Integrating Nanotechnology with Cell Biology and Neuroscience

INCBN IGERT Seminar

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Speaker:

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Polymer-Based Biomimetic Membranes on Solid Supports

The ability for model systems of cellular membranes to mimic complex natural functions is of great interest to both biomaterials and biophysics. Specifically, there is need for membrane-based architectures that allow and stabilize the in vivo activity of imbedded molecular components. While this field traditionally utilizes lipid molecules to create such membrane-based architectures, recent progress has been made in synthesis and creation of polymer assemblies that improve on several materials science aspects of biomimetic membranes. Among the advantages polymers provide are high mechanical stability, chemical stability, and the ability for dynamic behavior through incorporation of responsive moieties. In addition, the use of polymers allows for tuning of properties such as membrane thickness and lateral diffusivity through simple variation of molecular weight. Our group is specifically interested in the creation and characterization of polymer membranes on solid supports. I will discuss recent efforts in our lab to create and characterize poly(ethylene oxide)-block-poly(butadiene)(PEO-b-PBD) copolymer membranes.