

**MATERIALS SCIENCE AND ENGINEERING (MS&E) SEMINAR SERIES**

Friday, November 13, 2020 at 3:00 pm via Zoom

[https://wvu.qualtrics.com/jfe/form/SV\\_80QQi6E8CUXmzwF](https://wvu.qualtrics.com/jfe/form/SV_80QQi6E8CUXmzwF)**“Microscale tools for improving chemical and biological analyses”****Dr. Peng Li**, Assistant Professor, West Virginia University, Department of Chemistry

**Abstract:** Obtaining qualitative and quantitative information from target samples is essential to a wide range of applications including environmental monitoring, medical diagnosis, food safety, forensics, and public safety. Novel analytical methods with improved sensitivity, specificity, scalability, and accessibility are urgently needed to meet the current and future challenges in these applications. This talk will discuss our recent efforts to use microfluidic approaches and acoustics to develop novel analytical methods that achieved improved performance over existing methods. Methods will be discussed in the presentation: 1) Vibrating sharp-edge spray ionization, a highly versatile ionization source for mass spectrometry; 2) One-step measurement of enzyme kinetics with 3D printed microfluidics; 3) A miniaturized continuous flow enzyme linked immunosorbent assay (ELISA) for detecting inflammatory biomarkers; 4) Composible microfluidic plates (cPlate) for scalable multiplex ELISA.

**Bio:** From 2016 till present, Assistant Professor, at West Virginia University, Department of Chemistry. Research Manager, The Pennsylvania State University Department of engineering science and mechanics, from 2014-2016. Postdoctoral Fellow 2021-2014 at The Pennsylvania State University Department of engineering science and mechanics.

**Education:** 2008–2012 Texas Tech University, Doctor of Philosophy in Chemistry Major Field: Microfluidic devices and Microfabrication, Thesis: Development of Microfluidic Devices for Cell Analysis. 2004– 2008 Tianjin University, Bachelor of Science in Pharmaceutical Science

**Research Support,** Don and Linda Brodie Resource Fund for Innovation, “Development of Portable Rapid Blood Sample Preparation Device for Biomarker Detection”, \$35,000, June 2017 – June 2018. PI. NIH/NIGMS(R01GM135432), “Development of VSSI-probe technology for *in situ* probing biological systems using mass spectrometry.”, \$1,697,775, 09/20/2019-09/01/2024. PI. NSF-CHE2004021, “CAS Acoustically Driven, Voltage-Free Spray Interface to Couple Capillary Electrophoresis and Mass Spectrometry”, \$384,103, 08/15/2020-07/31/2023. Co-Investigator

***MS&E Seminar Series is sponsored by the Department of Chemical Engineering, Lane Department of Computer Science and Electrical Engineering, and Department of Mechanical & Aerospace Engineering.***