

**UTILIZING CONCEPTS OF MECHANICS, TRANSPORT, AND ASSEMBLY IN NATURE –
TOWARDS RESPONSIVE MATERIALS**

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Abstract: Natural materials, such as spider silk, wood, and seed pods, are excellent models for the design of polymeric systems that respond to complex and interacting environments, and that exhibit controlled and modular mechanical behavior under low energy conditions and with a limited set of chemical building blocks. These bio-inspired strategies provide a rich landscape for innovation, mentorship, and outreach via multidisciplinary, collaborative team science.

Bio: Prof. LaShanda T. J. Korley is a Distinguished Professor of Engineering in the Departments of Materials Science & Engineering and Chemical & Biomolecular Engineering at the University of Delaware (UD). Her innovative research program utilizes a bioeconomy framework or the nexus of biologically-inspired and sustainable principles for the molecular design and manufacture of functional polymeric systems, including thermoplastics, networks, composites, and gels. Prof. Korley is the Director of the Energy Frontier Research Center – [Center for Plastics Innovation \(CPI\)](#) funded by the Department of Energy and also the Co-Director of the Materials Research Science and Center – [UD Center for Hybrid, Active, and Responsive Materials \(UD CHARM\)](#). She also is the Principal Investigator for the National Science Foundation Partnerships for International Research and Education ([PIRE](#)): [Bio-inspired Materials and Systems](#) and the Associate Director of the [Center for Research in Soft matter & Polymers \(CRiSP\)](#) at the University of Delaware.

She received a B.S. in both Chemistry & Engineering from Clark Atlanta University as well as a B.S. in Chemical Engineering from the Georgia Institute of Technology in 1999. Prof. Korley completed her doctoral studies at MIT in Chemical Engineering and the Program in Polymer Science and Technology in 2005, and she was the recipient of the Provost's Academic Diversity Postdoctoral Fellowship at Cornell University in 2005. Prof. Korley is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), American Physical Society (APS), the American Chemical Society (ACS) Polymer Chemistry (POLY) Division, the ACS Polymeric Materials: Science and Engineering (PMSE) Division, ACS, the Royal Society of Chemistry, and the American Institute of Chemical Engineers (AIChE). She also was awarded the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Lloyd N. Ferguson Young Scientist Award for Excellence in Research, the AIChE Minority Affairs Community (MAC) Gerry Lessells Award, and the AIChE MAC William W. Grimes Award for Excellence in Chemical Engineering. Most recently, Prof. Korley was appointed a U.S. Science Envoy by the U.S. State Department.