JAMES MADISON UNIVERSITY

SEMINAR
Friday, October 3, 2025

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Analytical chemistry in biomedicine— liver modeling, cell metabolome regulations, and wearable sensors

Abstract: Microfluidic-based physiological systems have become essential tools for investigating disease mechanisms, drug screening, and toxicity assessment. Our lab has contributed to the field by integrating 3D printing with microfabrication to create next-generation devices. In this presentation, I will highlight a liver model capable of accurately replicating in vivo drug metabolism and clearance. In related biochemical studies, LC-MS analyses revealed that extracellular matrix microstructures play a critical role in shaping hepatic metabolome networks, offering new perspectives on fibrotic liver disease. Beyond organ models, our group has also developed wearable biochemical sensors for sweat-based health monitoring, establishing innovative platforms for both ion and molecular detection. Collectively, these studies demonstrate how analytical chemistry can drive biomedical innovation, with translational applications spanning disease modeling to personalized health monitoring.

Meet the Speaker **2:00 pm, PCB 3144**
Seminar **3:30 pm, King 159**