UNIVERSITY OF CONNECTICUT

INSTITUTE OF MATERIALS SCIENCE

POLYMER PROGRAM SEMINAR

"Photoresponsive Layer-by-Layer Films"

Prof. Samuel W. Thomas
Tufts University

Friday, March 24, 2017
11:00 AM, IMS Room 20

ABSTRACT

This talk will describe layer-by-layer photoresponsive polyelectrolyte multilayer films that become soluble upon irradiation with visible or ultraviolet light due to photolysis of photolabile side-chains. Irradiation with the appropriate wavelength of light cleaves the side chains from the polymer backbones resulting in increased hydrophilicity and reduced electrostatic attraction of cationic and anionic layers, causing their dissolution in aqueous solutions. By combining up to four different photocleavable groups, we have demonstrated multi-height photopatterning and sequential, wavelength-selective release of guests. Incorporation of photocleavable groups with good two-photon cross-sections enables film dissolution with near infrared light. Stimuli-responsive, free-standing polyelectrolyte multilayer films can also be fabricated using this general approach.

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