BDR SEMINAR in Kobe

Vahid Sandoghdar

Max Planck Institute for the Science of Light

Sunday, June 23, 2019

10:30-11:45, N701-3 Seminar Room, DB Building A

Detection and Tracking of Single Particles via Interferometric Detection of Scattering

Summary

Proteins and lipids are some of the most ubiquitous and important components of a biological cell. Aside from their structure and chemical properties, the dynamics of these entities plays a decisive role in their function over time scales ranging from sub-nanoseconds to minutes and hours. Thus, it would be extremely insightful if one could monitor the motion of single proteins and lipids with nanometer spatial resolution over many temporal decades. The workhorse of biological imaging, fluorescence microscopy, confronts fundamental limits in satisfying this need. Here, we report on the application of interferometric scattering (iSCAT) microscopy on small gold nanoparticle labels and on unlabeled proteins with unprecedented combination of spatial and temporal resolution. We discuss several studies including diffusion of lipids in model membranes as well as diffusion and transport of membrane proteins and real-time secretion of proteins from a live cell.

Host: Yasushi Okada
Laboratory for Cell Polarity Regulation
y.okada@riken.jp
Tel: 06-6155-0118 (95-6522)

RIKEN Center for Biosystems Dynamics Research (BDR)