

**SPECIAL
SEMINAR**

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materials science at the interface

Tailoring Bulk and Interfacial Properties of Polymer Systems Through the Molecular Weight Distribution

Wednesday, October 5th, 2022 | 4:30 to 5:45 pm
Pierce Hall, Room 209 (29 Oxford Street, Cambridge)

The dispersity, or breadth in the molecular weight distribution, is an inherent feature of synthetic polymer systems. Typically treated as an unfortunate consequence of polymer synthesis, here I will discuss how polymer dispersity can be tuned to generate novel function in bulk and interfacial properties. In bulk systems, I will show that both the shear and extensional rheology of mixtures of colloids and non-adsorbing polymers, a common model system for feedstocks for 3-D printing and coating, depend on the polymer dispersity. In interfacial systems, I will show how shaping the molecular weight distribution of surface-grafted polymer brushes can modulate both brush structure and stimulus response. Thus, molecular weight distributions represent an intriguing route for tailoring polymer properties.

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