

学术报告

题目: Plasmon-Enhanced Fluorescence and Surface-Enhanced Raman Scattering Biosensors for Point-of-Care Applications

报告人: Prof. Nianqiang Wu (West Virginia University)

时间: 2015年07月08日 (周三) 下午2:30

地点: 中科院固体所大楼221会议室

报告摘要:

This presentation will first introduce the concept of surface plasmon resonance (SPR) and then demonstrate the tuning of SPR. Based on the SPR principle, the pH and mercury sensors are developed using the Au nanoparticles. The speech will discuss the nanoscale energy transfer between semiconducting quantum dots (QDs) and gold nanoparticles, and examine the influence of SPR on the fluorescence emission of quantum dots. Following the research results, an ultra-sensitive mercury biosensor is then demonstrated with a QD-DNA-Au ensemble via nano-metal surface energy transfer. In addition, the talk will deal with the effects of SPR on the surface-enhanced Raman scattering (SERS) in the Au@Raman reporter@silica sandwich nanoparticles. The presentation will also show the effort to integrate nanosensors with a microfluidic chips to form lab-on-chip devices as point-of-care devices for medical diagnosis and environmental monitoring.

报告人简介:

Dr. Nianqiang (Nick) Wu is currently Professor of Materials Science in Department of Mechanical & Aerospace Engineering at West Virginia University (WVU), USA. He received his Ph.D. in Zhejiang University in 1997. He was a Postdoctoral Research Fellow at University of Pittsburgh from 1999 to 2001. Afterwards he directed Keck Surface Science Center at Northwestern University in USA in 2001-2005. He then joined



WVU in 2005. He has published 1 book entitled “Biosensors Based on Nanomaterials and Nanodevices”, 3 book chapters, 134 peer-reviewed papers in journals such as *Nature Photonics*, *Nature Communication*, *Journal of the American Chemical Society*, *Analytical Chemistry* and etc.. 20 of his papers are ranked among the top 1% most cited in their subject fields (Thomson Reuters 2015). His papers were cited about 1200 times in the first six months in 2015 with a total citation count of >7400 times.