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Nanoplasmonics: From Surface-Enhanced Raman Spectroscopy to Nanophotonic Circuits

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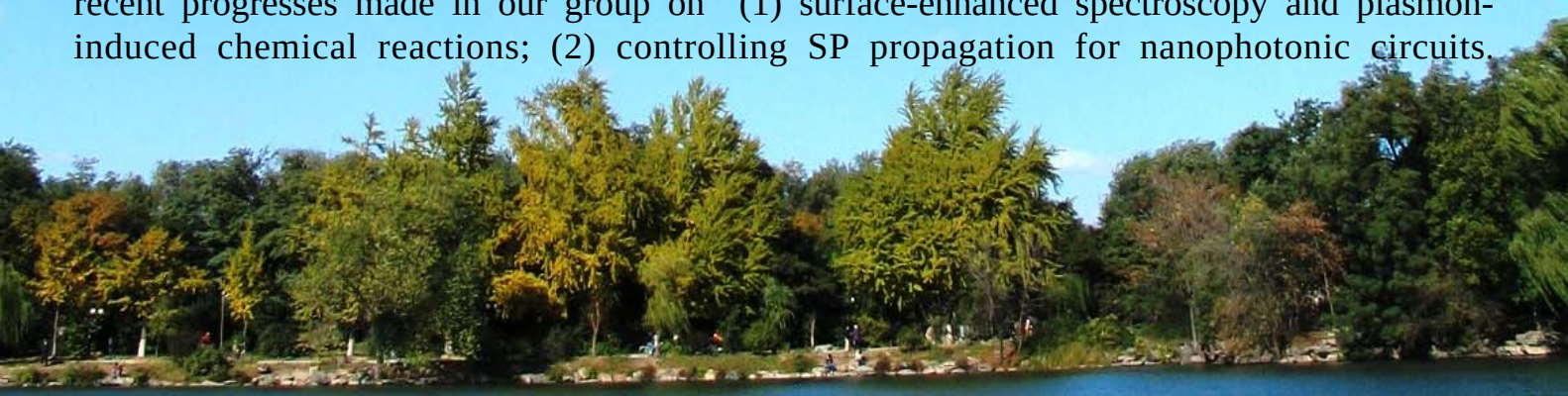
时间：4月17日（星期四）15:00—16:30

地点：北京大学物理大楼中212教室

徐红星， 中国科学院“百人计划”，物理研究所研究员，2006年获国家杰出青年科学基金资助，2009年起担任中科院物理所纳米物理与器件实验室主任。长期从事等离激元光子学及相关方面的研究，主要工作集中在金属纳米结构的等离激元光子学特性、单分子表面增强光谱和等离激元纳米波导与集成芯片的研究，是单分子表面增强光谱领域的开创者之一，首次实现了基于等离激元的纳米全光逻辑，为未来光信息处理技术提供了新的可能性。在包括Nat. Commun., Phys. Rev. Lett., J. Am. Chem. Soc., PNAS, Nano Lett.等的国际著名科学杂志发表论文100余篇，被SCI杂志引用6000余次。

Abstract: The excitation of surface plasmons (SPs), makes metal nanostructures show many novel optical properties. The localized surface plasmon resonances (LSPRs) in metal nanostructures can result in a largely enhanced electromagnetic field, which is the physical basis for surface-enhanced spectroscopy. The huge enhancement greatly improves the sensitivity of Raman spectroscopy, and even single molecules can be detected. In one dimensional nanostructures, SPs can propagate with electromagnetic field tightly confined around the nanostructures, which can be used to realize light transmission beyond the diffraction limit and build nanophotonic circuits. In this presentation, I will talk about the recent progresses made in our group on (1) surface-enhanced spectroscopy and plasmon-induced chemical reactions; (2) controlling SP propagation for nanophotonic circuits.



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Photoed by Xiaodong Hu