
SIBLEY SCHOOL OF MECHANICAL AND AEROSPACE ENGINEERING

COLLOQUIUM SERIES

"Intervertebral Disc Biomechanics with Swelling and Injury"



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Tuesday, Sept. 19, 2017, 4:00 pm | B11 Kimball Hall
Refreshments at 3:30, 116 Upson Hall

ABSTRACT

The musculoskeletal system is comprised of large load bearing soft tissues that absorb and distribute the complex loads placed on the joint. Degeneration of these tissues, including articular cartilage and the intervertebral disc of the spine, is the leading cause of disability in Americans, contributing to over \$130 billion in medical costs. These tissues have limited ability to self-heal, and current treatment options, including total joint replacement with a device comprised of metal and plastic components, significantly alters the loading environment. This talk will focus on recent advances in understanding disc biomechanics with hydration and injury. Furthermore, I will discuss recent advances in large-scale development of biological treatment options through cartilage tissue engineering.

BIOGRAPHICAL SKETCH

Dr. Grace D. O'Connell is an Assistant Professor in the Department of Mechanical Engineering at the University of California, Berkeley. She is the co-director of the Berkeley Biomechanics Laboratory. Her research interests are in soft tissue mechanobiology and tissue engineering. Particularly, O'Connell's research group is evaluating the effects of injury and repair of articular cartilage and intervertebral disc. Before joining UC Berkeley, O'Connell conducted postdoctoral research in cartilage tissue engineering with Dr. Clark Hung at the University of Columbia. O'Connell received her Ph.D. in Bioengineering at the University of Pennsylvania, where her research focused on intervertebral disc biomechanics with age, degeneration, and injury. She was awarded the 2017 ACS Polymeric Materials: Science and Engineering (PMSE) Young Investigator Award, and is a Signatures Fellow for Innovation.