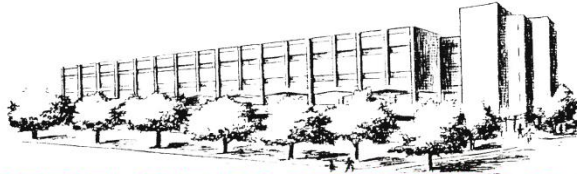


UNIVERSITY OF CONNECTICUT



**INSTITUTE OF MATERIALS SCIENCE**

## **POLYMER PROGRAM SEMINAR**

### **Folding gels and shells: Designing reconfigurable 3D shapes and ‘mechanical meta-materials’**

**Prof. Ryan Hayward**  
**University of Massachusetts, Amherst**

**Friday, February 13, 2015**  
**11:00 AM, IMS Room 20**

Thin elastic plates and shells subjected to compressive stress can undergo a wide variety of geometry-dependent mechanical shape instabilities. Our group seeks to take advantage of these phenomena, in combination with new approaches in materials chemistry to develop systems with tailored and reconfigurable 3D shapes and properties. In particular, we have studied the use of photo-crosslinkable polymer films to prepare polymer sheets and multilayers containing stimuli-responsive hydrogel elements. This approach provides access to both smoothly curved plates with programmed Gaussian curvature, and sharply folded films suitable for reversibly self-folding micro-scale origami. The folding of curved surfaces is largely unexplored, but our initial investigations have revealed simple geometric principles for designing bistable structures connected by rapid snap-buckling transitions.

*\*For further information, please contact YH Chudy [yhchudy@ims.uconn.edu](mailto:yhchudy@ims.uconn.edu)*

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