Department of
Biomedical Engineering
UNIVERSITY OF WISCONSIN–MADISON

**Spring 2019 Seminar Series**

# Supramolecular Materials and their use in Musculoskeletal Regeneration and Cartilage Repair


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Supramolecular systems are ideally suited for regenerative therapies because they are reversible, dynamic, and can be applied non-invasively and self-assemble in situ. Highly-organized structures created through self-assembly are similar in size and morphology to biological fibers, providing an easily recognized scaffold to surrounding cells. Peptide-amphiphile-based self-assembled scaffolds are highly tunable in chemistry and structure, providing a platform to control both supramolecular assembly and cellular recognition. Taking advantage of their unique properties, these materials are engineered to improve regeneration in several musculoskeletal tissues. In a collaborative project, the capacity of supramolecular materials designed at Northwestern University to promote cartilage repair was studied in large animal models at the University of Wisconsin School of Veterinary Medicine.

## ABOUT the SPEAKER

*Jacob Lewis is a PhD candidate in the Biomedical Engineering Department at Northwestern University advised by Professor Samuel Stupp, focusing on supramolecular materials for musculoskeletal regeneration. Jacob received his bachelor's degree from the University of California Berkeley in Bioengineering and Materials Science and Engineering. Following his undergraduate work, he completed a Whitaker Fellowship at the Technion-Israel Institute of Technology. Jacob is a recipient of the National Science Foundation Graduate Research Fellowship.*

**BME Midwest Speaker Exchange**

**Monday, March 4, 2019**
**12 PM in Tong Auditorium (1003 Engineering Centers)**