

# DEPARTMENT OF MECHANICAL ENGINEERING

## WILLIAM MAXWELL REED SEMINAR SERIES

### “Design and 3D Printing of Hydrogels for Engineering Artificial Vascular Tissues”

Yonghui Ding, Ph.D.

University of Colorado - Boulder

**Abstract:** Vascular mimics based on advanced hydrogels and 3D-printing technologies show great promise for replacement of damaged tissues and organs, *ex vivo* drug testing, and *in vitro* disease modeling. These technologies allow for precise control of extracellular microenvironments, which permit the construction of more clinically relevant tissue models *in vitro*. Here, I will highlight our recent advancements in the design and manufacturing of hydrogels for engineering vascular tissue models. Specifically, I will show i) design of novel photo-click hydrogels for creating normal or diseased vascular tissues; ii) development of a new 3D-printing technology for control of micron-level mechanical properties of 3D artificial tissues; and iii) my future plans for development of 3D-printed, mechanically and structurally precise Disease-on-a-Chip systems.

**Bio:** Dr. Yonghui Ding is currently a postdoctoral scholar at the University of Colorado Boulder. He earned his doctoral degree in Mechanical Engineering in 2014 and master degree in Biomedical Engineering in 2011 from the Hong Kong University of Science and Technology, Hong Kong. His research interests lie at the interface of materials science, manufacturing technologies, and tissue engineering. His doctoral research focused on topographic patterning and chemical functionalization of vascular stents. During his postdoctoral training, he leverages advanced photo-click hydrogels and 3D-printing technologies to develop clinically relevant normal and diseased vascular tissue models. He has also been looking to expand his skills as a professional STEM educator. He received “Best Teaching Assistant Award” in 2012 and attained CIRTLL Associate through the Evidence-Based Introduction to Teaching program in 2017.

**Date:** Friday, Feb. 1<sup>st</sup>

**Place:** CB 118

**Time:** 3PM

**Contact:** Dr. Alexandre Martin 257-4462

Meet the speaker and have refreshments

Attendance open to all interested persons