

Design and synthesis of functional biomaterials and vaccine delivery vessels

The Putnam laboratory's research interests focus on the application of chemical, biological and engineering principles to solve problems in medicine, particularly drug delivery. We focus our efforts in three areas. First, we work to synthesize new biomaterials derived from structures represented in natural human metabolic pathways, and attempt to understand how their molecular compositions provide functionality to the biomaterials. Second, we work to engineer new ways to entice bacteria to express, correctly fold and stabilize non-native proteins, particularly for the formulation and delivery of antigenic sequences for vaccines. Third, we work to understand how the molecular composition and architecture of water-soluble polymers collectively function to transfer nucleic acids (i.e., plasmid DNA, siRNA, microRNA) from the bloodstream to cells. This seminar will encompass two areas, showing our current work in the design and synthesis of surgical biomaterials for the treatment of postoperative seroma, and in the engineering of *E. coli* to enhance the immunogenicity of poorly antigenic proteins.

330 Student Union

1:00 - 2:00 p.m.

Graduate Student Poster Session

Graduate students in the UB Department of Chemical and Biological Engineering will present their research on topics spanning the fields of bioengineering, nanoscale materials science and engineering, and molecular and multiscale modeling.

Atrium, Center for the Arts

2:30 - 4:30 p.m.

Sponsorship from the following organizations is gratefully acknowledged:

UB Department of Chemical and Biological Engineering, www.cbe.buffalo.edu

UB Graduate Student Association, www.gsa.buffalo.edu

UB Chemical and Biological Engineering-GSA, UB Pharmaceuticals-GSA, and UB Taiwanese-GSA



University at Buffalo

State University of New York

School of Engineering and Applied Sciences

2009 Chemical and Biological Engineering Graduate Research Symposium

Graduate Student Poster Presentations

1st floor, Center of Arts, UB North Campus

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Presenting research on:

▣ Bioengineering

- Cell Adhesion
- Cell and Tissue Bioengineering
- Gene Therapy
- Protein Engineering
- Transport Processes in Biological Systems

▣ Molecular and Multiscale Modeling

- Applied Computational Quantum Chemistry
- Surface Thermodynamics
- Property Estimation and Prediction
- Diffusion in Metals

▣ Nanoscale Materials Science and Engineering

- Advanced Power Sources
- Controlled Crystallization
- Heterogeneous Catalysis
- Nanoparticle Modeling, Synthesis and Characterization
- Polymers for Drug Delivery
- Self-Assembly

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