

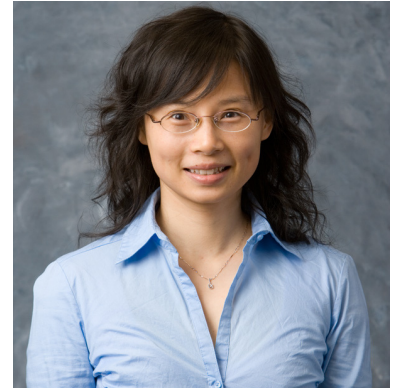
# Sibley School Research Seminar Series

## Understanding Soft Materials via Multi-scale Modeling

### Tian Tang

Professor, Department of Mechanical Engineering  
University of Alberta

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**Tuesday, Sept 29 at 1:50–2:40 pm | Held via Zoom**

#### Abstract

Soft materials are ubiquitous, and they govern many phenomena in life science and engineering applications. Numerous soft materials are being designed to provide solutions in a variety of fields, such as to achieve targeted interactions in pharmaceuticals, enable flexible robotics and electronics, and facilitate human-machine interfacing. Behaviors of these materials are complex, determined by both interactions among the constituting molecules at the microscopic scale, and collective behaviors of those molecules that render macroscopic properties and functions. Multi-scale modeling is a powerful tool to understand the behavior of soft materials, and in turn generate guiding principles in their designs. This talk will present a few examples from our group where we study soft materials using modeling strategies ranging from molecular to continuum scales, including: nucleic acid binding polymers in therapeutic applications, and tough dissipative multi-network elastomers.

#### Biography

Dr. Tang is a Professor of Mechanical Engineering at the University of Alberta. She received her Bachelor's degree in Engineering Mechanics from Tsinghua University (2001) and PhD in Theoretical and Applied Mechanics from Cornell University (2005). She worked as a Visiting Research Scientist in the Chemical Engineering Department at Lehigh University before joining the University of Alberta where she has been an Assistant Professor (2007-2011), Associate Professor (2011-2015), and Professor (2015-present). Dr. Tang's research interests lie in the mathematical modeling and numerical simulation of soft materials and interfaces. She has published over 100 journal articles and is a recipient of many awards, including a Tier 2 Canada Research Chair (2007-2018), the Adhesion Society's Outstanding Young Adhesion Scientist Award (2009), and the Martha Cook Piper Research Prize (2014). Dr. Tang's passion for teaching started when she was a teaching assistant at Cornell University, and her accomplishment has been recognized by the Rutherford Award for Excellence in Undergraduate Teaching (2020). Besides her academic work, Dr. Tang proudly serves as the Academic Co-Chair of WISEST (Women in Scholarship, Engineering, Science and Technology), an organization that empowers young girls (grades 6-12) in STEM fields by providing programs, outreach and mentorship.

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