UNIVERSITY OF CONNECTICUT

INSTITUTE OF MATERIALS SCIENCE

POLYMER PROGRAM SEMINAR

"Biological Mechanisms at Responsive Material Surfaces"

Prof. Maria Santore
University of Massachusetts, Amherst

Friday, March 3, 2017
11:00 AM, IMS Room 20

ABSTRACT

Research in the Santore lab focuses on surfaces that have controlled interactions and tuned dynamic response, especially to mechanical triggers. This talk will present two projects: The first addresses microstructure in phospholipid and polymer membranes, while the second focuses on bacterial interactions with polymeric and gel surfaces. In both cases, the underlying molecular interactions and structure are essential to morphology and macroscopic performance. In the membranes project we demonstrate how solid polymorphism in phospholipid membranes gives rise to a tension-sensitivity that directs gross morphological features in giant unilamellar vesicles. We demonstrate how tension can be manipulated to dictate the form of membrane-integrated solid domains and the length scales and connectivities spanned by patterns in these phase separated lamellae. In a second project involving solid surfaces treated with a polyethylene glycol brush or gel coating, preventing adhesive bacterial accumulation, we demonstrate that dynamic bacterial interactions and motion signatures in flow signal results from weak reversible interactions with polymer chains and may be sensitive to interfacial mechanics of the polymer surfaces.

**For further information, please contact YoungHee Chudy at younghee.chudy@uconn.edu* or 860 486 3582.

IMS INSTITUTE OF MATERIALS SCIENCE