

# PAGE MORTON HUNTER DISTINGUISHED SEMINAR SERIES



## INFLAMMATION AND MECHANOBIOLOGY IN INTERVERTEBRAL DISC DEGENERATION

My research focuses on degeneration and regeneration of the intervertebral disc in the spine. Using tools of bioengineering, we study the biomechanics and mechanobiology of cells and tissues, with emphasis inflammatory-induced disc degeneration. In this presentation, I will present our latest studies on (a) animal models of disc degeneration induced by disc activation of innate immunity, (b) role of innate immune signaling in mediating response of the disc to loading, and (c) multiscale studies on how inflammation alters the biomechanical properties and mechano-sensitivity of disc cells, leading to alterations in cell mechanobiology. Overall, these studies advance the understanding of disc disease, which is a major contributor to low back pain, a leading cause of disability worldwide.

### Nadeen Chahine, Ph.D.



*Associate Professor in the Department  
of Orthopedic Surgery at Columbia  
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Dr. Chahine is an Associate Professor in the Department of Orthopedic Surgery at Columbia University in New York City, and has faculty affiliations with the Columbia's Department of Biomedical Engineering, Cellular and Molecular Physiology & Biophysics program and the Columbia Stem Cell Initiative. She directs a multidisciplinary research lab and serves as the Associate Director of the Carroll Laboratories for Orthopedic Surgery at Columbia University Medical Center. Dr. Chahine holds a bachelor's degree in biomedical engineering from Boston University. She completed her graduate studies at Columbia University, and is one of the early graduates of the Biomedical Engineering PhD program. Dr. Chahine completed her post-doctoral training as an Ernest Lawrence Fellow at Lawrence Livermore National Laboratory in California, where she trained in micro and nanotechnology. She started her faculty career at the Feinstein Institute for Medical Research and Hofstra Northwell School of Medicine, and she joined the faculty at Columbia University in 2017. She is past chair of the Cell and Molecular Bioengineering Council (CMBE) of the Biomedical Engineering Society (BMES), past chair of the Orthopedic Research Society (ORS) Spine Section, and is currently serving as a standing member on the NIH's Skeletal Biology and Skeletal Regeneration (SBSR) study section.

June 24, 2021 • 3:30 p.m.

Virtual seminar

<https://clemsont.zoom.us/j/96106996984>



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