

THE MATERIALS SCIENCE AND ENGINEERING DEPARTMENT
FALL COLLOQUIUM SERIES PRESENTS:

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Tailoring Elastomers through Metal-Ligand Interactions

Metal-ligand coordination interactions are a highly tunable class of bonds consisting of negatively charged or polar ligands bound to metal cations at the coordination center. When these ligands are covalently incorporated as part of an elastomer structure, they can be used to enable highly tunable elastomers. In this seminar I'll first present an overview of this exciting field and then talk through some examples from my own group's work. We have been on working enabling time dependent mechanical properties, surface energy modulation, and ionic conductivity, through metal-ligand interactions in polymers. The focus of the presentation will be on design and experimental characterization of model systems to understand composition-structure-function relationships, with support from continuum theory, molecular dynamics simulations, and density functional theory as pertinent.

Meredith Silberstein is an Associate Professor in the Sibley School of Mechanical & Aerospace Engineering at Cornell University and Director of the Engineered Living Materials Institute. She received her PhD in June 2011 from the MIT Department of Mechanical Engineering. Afterward, she served as a postdoctoral fellow at the Beckman Institute at the University of Illinois Urbana-Champaign. She has received the NSF CAREER (2017), DOE CAREER (2018), and DARPA young investigator (2020) awards. Meredith Silberstein's Mechanics for Materials Design Lab is devoted to using mechanical experiments and modeling methods in material design, with particular focus on multifunctional, active, and polymeric materials.

Tuesday, November 15 • 4 pm CT • Tech L211

In person only; no Zoom

Questions? Contact allison.macknick@northwestern.edu and megan.ray@northwestern.edu