

Title: Microscale tools for improving chemical and biological analyses

Speaker: Peng Li

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) A high performance droplet generator for multi-volume digital PCR; 3) Composable microfluidic plates (cPlate) for scalable multiplex ELISA.