WESTERN MICHIGAN UNIVERSITY

The Department of Chemistry Presents:

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"Sequence Defined Folding: Peptoids Big and Small"

Sequence-defined polymers offer many opportunities to design functional and biomimetic materials. Peptoids are one example using N-substituted glycine polymers that provide a diverse monomer library with a reliable sub-monomer synthesis method. Their stability and accessible synthesis are a great combination for undergraduate research. However, peptoids have high conformational flexibility which presents a challenge for their broader applications. Predicting folding and assembly of complex chains from sequence alone remains particularly challenging. In the Tresca lab, we apply physical organic chemistry to study peptoid folding and self-assembly with both small molecules and macromolecules. Beginning with a research methods course, students integrate computations, synthesis, and spectroscopy to expand the dataset of peptoid structures in solution. At the macroscale, peptoids with diacetylene monomers form electroactive, biocompatible nanosheets through self-assembly and UV-crosslinking. We aim to study the mechanism of peptoid nanostructure assembly using structure-activity relationships with diacetylene monomers.

Monday, November 16, 2026 @ 4 PM
1260 Chemistry Building