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共催：日本表面科学会
(ソフトナノテクノロジー部会・九州支部)

日時：2016年5月31日（火）15:00-16:30
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先導物質化学研究所（CE41）1階 第一会議室

Modern SPRI: Single Nanoparticle SPR Imaging Measurements of Bioaffinity, Uptake and Surface Enzymatic Reactions

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Surface plasmon resonance imaging (SPRI) is a multiplexed method for the detection of protein and nucleic acids used by researchers around the world. By incorporating nanoparticles and surface enzyme chemistries into SPRI measurements, we have been able to detect DNA, RNA and protein biomarkers at extremely low (femtomolar) concentrations. By using near infrared SPRI microscopy to detect the adsorption of single nanoparticles in real time, we can increase the sensitivity of SPRI measurements even further.[1,2] In this talk, I will explain how to use single nanoparticle SPRI microscopy to: (i) obtain digital adsorption binding curves for the ligation capture and detection of single microRNA molecules at femtomolar concentrations, and (ii) measure the specific uptake of peptides and proteins into single NIPAM hydrogel nanoparticles.

1. Aaron R. Halpern, Jennifer B. Wood, Yong Wang and Robert M. Corn, "Single Nanoparticle Near-Infrared Surface Plasmon Resonance Microscopy for Real-Time Measurements of DNA Hybridization Adsorption" *ACS Nano*, 8 1022-1030 (2014).

2. Kyunghye Cho, Jennifer B. Fasoli, Keiichi Yoshimatsu, Kenneth J. Shea and Robert M. Corn, "Measuring Melittin Uptake into Hydrogel Nanoparticles with Near-Infrared Single Nanoparticle Surface Plasmon Resonance Microscopy" *Analytical Chemistry*, 87 4973-4979 (2015).

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