The Mechanics Seminar Series
The UW-Madison Mechanics Group

Jenn Stroud Rossmann
Professor
Department of
Mechanical Engineering
Lafayette College

“Modeling biological flows in diseased vessels”

The integrated application of fluid mechanics, rheology, and soft matter principles in biological systems plays an increasingly important role in understanding fundamental mechanisms of mechanobiology, providing physical insights, and supporting clinical diagnostic and treatment decision-making. This talk will consider three flows of particular interest: the carotid artery bifurcation, which is highly vulnerable to atherosclerosis; the renal artery, where dynamic smooth muscle structures can be atheroprotective; and the respiratory airways of the asthmatic lungs, in which mucus and constriction complicate both breathing and treatment. The design of computational models must be optimized to maximize physiological relevance and to minimize computational expense in order for modeling to be integrated into clinical workflows. What does it mean to “validate” a model or experiment for flows for which little in vivo data is available?

Bio: Jenn Stroud Rossmann is a professor of mechanical engineering at Lafayette College. She was educated at the University of California, Berkeley, and was formerly a faculty member at Harvey Mudd College. Her research interests include cardiovascular and respiratory fluid mechanics, the cultural history of technology, and interdisciplinary pedagogies. She co-authored an innovative textbook, Introduction to Engineering Mechanics: A Continuum Approach (CRC Press, Second Edition, 2015). Her short fiction has been published in a range of magazines, and her novel The Place You’re Supposed to Laugh was published in 2018.

Friday November 15th, 2019
11:00-11:50
1106 Mechanical Engineering

http://mechanics.wisc.edu/