QUANTITATIVE AND SYSTEMS BIOLOGY COLLOQUIUM: Emerging Biotechnology for Health and Biosecurity at Berkeley Lab

Focus on Agnostic Preparedness to Combat Emerging Threats

Harshini Mukundan

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Date:
4/3/2025

Time:
10:30 AM - 11:45 AM

Location:
COB 1 114

About the Speaker:

Harshini Mukndan leads the chemical and biological technologies program portfolio at Lawrence Berkeley, and is a senior scientist and department chair in the Biosciences Division. Before joining LBL, Harshi was group leader for physical chemistry and applied spectroscopy at the Los Alamos National Laboratory, and led the development of diagnostics and surveillance technologies in the interest of National security. In this capacity, she has worked with several agencies such as the Department of Homeland Security, Defense Threat Reduction Agency, Defense Advanced Research Projects Agency, National Institutes of Health, United States Department of Agriculture, Nuclear and Nonproliferation Security Administration and others. She has published > 100 manuscripts, and is an inventor on 8 provisional and issued patents. Her technologies have received three R&D 100 awards, including a gold award for corporate social responsibility. Harshi is a AAAS Fellow, an IF/THEN Ambassador, and was recognized as a woman in technology (New Mexico Tech Council) and has received several other awards.

Abstract:

COVID-19 pandemic emphasized the need for broad, platform technologies that can improve situational awareness and responsiveness to an outbreak. In this presentation, I will discuss our efforts to use innate immunity as a model system in order to design universal diagnostics and countermeasures for new and emerging pathogens. Specifically, the development of agnostic hyperspectral diagnostics to expedite response to outbreaks will be discussed. The goal of this visit is also to explore broader synergies between UC Merced and LBNL. Do this end, I will also discuss core capabilities in bioscience at Berkeley Lab and provide snapshots of how they are being applied to advance the state of the art in bio preparedness and response to emerging threats. Programs in waste water surveillance, broad therapeutic characterization, adjuvants and antimicrobial resistance will be briefly described.

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