4th KU MSE-KKS-CBE-ME-EE Joint Symposium on Advanced Materials & Device

Innovating biomaterials design to empower early disease detection and prevention

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10:00 AM, January 24th (Wednesday), 2024
Webinar via Zoom (ID: 842 3245 1250, PASSWORD: tSW8fcxzEw)

Abstract:
Infections are a significant risk to patients who receive medical implants, and can often lead to implant failure, tissue necrosis, and even amputation. So far, although various surface modification approaches have been proposed for prevention and treatment of microbial biofilms on indwelling medical devices, most are too expensive/complicated to fabricate, unscalable, or limited in durability for clinical use. In this talk, I will present two research projects that showcase biomaterial engineering efforts towards personalized medicine: (i) nature-inspired nano-patterned coatings with dynamic topography for long-term antibacterial effects; and (ii) bioanalytical sensing for early detection of sepsis in point-of-care settings. These studies highlight the potential of integrating chemical and material engineering with clinical science to develop advanced diagnostics and therapeutics, ultimately improving patient care and outcomes

Biography:

1. Education and Training

2006-2010 **B.S.** Chemical and Biomolecular Engineering, Cornell University, Ithaca NY.

2010-2016 **Ph.D.**, Chemical Engineering, MIT, Cambridge MA.
Advisors: Dr. Paula Hammond & Dr. Richard Braatz
Dissertation: Nanolayer multi-agent scaled delivery from implant surface.

2016-2020 **Postdoctoral Fellow**, Center for Systems Biology, Harvard Medical School/MGH
Advisors: Dr. Ralph Weissleder & Dr. Hakho Lee

2. Positions

2021-present Assistant Professor, Department of Chemical Engineering, Univ. of Michigan

2020-2021 Head Scientist, Aikili Biosystems Inc. Cambridge, MA

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