

Abstract Submitted  
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**Sequence Dependent Peptide Self-Assembly and Beta-Sheet Fibrils as Templates for Inorganic Material** MATTHEW LAMM, DARRIN POCHAN, Materials Science and Engineering, JOEL SCHNEIDER, Chemistry and Biochemistry, University of Delaware — Synthetic peptides have been designed to self-assemble into beta-sheet fibrils of varying morphology depending on the peptide sequence. Incorporation of a diproline sequence between two beta-sheet forming strands is used to affect peptide conformation and thus the self-assembly mechanism and resulting fibrillar morphology (e.g. twisted vs. untwisted). Peptide length, proline stereochemistry, diproline sequence position, and assembly kinetics are shown to significantly affect fibril morphology. Furthermore, fibrils of varying morphology are employed as templates for inorganic material such as amorphous silica. In addition, metal nanoparticles were synthesized and functionalized to interact with the fibrils resulting in laterally spaced, linear particle arrays.

Matthew Lamm  
Materials Science and Engineering, University of Delaware

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